MINISTRY OF HEALTH
NATIONAL CENTER FOR AIDS PREVENTION

RESULTS FROM THE HIV BIOLOGICAL AND BEHAVIOURAL SURVEILLANCE IN THE REPUBLIC OF ARMENIA

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Abbreviations/Acronyms

AIDS	Acquired Immunodeficiency Syndrome
SWs	Sex Workers
DNA	Deoxyribonucleic Acid
ELISA	Enzyme-Linked Immunosorbent Assay
HIV	Human Immunodeficiency Virus
PWID	Persons Who Inject Drugs
MSM	Men who have Sex with Men
NCAP	National Center for AIDS Prevention
RA	Republic of Armenia
RDS	Respondent Driven Sampling
RDSAT	Respondent Driven Sampling Analysis Tool
STI	Sexually Transmitted Infection
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organization

Introduction

Due to clinical and epidemiological specificities of HIV infection it is impossible to speak about the HIV epidemic trends based only on the number of registered HIV cases. Biological and behavioural HIV surveillance is conducted regularly to measure HIV prevalence, to monitor the epidemic trends over time.

This surveillance was conducted with practical application of the second generation surveillance principles.

Second generation surveillance system allows to yield information that is most useful in reducing the spread of HIV, in monitoring epidemic trends and in planning provision of treatment and care to people living with HIV. That means tailoring the surveillance system to the state and pattern of the epidemic in the country, concentrating data collection in the key populations at higher risk of HIV exposure and young people, comparing information on HIV prevalence and on behaviours that spread it, building an informative picture of changes in the epidemic over time.

The goal of biological HIV surveillance was to assess HIV prevalence among key populations at higher risk.

The behavioural HIV surveillance was conducted to identify behaviours driving HIV transmission, and to assess the level of knowledge on HIV prevention.

The biological and behavioural surveillance was combined with the surveillance for other blood-borne infections and some STIs.

Also, the specific uses of biological and behavioural HIV surveillance are to evaluate the success of conducted preventive activities, to design and introduce effective preventive programmes.

Biological and behavioural HIV surveillance is conducted biannually. Geographic areas, sentinel populations, sentinel sites are selected, sample size are determined in advance for conducting the surveillance.

To assess HIV epidemiological situation in the general population, surveillance is conducted for HIV testing of pregnant women and donated blood screening. Biological HIV surveillance among blood donors is conducted regularly on a mandatory basis. Biological HIV surveillance in pregnant women is conducted regularly in medical care facilities within the framework of provider-initiated HIV testing and counselling.

Executive summary

HIV biological and behavioural surveillance was conducted in the Republic of Armenia in 2014. Populations targeted for the surveillance are defined depending on the epidemiological situation, and current data on HIV prevalence in different populations. The following populations vulnerable to HIV were involved in this surveillance: Persons who inject drugs (PWID), Sex workers (SWs), Men who have sex with men (MSM), prisoners, migrants, young people aged 15-24.

HIV Surveillance has been conducted regularly in the Republic of Armenia starting from the year of 2000. However, the combined assessment of HIV infection, STIs, risk behaviours factors and trends in the sentinel populations was initiated in 2010 and continued in 2012 and 2014. As a result of the HIV biological surveys conducted among PWID, CWs, MSM and migrants, the prevalence of HIV infection and syphilis among the above-mentioned populations - PWID, SWs, MSM and migrants - in the selected sites was measured. Also, the prevalence of hepatitis C among PWID, the prevalence of hepatitis B among MSM, the prevalence of gonorrhoea and trichomoniasis among SWs and the prevalence of hepatitis B and C among the migrants were measured.

The vital part of the behavioural surveys is the monitoring of higher risk among key population. These activities have allowed to generate preventive intervention coverage. The obtained data would be used for evaluating the success of implemented preventive activities, for advocacy and policy-making and for estimating the size of PWID, SWs, MSM populations.

The HIV biological and behavioural surveillance was conducted in accordance with the HIV Surveillance National Protocol and Operational Manual, approved by the order of the Minister of Health of the Republic of Armenia on 23 September 2010. The HIV Surveillance National Protocol and Operational Manual define the criteria for selection of sentinel populations and sites, sample sizes, methods of collecting blood specimens for laboratory testing, procedures of samples transportation and storage, methods of HIV surveillance, and of the obtained data processing and analysis.

HIV biological and behavioural surveillance was conducted among PWID, SWs, MSM in Yerevan, Gyumri and Vanadzor cities.

Biological and behavioural surveillance was conducted among the migrants in the rural communities of Shirak, Lori, Kotayk, Gegharkunik, Armavir and Ararat marzes (the country administrative divisions).

Behavioural surveillance was conducted among the young people - students from specialized secondary and higher educational institutions in Yerevan city.

Behavioural surveillance was conducted the prisoners in all criminal-executive institutions in the country.

Respondent driven sampling was used to conduct surveillance among PWID, SWs, and MSM, time-location sampling for was used the migrants, cluster sampling method - for the young people, systematic or simple random sampling - for the prisoners.

Key results

Persons who inject drugs

- HIV prevalence among PWID in Yerevan city was 4%, in Vanadzor city – 3.8%. No case of HIV infection was detected among PWID in Gyumri city.
- Syphilis prevalence among PWID in Yerevan city was 3.7%.
- The highest Hepatitis C prevalence among PWID was Vanadzor city making up 81.8%, this indicator in Yerevan city was 52.1%, and the lowest prevalence was in Gyumri city making up 14.1%.
- The indicator of knowledge about HIV prevention among PWID varied significantly, ranging from 59.2% (Vanadzor city) to 88.9% (Gyumri city). This indicator made up 60.9% among PWID in Yerevan city.
- The indicator of using sterile needle and syringe last time they injected drugs was 97.1% among PWID in Yerevan city, 99% among PWID in Vanadzor city and 100% - among PWID in Gyumri city.
- The absolute majority (97.1%) of PWID in Yerevan city, almost all (99%) of PWID in Vanadzor city and 100% of PWID in Gyumri city used sterile needle and syringe last time they injected drugs.
- Only 40.3% of the surveyed PWID in Yerevan city, 69.5% in Vanadzor city and 86.2% in Gyumri city used condoms at last sex.
- Consistent condom use with casual partners was comparatively high among PWID in Gyumri city, making up 84.1%. This figure was 65.2% for PWID in Vanadzor city and the lowest (54.2%) for PWID in Yerevan city.
- Percentage of PWID tested for HIV in the past 12 months was low in Yerevan and Gyumri cities. 26% of the surveyed PWID in Yerevan city, 38.1% in Gyumri city, and 80.8% in Vanadzor city were tested for HIV in the past 12 months.
- Percentage of PWID exposed to HIV prevention programmes was the highest in Vanadzor city, making up 80%. This figure was 58.7% for PWID in Gyumri city and only 6.3% for PWID in Yerevan city.

Sex Workers

- No case of HIV infection was detected among SWs in Yerevan, Gyumri and Vanadzor cities.
- Syphilis prevalence among SWs in Yerevan city was 0.8%, trichomoniasis prevalence was 20.8%, gonorrhoea prevalence was 3.8%.
- The indicator of knowledge about HIV prevention was comparatively high among SWs in Gyumri and Vanadzor cities (95.5% and 94.6% respectively), and for SWs in Yerevan city this indicator made up 58.6%.
- The indicator of condom use at last sex with non-commercial partners for SWs in Gyumri city made up 59.8%, 55.4% in Yerevan city and 53.2% in Vanadzor city.

Indicator of consistent condom use made up 27.3% among SWs in Gyumri city, 37.8% in Yerevan city and 61.7% in Vanadzor city.

- Condom use with clients was high - 98.6% of SWs in Vanadzor city used condoms at last sex with clients. This figure was 93.9% for SWs in Yereva city and 89.6% in Gyumri city. Indicator of consistent condom use made up 94.9% among SWs in Vanadzor city, 91.9% of SWs in Yerevan city, 57.7% of SWs in Gyumri city.
- The percentage of SWs tested for HIV in the past 12 months made up 100% in Vanadzor city, 91.7% - in Gyumri city and 56.7% - in Yerevan city.
- Percentage of SWs exposed to HIV prevention programmes was the highest in Vanadzor city, making up 100%. This figure was 97.4% for SWs in Gyumri city and comparatively lower for SWs in Yerevan city (65.8%).

Men who have Sex with Men

- HIV prevalence among MSM in Yerevan city was 0.4%, in Gyumri city was 1.4%, in Vanadzor city - 1.9%.
- Syphilis prevalence among MSM in Yerevan city was 1.8%.
- Hepatitis B prevalence among MSM in Yerevan city was 1.1%, in Gyumri city - 1.4%, in Vanadzor city - 1.6%.
- The indicator of knowledge about HIV prevention among MSM in Gyumri city made up 69.8%, in Yerevan city - 78.9%, and in Vanadzor city - 85.7%.
- 59.3% of MSM in Vanadzor city, 69% of MSM in Gyumri city, 87.4% of MSM in Yerevan city used condoms at last sex with casual partners.
- Consistent condom use with casual partners was 25.9% in Gyumri city, 34.2% in Vanadzor city and 69% in Yerevan city.
- Consistent condom use with all sexual partners made up 77.1% in Vanadzor city, 35.4% in Yerevan city, and 1.9% - in Gyumri city.
- Percentage of MSM tested for HIV in the past 12 months varied significantly across the three cities. If it made up 51.2% in Yerevan city, and 22.5% in Gyumri city, so this figure was only 8.9% for MSM in Vanadzor city.
- The percentage of MSM exposed to HIV prevention programmes made up 69.8% in Vanadzor city, whereas this figure for MSM in Yerevan city made up 53.5% for MSM, and in Gyumri city - 19.7%.

Youth

- The indicator of knowledge about HIV prevention among youth was 22.4%.
- Condom use at last sex among the young people was 67.8%.
- More than half (65.1%) the surveyed young people used condoms consistently at sex with casual partners in the past one year.
- In the past 12 months only 4.2% of the surveyed young people were tested for HIV.

Prisoners

- The indicator of knowledge about HIV prevention among prisoners was 38.4%.
- Condom use among the prisoners at last sex was only 72.8%.
- Ninety one percent of those surveyed prisoners used condoms at last sex with casual partners.
- Consistent condom use among the prisoners at sex with their casual partners in the past year was 60.3%.
- The percentage of the prisoners who were HIV tested in the past 12 months was 49.7%.
- In the past 12 months 69.3% of the surveyed prisoners were provided with condoms within the framework of the HIV prevention programmes.
- To the opinion of 93.8% of those surveyed, a prisoner, in case of need, can obtain condoms in criminal-executive institutions. In the same way, 77% of those surveyed indicated that in case of necessity it is possible to obtain injecting equipment in criminal-executive institutions.

Migrants

- HIV prevalence among migrants was 0.4%, hepatitis B prevalence - 0.4%, hepatitis C prevalence - 0.5%
- The indicator of knowledge about HIV prevention among the migrants was 24.4%.
- Last sex condom use in the surveyed migrants was only 25.9%.
- Consistent condom use among the migrants at sex with casual partners in the past year was 48.3%.
- Only 43.4% of the surveyed migrants were tested for HIV in the past 12 months.
- Exposure of the migrants to HIV prevention programmes was only 4.8%.

Recommendations

To strengthen HIV Surveillance to halt the spread of HIV and raise efficiency of the activities on the response to the HIV epidemic.

To strengthen HIV surveillance and early HIV detection among PWID through enhancing HIV counselling and testing services appealability and their provision coverage.

To strengthen STI surveillance and early STI detection among SWs through expansion of STI testing among SWs and their coverage with STI treatment.

To strengthen HIV surveillance and early HIV detection among MSM through enlarging appealability for HIV testing and counselling services, expanding provider-initiated HIV testing and counseling coverage.

To strengthen HIV surveillance and early HIV detection among migrants by enlarging apealability for HIV testing and counselling services and their provision coverage through comprehensive package of HIV services.

To strengthen HIV surveillance and early HIV detection among prisoners through enhancing provider-initiated HIV testing and counselling services.

To strengthen HIV surveillance and early HIV detection among youth through enlarging apealability for HIV testing and counselling services, increasing indicator of HIV prevention knowlege through providing education on the HIV issues and enhancing advocacy of healthy life style.

Taking into account the role of HIV biological and behavioural surveillance in evaluating the success of implemented preventive activities, in developing and introducing effective preventive programmes, it is necessary to conduct the surveillance repeatedly.

Objectives of the Surveillance

The objectives of the Integrated STI and HIV Biological and Behavioural Surveillance in the Republic of Armenia were the following:

- Measure the prevalence of HIV infection among PWID, SWs, MSM and migrants in the selected sites
- Measure the prevalence of hepatitis C among PWID
- Measure the prevalence of hepatitis B among MSM
- Measure the prevalence of syphilis among PWID, SWs, MSM and migrants
- Measure the prevalence of gonorrhoea and trichomoniasis among SWs
- Measure the prevalence of hepatitis B and C among migrants
- Measure key risk behaviours in all populations
- Provide estimates of intervention coverage
- Generate data for evaluating the effectiveness of implemented preventive activities
- Generate key data for advocacy and policy-making
- Generate data for estimating the size of PWID, SWs and MSM populations.

Methodology

1. Geographic areas and populations

HIV biological and behavioural surveillance was conducted among PWID, SWs and MSM in three major cities of the Republic of Armenia - Yerevan, Gyumri and Vanadzor, where 42.2% of the total country population live.

Biological and behavioural surveillance was conducted among the migrants in the rural communities of Shirak, Lori, Kotayk, Gegharkunik, Armavir and Ararat marzes.

Behavioural surveillance was conducted among young people - students from specialized secondary and higher educational institutions in Yerevan city.

Behavioural surveillance was conducted among prisoners. The surveillance covered all criminal-executive institutions in the country.

Criteria for inclusion into the survey

- **Persons who inject drugs** - individuals who used drugs through injection in the last 3 months. The PWID involved in the surveillance were aged 18 or older, were residents of one area and gave their informed consent and willingness to participate in the surveillance.
- **Sex workers** - women who were paid money in exchange for sex in the last 3 months. The SWs involved in the surveillance knew each other, were residents of one area, were aged 18 or older and gave their informed consent and willingness to participate in the surveillance.
- **Men who have sex with men** - men who had sex with male partner in the last 12 months. The MSM involved in the surveillance knew each other, were residents of one area, were aged 18 or older and gave their informed consent and willingness to participate in the surveillance.
- **Prisoners** - individuals who are remand/sentenced in the criminal-executive institutions.
- **Migrants** - working migrants who were abroad for 3 and more months in the last 3 years. The migrants from the rural communities were involved in the surveillance.
- **Youth** - Students aged 15-24 who learn in higher educational and specialized secondary institutions.

2. Sample size

The sample size of the populations involved in the HIV biological and behavioural surveillance was calculated based on the data on their sample size estimation.

The sample size of the populations involved in the HIV biological and behavioural surveillance is presented in Table 1.

Table 1.

The sample size of populations involved in the HIV biological and behavioural surveillance according to the cities			
Surveyed populations	**Yerevan city (n)**	**Gyumri city (n)**	**Vanadzor city (n)**
PWID	300	50	50
SWs	300	50	50
MSM	300	50	50

The sample size of the populations involved in the behavioural surveillance was calculated based on the data (if they are available) on their sample size estimation, and the experience of similar surveillance conducted previously.

The sample sizes of the populations involved in the behavioural surveillance are presented below:

- prisoners - 350 individuals
- migrants - 550 individuals
- youth - 1200 individuals

3. Sampling methods

Sampling methods are presented in Table 2.

Table 2.

Sampling methods according to different populations	
Population	**Used method**
PWID	Respondent driven sampling
SWs	Respondent driven sampling
MSM	Respondent driven sampling
Youth	Two-stage cluster sampling method
Migrants	Time-location sampling
Prisoners	Systematic sampling

3.1. Respondent driven sampling

Respondent driven sampling (RDS) was used to conduct surveillance among PWID, SWs and MSM.

Before the RDS began, formative research was conducted. The researchers conducted focus groups, in-depth interviews, mapping of the target populations and individuals who work with them. Formative research helped to decide whether RDS was an appropriate sampling method for the population under survey (i.e. whether the surveyed population was socially networked), criteria for

seeds were selected, types of incentives were defined, geographical coverage of the surveillance was identified. Also, coupons for the participants were developed during the formative research.

RDS initiated recruitment with non-randomly selected seeds from the target population. Seeds were selected by the survey staff. The selected seeds met the following criteria - belong to the key population group, being well-connected to other members of their social network, being well-regarded by their peers, and understanding clearly the goal of the surveillance. In Gyumri and Vanadzor cities RDS for all the three sentinel populations was conducted through two seeds, and in Yerevan city - through six seeds. The selected seeds recruited their peers, who recruited more peers, etc. The recruited peers met the preliminary identified criteria (they knew each other, were residents of one area, were aged 18 and older and gave their informed consent and willingness to participate in the surveillance).

Candidates for enrolment were screened for eligibility by the survey staff. Screening included availability of a valid coupon, ensuring that a recruit met eligibility criteria.Before obtaining informed consent for participation in the survey eligible participants received a detailed explanation of the survey's purpose, possible risks and benefits from participation in the survey.

All the participants, including seeds, were provided with three coupons each to use in recruiting other participants. Each coupon had special numbers to link behavioral and biological data. The coupons consisted of two parts that could be easily separated. One part of the coupon served as the referral coupon that a recruiter provided to the peer who was recruited into the study. The recruit kept this part of the coupon and used it to enrol in the study. The other part of the coupon served as the payment coupon. It was kept by the recruiter who used it to claim an incentive for having recruited a peer into the study. All the survey participants received incentives. Also, secondary incentive was envisaged for recruiting someone into the study.

Those individuals, who gave their informed consent to participate in the surveillance, participated in the interview and gave biological material for laboratory testing, were enrolled in the surveillance. All the participants were interviewed through the preliminary developed questionnaires. All the data and completed forms were linked to coupons numbers.

Depending on a sentinel site and characteristics of the sentinel populations, 1-12 waves of recruitment made up a recruitment chain.

The interview sites were selected during formative research. They were comfortable, spacious, had sufficient number of rooms - for receiving the participants of the surveillance, interviewing them, for conducting pre- and post-test counselling and for collecting blood samples.

3.2. Systematic or simple random sampling

Systematic or simple random sampling was used to conduct surveillance among prisoners. The surveillance was conducted in 11 criminal-executive institutions.

Each member of the target population had equal probability of being randomly selected. To construct the sampling frame, first of all a random starting point was selected. Then people from the target population were sampled at regular intervals (each x'th person from the list) down the list. The participants gave their informed consent and willingness to participate in the surveillance.

3.3. Two-stage cluster sampling

Two-stage cluster sampling was used to conduct surveillance among youth. The stages of two-stage cluster sampling were as follows: at the first stage clusters (educational institutions) were randomly selected from the total list of all the higher educational and specialized secondary institutions. Medical educational institutions were initially stroked off from the survey. At the second stage certain number of individuals were randomly chosen within selected clusters. The participants gave their informed consent and willingness to participate in the surveillance.

3.4. Time-location sampling

Time-location sampling was used to conduct surveillance among the migrants. The time frame and list of sentinel sites were preliminary developed. The sampling was made through all the participants/population members, who appeared at certain location at the time of the surveillance carrying out. The participants gave their informed consent and willingness to participate in the surveillance.

4. Data collection

The questionnaires included questions, covering all of the basic indicators described above. It took approximately 30 - 40 minutes to complete a questionnaire. Every questionnaire used during RDS included a unique surveillance identification number (ID). ID numbers were also used to label containers of biological specimens. All questionnaires were pre-tested by interviewing representatives of the target populations.

In July 2014 twelve workshops were conducted for the staff involved in the biological and behavioural surveillance.

The following issues were addressed at the workshops: principles of HIV biological and behavioural surveillance, methods and sources of data collection, issues related to the questionnaires and interviewing, ethical considerations, terms of reference for the surveillance staff, and other problems associated with behavioural and biological surveillance.

The workshops participants made some suggestions concerning practical aspects of the surveillance implementation and questionnaires development, which were discussed, and as a result, relevant changes were made.

5. Description of the recruitment

All the participants, including seeds, were provided with three coupons to use in recruiting other participants. In order not to exceed the desired sample size, the number of distributed coupons was reduced to 2 or 1. After the desired sample size was reached, the distribution of coupons was stopped. The coupons were given to participants to be used for recruiting peers into the surveillance and for receiving incentives. They consisted of two parts. One part of the coupon served as the referral coupon that a recruiter provided to the peer who was recruited into the surveillance. The other part of the coupon served as the payment coupon, which was kept by the recruiter who used it

to claim an incentive for having recruited a peer into the surveillance. The coupons were appropriately numbered. Both parts of the coupon had the unique identification number of the recruiter printed on them, as well as the coupon expiration date. A recruit presented the coupon s/he received to the interview site. The first RDS staff member a recruit encountered there was secretary, to whom a recruit gave his/her referral coupon. The secretary checked the coupon validity and after the validation, assessed the recruit's eligibility for being enrolled into the surveillance. If a recruit was eligible, the secretary filled in the appropriate form, to which the coupon was attached. Then the secretary explained in detail the activities conducted within the framework of the surveillance (interview, collecting blood sample for HIV testing, etc.). If a recruit agreed to participate in the surveillance, s/he signed informed consent. Then the secretary escorted the participant to the interviewer.

Interview was conducted with all participants, with the use of preliminary developed questionnaire. After the interview, blood samples were collected from the participants for the laboratory testing (from SWs also swabs were collected) in the biological specimen collection room.

If the interviewed participant wished to receive his/her test result, the counsellor gave him/her pre-test counselling. Upon donating blood, the participants received primary incentives and coupons for recruiting new peers. Secondary incentives were provided for every new recruited peer.

6. Method of assessment of knowledge on HIV prevention

Knowledge about HIV prevention was assessed on the basis of scores of answers to the below questions.

1. Can the risk of HIV transmission be reduced by having sex with only one faithful, uninfected partner?
2. Can the risk of HIV transmission be reduced by using condom?
3. Can a healthy-looking person have HIV?
4. Can a person get HIV through shaking hands with an HIV-infected person?
5. Can a person get HIV by sharing a meal with someone who is infected?

To assess knowledge about HIV prevention among PWID, the fourth and the fifth of the above mentioned questions were changed with the following two questions:

- Is it possible to avoid becoming infected with HIV by switching to non-injecting drugs?
- Is it possible to become infected with HIV by using an injection needle that was already used by someone else?

Knowledge about HIV prevention was assessed based on the correct responses to all the five questions.

7. Method of assessment of exposure to HIV interventions

The indicator of exposure to HIV interventions was calculated from the total number of respondents who replied “yes” to the questions mentioned below:

1. Do you know where you can undergo HIV testing, if you wish to?
2. Have you been provided with condoms during the past 12 months?

For calculating the percentage of PWID exposure to HIV interventions one more question was used.

- Have you been provided with sterile needles and syringes in the last 12 months?

8. Method of assessment of indicator of condom use at last sex among PWID

The indicator of condom use at last sex among PWID was calculated from the total number of respondents who replied “yes” to the questions mentioned below:

1. Have you been injecting drugs in the past one month?
2. Have you had sexual intercourse in the past month?
3. Did you (or your sexual partner) use a condom last time you had sex?

9. Method of assessment of indicator of usage of sterile needle and syringe at last injection

The indicator of usage of sterile needle and syringe at last injection was calculated from the total number of respondents who replied “yes” to the questions mentioned below:

1. Have you been injecting drugs in the past one month?
2. Did you use sterile needle and syringe last time you were injecting drug?

10. Method of assessment of indicator of condom use at last sex with a client among SWs

The indicator of condom use at last sex with a client among SWs was calculated from the total number of respondents who replied “yes” to the question mentioned below:

- Last time you had sex with a client, did you or your client use a condom?

11. Method of assessment of indicator of condom use at last anal sex among MSM

The indicator of condom use at last anal sex among MSM was calculated from the total number of respondents who replied “yes” to the questions mentioned below:

1. Have you had sexual intercourse with a male partner during the last 6 months?
2. Have you had anal sex during that sexual intercourse?
3. Did you use a condom at last anal sex?

12. Laboratory procedure

Blood samples for sentinel HIV surveillance were collected on the sentinel sites. The samples were coded: all the data and completed forms were linked to coupons numbers.

To provide equal quality of testing and results reliability, and to maintain confidentiality, testing was conducted at the NCAP laboratory, except for the testing among migrants, which was conducted locally by NCAP specialists.

The samples were transported to the NCAP laboratory within the deadlines indicated in methodological guidelines approved by the Ministry of Health of the Republic of Armenia and in compliance with the procedures for blood storage and transportation.

Repeated testing of HIV positive blood samples was conducted to minimize the probability of false positive samples (WHO Second Strategy).

To control the quality of HIV laboratory testing, 10% of randomly selected negatively tested samples were tested repeatedly. The test-kits used for the laboratory tests are presented in the Table 3.

Table 3

Test-kits used for the laboratory tests			
Testing	**Test-kit**	**Notes**	**Positive Case**
HIV	Genscreen ultra HIVAg-Ab, Bio Rad	testing of all samples (except for the samples taken from migrants)	Repeated positive results of HIV blood samples testing
	Immuno Chrom -anti HIV 1/2 rapid test, MEDEXPRESS DIAGNOSTIC Ltd.	(testing of samples taken from migrants)	
	AGAT-HIV 1/2, ECOLAB	repeated testing of seronegative samples, testing of seropositive samples	
Hepatitis C	Anti-HCV ELISA, Autobio Rapid Test for Antibody to Hepatitis C Virus (Colloidal Gold Device) – WANTAI Bio-Pharm	except for the samples taken from migrants) (testing of samples taken from migrants)	Positive antibody test
Hepatitis B	ELISA HbsAg, Autobio Rapid Test for Hepatitis B Virus Surface Antigen (Colloidal Gold Device) – WANTAI Bio-Pharm	except for the samples taken from migrants) (testing of samples taken from migrants)	Positive HbsAg test

Syphilis	Syphilis RPR Test, Cormay Syphilis TPHA liquid, Cypress Diagnostics		Positive results of RPR and TPHA tests
Gonorrhoea	Neisseria gonorrhoeae Real-TM (Real Time Amplification Kit), Sacace Biotechnologies	To make extraction Genomic column DNA Express (Column DNA Extraction Kit), Sacace Biotechnologies	Positive PCR test
Trichomoniasis	Trichomonas vaginalis Real-TM (Real Time Amplification Kit), Sacace Biotechnologies		Positive PCR test

13. Monitoring and quality assurance

The National Center for AIDS Prevention of the Ministry of Health of the Republic of Armenia carried out methodological guidance and control over the activities implemented within the framework of the HIV Surveillance.

In the process of the surveillance implementation, monitoring visits were made to the sentinel sites to control the consistency of the conducted surveyed with the requirements of the HIV Surveillance National Protocol and Operational Manual, approved by the Minister of Health of the Republic of Armenia.

14. Data management and analysis

The data obtained from the biological and behavioural HIV surveillance were put to statistical manipulation and were analyzed by the quantitative statistical methods (taking into account the reliability indexes). The data were double-entered to ensure quality of the entry. SPSS, RDSAT software were used for processing and analysing the data.

The analysis of all the groups involved into the survey was performed according to the following sections: major characteristics of a group, biological indicators (only in those groups where biological surveys were combined with the behavioural ones), HIV knowledge, risk behaviours, exposure to HIV interventions.

Also, the description of the major characteristics, the “sketch” of the groups involved in biological and behavioural surveys (PWID, SWs, MSM) was provided. This approach was applied only for the surveys conducted in Yerevan city, where considerable part of the HIV cases have been registered, and where the number of HIV and STI positive cases registered among the groups under survey were allowed making comparative analysis of some characteristics according to serostatus.

15. Ethical considerations

The Ethical Committee of the National AIDS Center of the Ministry of Health of the Republic of Armenia has given sanction to the package of documents on the HIV Biological and Behavioural Surveillance conducted in the country in 2014.

Participation of all respondents in the surveillance was strictly voluntary. The surveillance was anonymous. Written informed consent was obtained from the respondents participating in the biological and behavioural surveys, and verbal informed consent - from those participating only in the behavioural surveys. All the participants were informed that no personal identifiers would be indicated on the questionnaire or on blood sample, and the data obtained from the interview would be analysed in the context of the whole target population, and would not be linked back to persons. The participants were informed also that they can stop the interview at any time.

Complete confidentiality of the surveillance was maintained.

The participants were informed on when and where they could receive their test results. Those who wanted to receive their test results were provided with post-test counselling.

During post-test counselling the participants tested positive for HIV were informed on the necessity of undergoing further testing. They were referred to the National Center for AIDS Prevention for final diagnosis, and, as needed, for receiving appropriate treatment.

The participants tested positive for STIs were referred to the specialized services for undergoing further testing and, as needed, for receiving appropriate treatment.

The participants tested positive for viral hepatices were referred to relevant specialists for receiving necessary specialized assistance.

Post-test counselling for all the participants, whose test results were negative, was focused on the methods and means of HIV prevention, and on encouraging safer behaviour.

Results

1. Persons who inject drugs

1.1. Persons who inject drugs (Yerevan city)

Biological and behavioural surveys were conducted among PWID in Yerevan city.

A total of 300 PWID with the mean age of 44.2 and the median of 44 were surveyed.

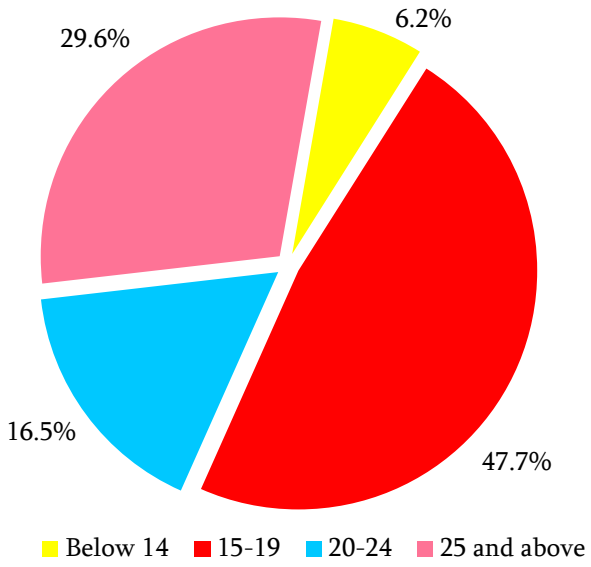
Major characteristics of the PWID surveyed in Yerevan city are presented in Table 4. More details on this can be found in Appendix 1.

Table 4.

Characteristics of PWID (Yerevan city)	
Gender	**n=300**
Male	96.1%
Female	3.9%
Age group	**n=300**
Below 30	8.4%
30 and above	91.6%
Age	**n=300**
Mean age	44.2
Median	44
Age at first drug use	**n= 300**
Mean age	20.3
Median	18.5
Age at first sex	**n=300**
Mean age	17.1
Median	17
Number of casual partners in the past 1 year	**n=162**
Average number	5.4

64.2% of those surveyed started using drugs at the age of 15-24 (Figure 1). Mean age of their first experience in drug use was 20.3, and the median was 18.5.

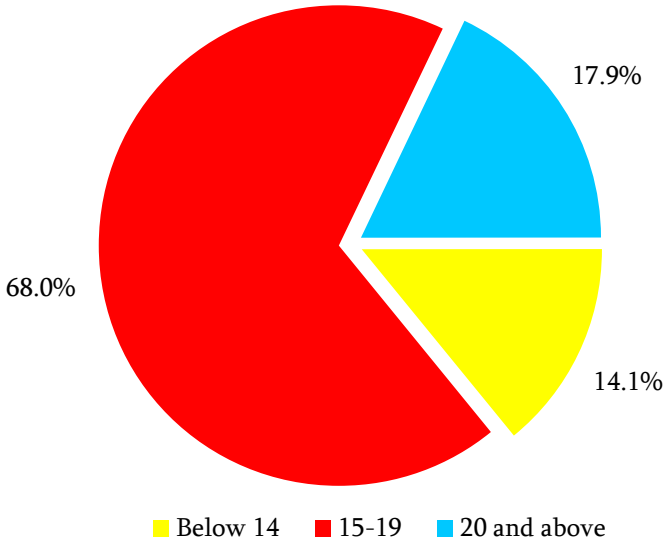
Figure 1. *Age of PWID at first drug use experience (Yerevan city)*



The overwhelming majority of those surveyed (80.3%) used injecting drugs in the last 1 month.

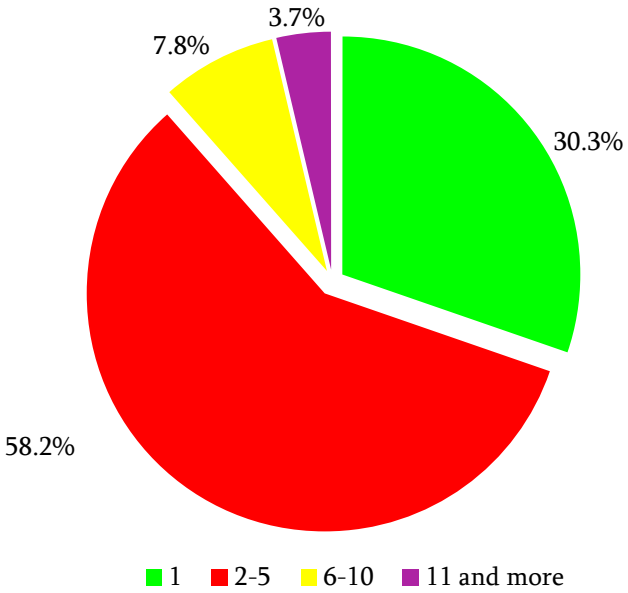
The age at first sex of 68% of the surveyed PWID was 15-19 (Figure 2). The mean age at their first sex was 17.1, and the median was 17.

Figure 2. *Age of PWID at their first sex (Yerevan city)*



Having sex with casual partners in the past year was reported by 48.3% of the surveyed PWID, whereas, the majority of them (69.7%) had two or more casual partners (Figure 3).

Figure 3. *Number of casual partners of PWID in the past year (Yerevan city)*



The risk of HIV infection was not perceived by 39.2% of the surveyed PWID.

Biological Indicators

Biological surveillance was conducted among PWID in Yerevan city to assess the prevalence of HIV, syphilis, hepatitis C among them (Figure 4).

HIV prevalence

HIV prevalence among PWID in Yerevan city was 4% (1.8-6.7% 95% CI).

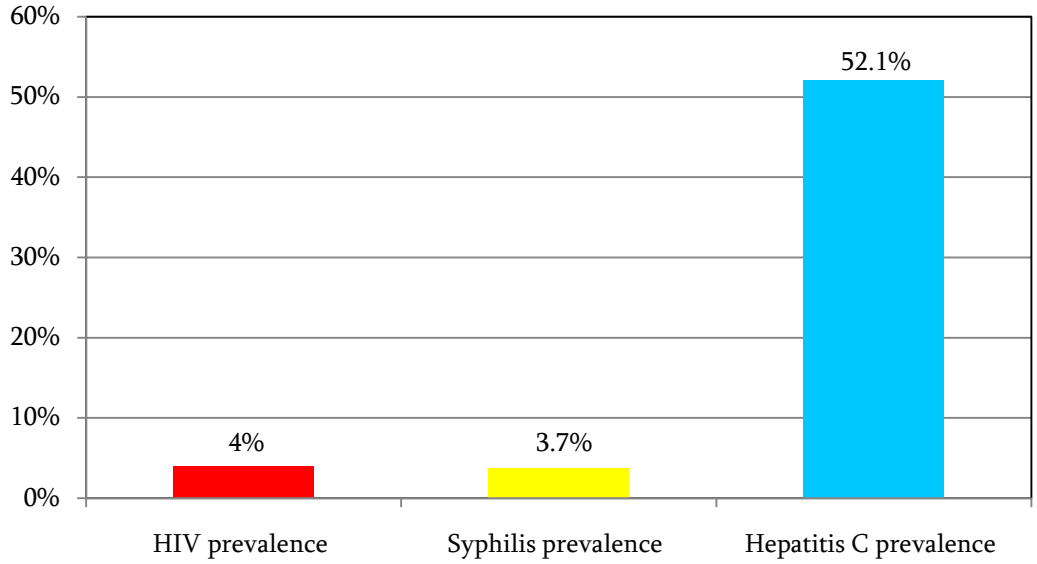
Syphilis prevalence

Syphilis prevalence among PWID in Yerevan city was 3.7% (0.8-8.4% 95% CI).

Hepatitis C prevalence

Hepatitis C prevalence among PWID in Yerevan city was 52.1% (43.7-60.1% 95% CI).

Figure 4. *Biological indicators among PWID in Yerevan city*



Knowledge

The percentage of those surveyed who believed that it is possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner was 90.7%, 86.4% thought that condom use can reduce the risk of HIV transmission. The overwhelming majority (82.5%) of those surveyed knew that a healthy-looking person can be HIV-infected. 87.5% of the surveyed PWID knew that it is impossible to get HIV through shaking hands with an HIV-infected person, and 81% considered it to be impossible to get HIV by sharing a meal with an HIV-infected person.

The percentage of the surveyed PWID who knew that it is possible to get HIV by getting injections with a needle that was already used by someone else was 97.4%, and 79.7% believed that one can avoid HIV transmission by switching to non-injecting drug use.

HIV knowledge of the surveyed PWID was 60.9%.

Risk behaviour

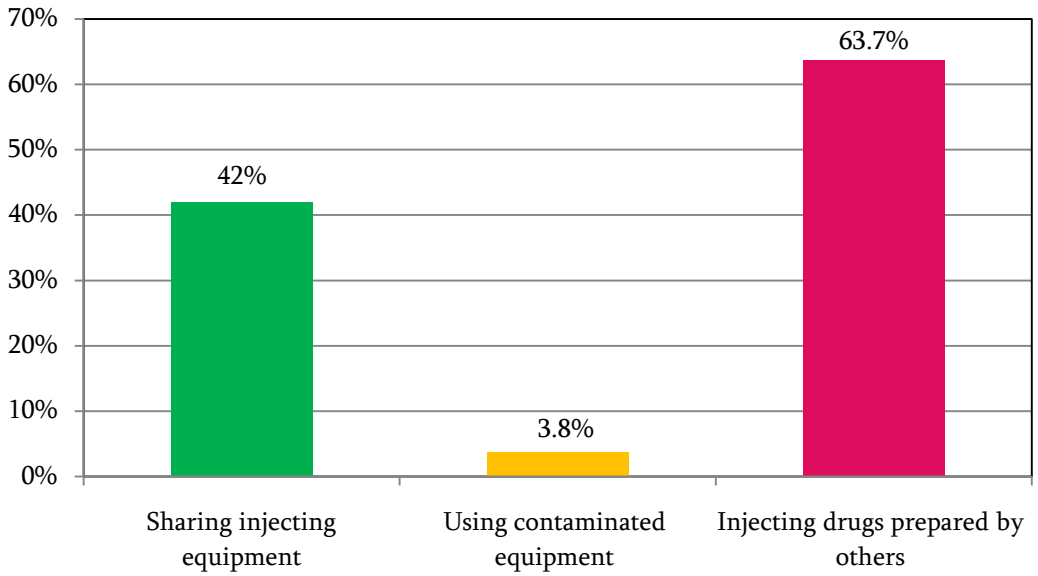
Only 3.8% of those surveyed PWID used contaminated injecting equipment in the last 1 month, and injecting equipment sharing was reported by 42%. HIV prevalence was 5.2% among those who shared injecting equipment in the last 1 month, and 2.9% - among those who did not share it.

The percentage of those surveyed who reported ever injecting drugs prepared by others was 63.7%.

The absolute majority (97.1%) of PWID reported using sterile needle and syringe in the last injection.

Some risk factors of drug injecting among PWID in Yerevan city are presented in Figure 5.

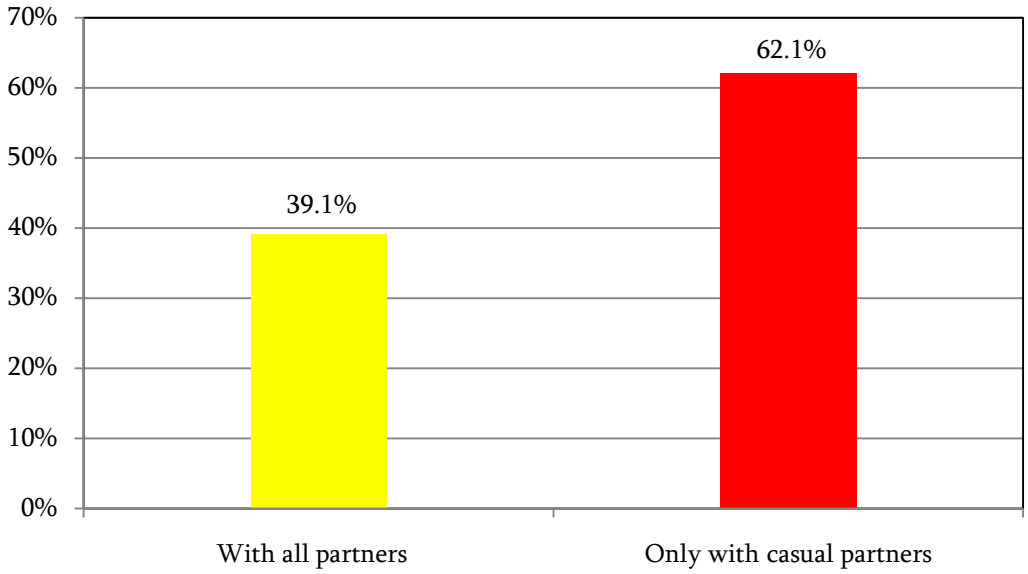
Figure 5. *Some risk factors of drug injecting among PWID in Yerevan city*



82.7% of PWID had sexual intercourse in the past 30 days, of whom 40.3% used condoms at last sex.

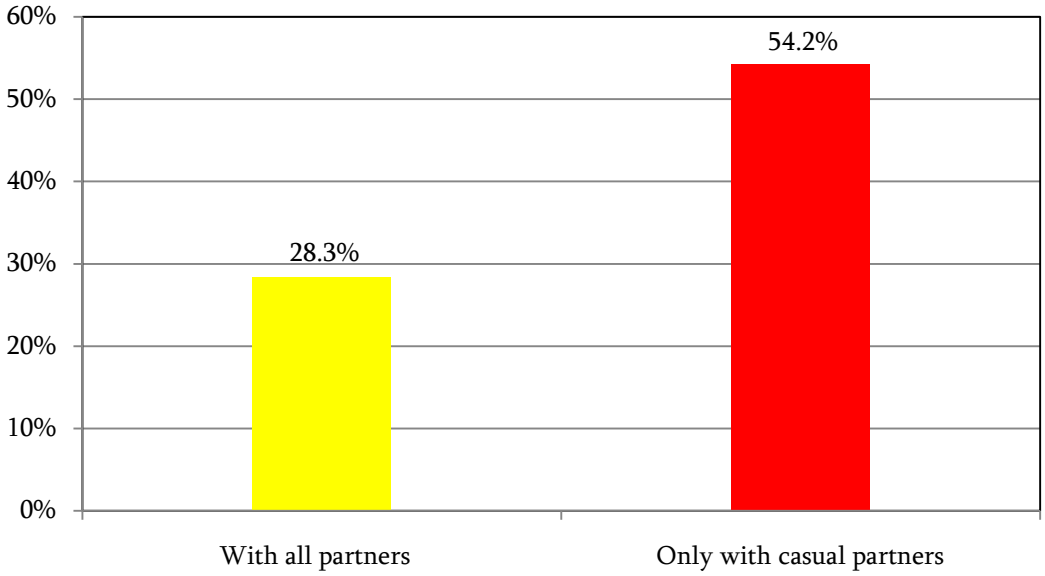
48.3% of the surveyed PWID had sex with casual partners in the last 1 year, and 62.1% - of them used condoms at last sex with those partners (Figure 6).

Figure 6. *Condom use among* PWID *at last sex (Yerevan city)*



More that half (54.2%) of the surveyed PWID consistently used condom at sex with casual partners in the last 1 year. Only 28.3% PWID consistently used condom at sex with all partners in the last 1 year (Figure 7).

Figure 7. *Consistent condom use among PWID in Yerevan city*

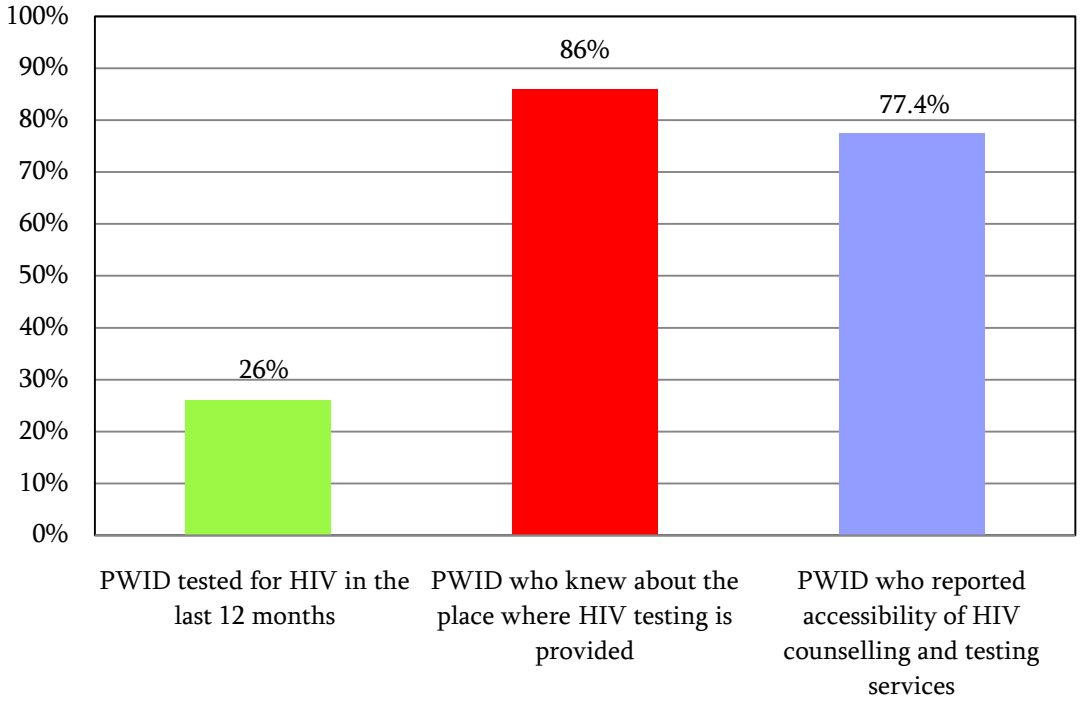


The percentage of HIV positive PWID who used condoms consistently in the last 1 year was 19.4%.

Exposure to HIV interventions

The overwhelming majority (86%) of the surveyed PWID knew where they could undergo HIV testing if they wish to, and 77.4% indicated that the services providing counselling and testing on HIV were accessible/available for them. In the past 12 months only 26% of the surveyed PWID were tested for HIV. The overwhelming majority (96%) of the surveyed PWID applied for the testing results information and received it (Figure 8).

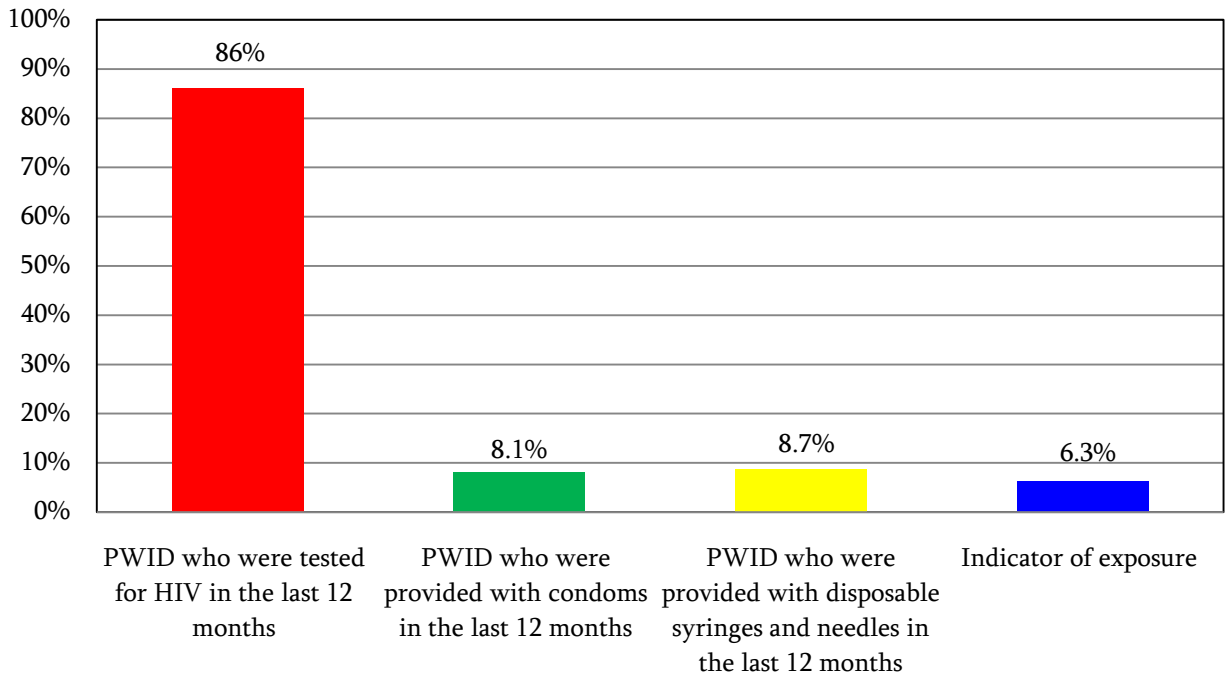
Figure 8. *Accessibility/availability of HIV counselling and testing services for PWID in Yerevan city*



During the past 12 months 8.1% of those surveyed were provided with condoms, and 8.7% of the PWID indicated about being provided with disposable syringes and needles.

Exposure to HIV prevention programmes of PWID in Yerevan city was 6.3% (Figure 9).

Figure 9. *Exposure to HIV interventions of PWID in Yerevan city*



Description of the major characteristics of PWID

Mean age of PWID in Yerevan city was 44.2, and the median was 44. Males made up 96.1% of those involved into the survey, females - 3.9%. Those having secondary education made up 68.6%, those married - 67.3%.

64.2% of those surveyed started using drugs at the age of 15-24.

Mean age of the first experience in drug use was 20.3.

The overwhelming majority of those surveyed (80.3%) used injecting drugs in the last 1 month.

Injecting equipment sharing in the last 1 month was reported by 42%, and 63.7% ever injected drugs prepared by others. The percentage of PWID who reported using sterile needle and syringe in the last injection was 97.1%.

The age at first sex of 68% of the surveyed PWID was 15-19. Their mean age at first sex was 17.1.

The pecentage of the surveyed PWID reported having sex with casual partners in the past year was 48.3%, whereas, the majority of them (69.7%) had two or more casual partners. The average number of casual partners was 3.

Consistent condom use by those surveyed at sex with casual partners in the last 1 year was 54.2%, and at sex with all partners - 28.3%%.

HIV knowledge of the PWID was 60.9%. The PWID who did not perceive their risk of HIV infection made up 39.2%.

In the past 12 months only 26% of the surveyed PWID were tested for HIV. Ninety six percent of them applied for the testing results information and received it.

Exposure to HIV prevention programmes of PWID in Yerevan city was 6.3%.

HIV prevalence among PWID in Yerevan city was 4%. Mean age of HIV seropositive PWID was 40.6.

Injecting equipment sharing in the last 1 month was reported by 56.7% (n=7) of the HIV seropositive PWID. At the same time, 41.4% (n=139) of the seronegative PWID shared injecting equipment in the last 1 month.

Consistent condom use by HIV seropositive PWID at sex with all their partners over the past 1 year was only 19.4% (n=3), and with casual partners - 0% (n=1). At the same time 29% of the HIV seronegative PWID used condoms consistently at sex with all their partners over the past 1 year and 56.1% - with casual partners.

Syphilis prevalence among PWID in Yerevan city was 3.7%.

Hepatitis C prevalence among PWID in Yerevan city was 52.6%.

1.2. Persons who inject drugs (Gyumri city)

Biological and behavioural surveys were conducted among PWID in Gyumri city.

A total of 50 PWID with the mean age of 37.5 and the median of 39 were surveyed.

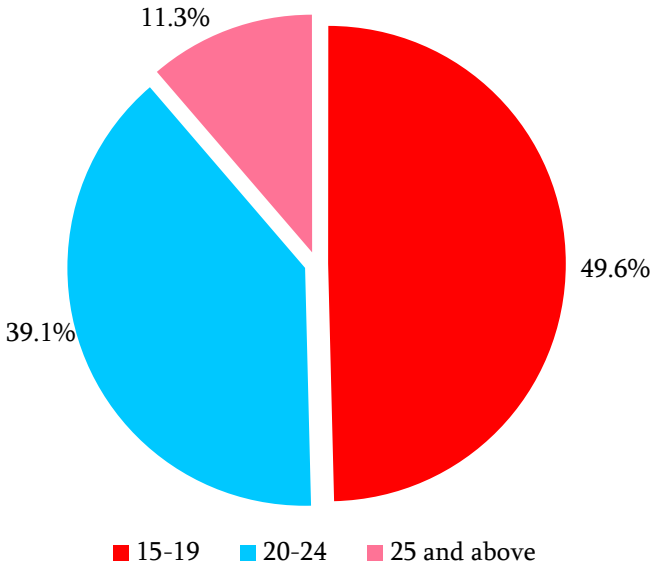
Major characteristics of the surveyed PWID are presented in Table 5. More details on this can be found in Appendix 1.

Table 5.

Characteristics of PWID (Gyumri city)	
Gender	**n=50**
Male	97.4%
Female	2.6%
Age group	**n=50**
Below 30	46.4%
30 and above	53.6%
Age	**n=50**
Mean age	37.5
Median	39
Age at first drug use	**n=50**
Mean age	21
Median	20.5
Age at first sex	**n=50**
Mean age	17.1
Median	17
Number of casual partners in the past 1 year	**n=45**
Average number	2.4

49.6% of those surveyed started using drugs at the age of 15-19 (Figure 10). Mean age of their first experience in drug use was 21, and the median was 20.5.

Figure 10. *Age of PWID at their first drug use experience (Gyumri city)*

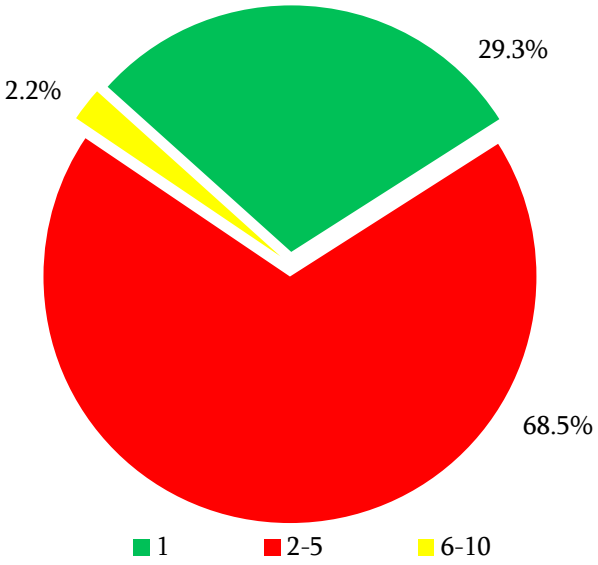


All those surveyed injected drugs in the last 1 month.

The age at first sex of 97.8% of the surveyed PWID was 15-19. The mean age at their first sex was 17.1.

Sex with casual partners in the past 1 year was reported by 90% of the surveyed PWID, whereas, the majority of them (70.7%) had two or more casual partners (Figure 11).

Figure 11. *Number of casual partners of PWID in the past year (Gyumri city)*



The percentage of the PWID who did not perceive their risk of HIV infection was 6.5%.

Biological Indicators

Biological surveillance was conducted among PWID in Gyumri city to assess the prevalence of HIV, syphilis, hepatitis C among them.

HIV prevalence

No case of HIV infection was detected among PWID in Gyumri city

Syphilis prevalence

No case of syphilis was detected among PWID in Gyumri city.

Hepatitis C prevalence

Hepatitis C prevalence among PWID in Guymri city was 14.1% (3.8-28.1% 95% CI).

Knowledge

All those surveyed believed that it is possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner, that condom use can reduce the risk of HIV transmission, that it is impossible to get HIV through shaking hands or sharing a meal with an HIV-infected person. 95.4% of the surveyed PWID knew that a healthy-looking person can be HIV-infected.

All the surveyed PWID knew that it is possible to acquire HIV by getting injections with a needle that was already used by someone else and 91.7% believed that one can avoid HIV transmission by switching to non-injecting drug use.

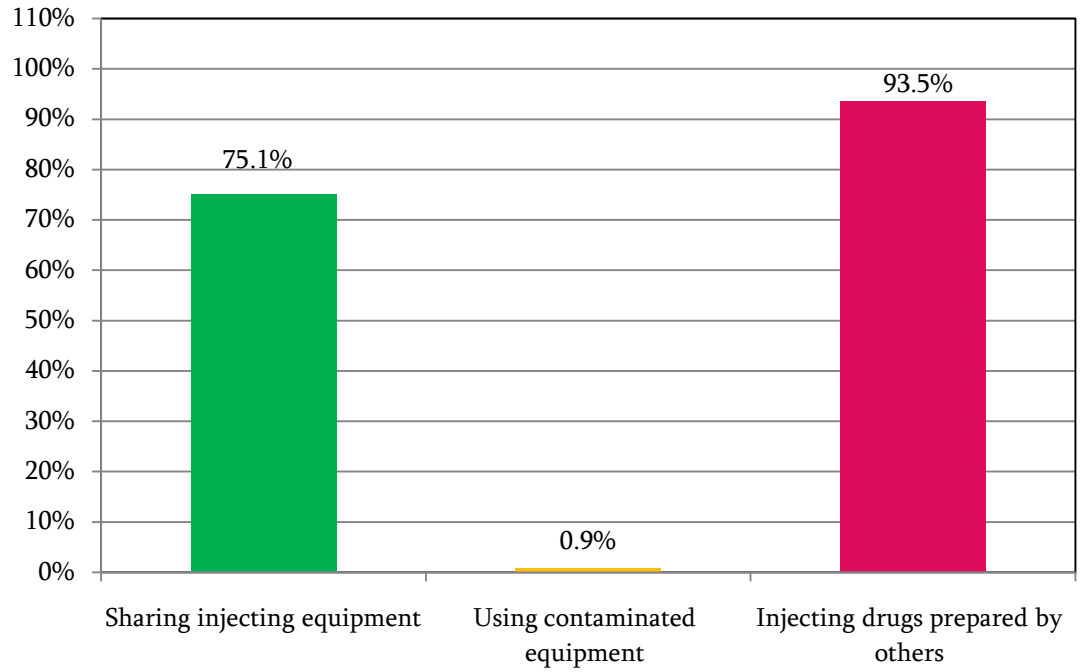
HIV knowledge of the surveyed PWID was 88.9%.

Risk behaviour

Contaminated equipment use in the last 1 month was reported only by 0.9% of those surveyed, injecting equipment sharing - by 75.1%. Ever injecting drugs prepared by others was reported by 93.5% of those surveyed.

Some risk factors of drug injecting among PWID in Gyumri city are presented in Figure 12.

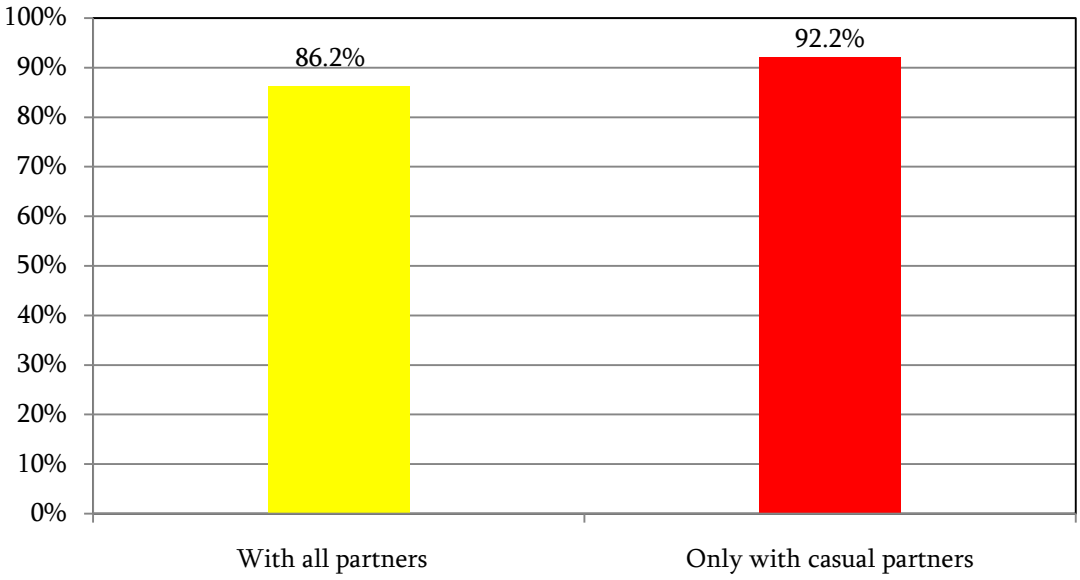
Figure 12. *Some risk factors of drug injecting among PWID in Gyumri city*



All those surveyed used sterile needle and syringe last time they injected drugs.

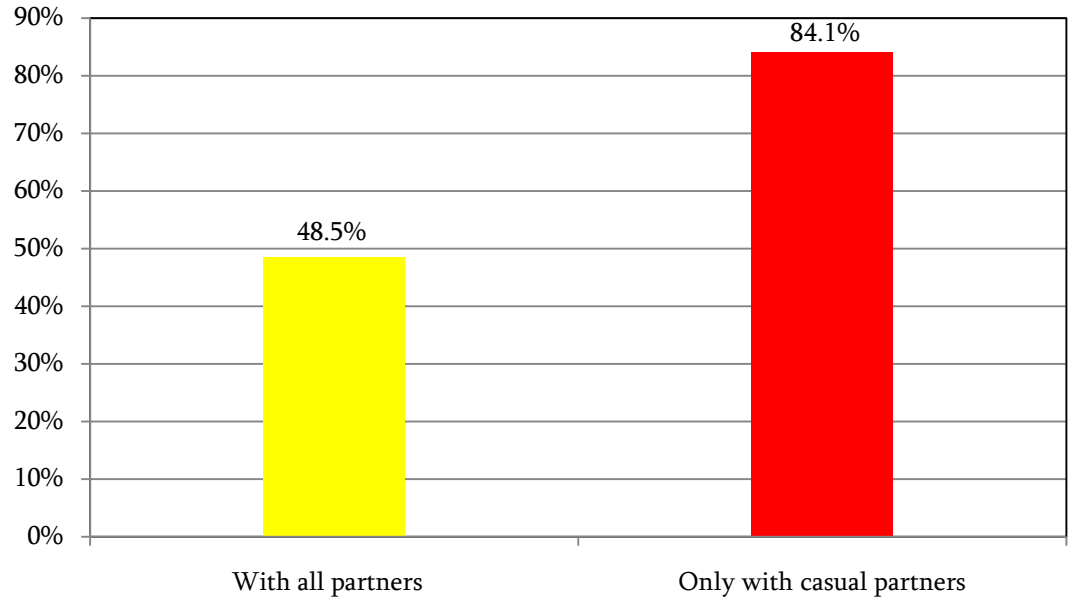
Having sexual intercourse in the past 30 days was reported by 95.4%-of PWID, of whom 86.2%-used condoms at last sex (Figure 13). The overwhelming majority of the surveyed PWID (92.2%) used condoms at last sex with casual partners.

Fifure 13. *Condom use among PWID at last sex (Gyumri city)*



Consistent condom use among PWID with all sexual partners in the last 1 year was 48.5%, with casual partners - 84.1% (Figure 14).

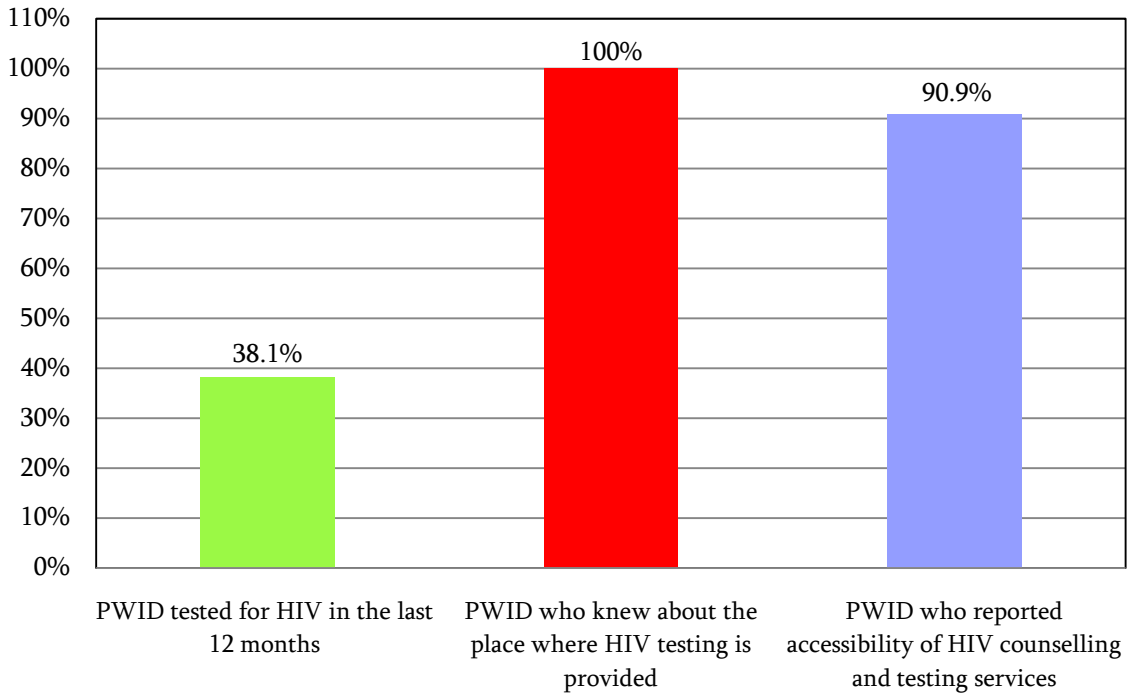
Figure 14. *Consistent condom use among PWID in Gyumri city*



Exposure to HIV interventions

All the surveyed PWID knew where they could undergo HIV testing if they wish to, and 90.9% of those surveyed indicated that the services providing counselling and testing on HIV were accessible/available for them. In the past 12 months 38.1% of the surveyed PWID were tested for HIV, of them 53.6% applied for the testing results information and received it (Figure 15).

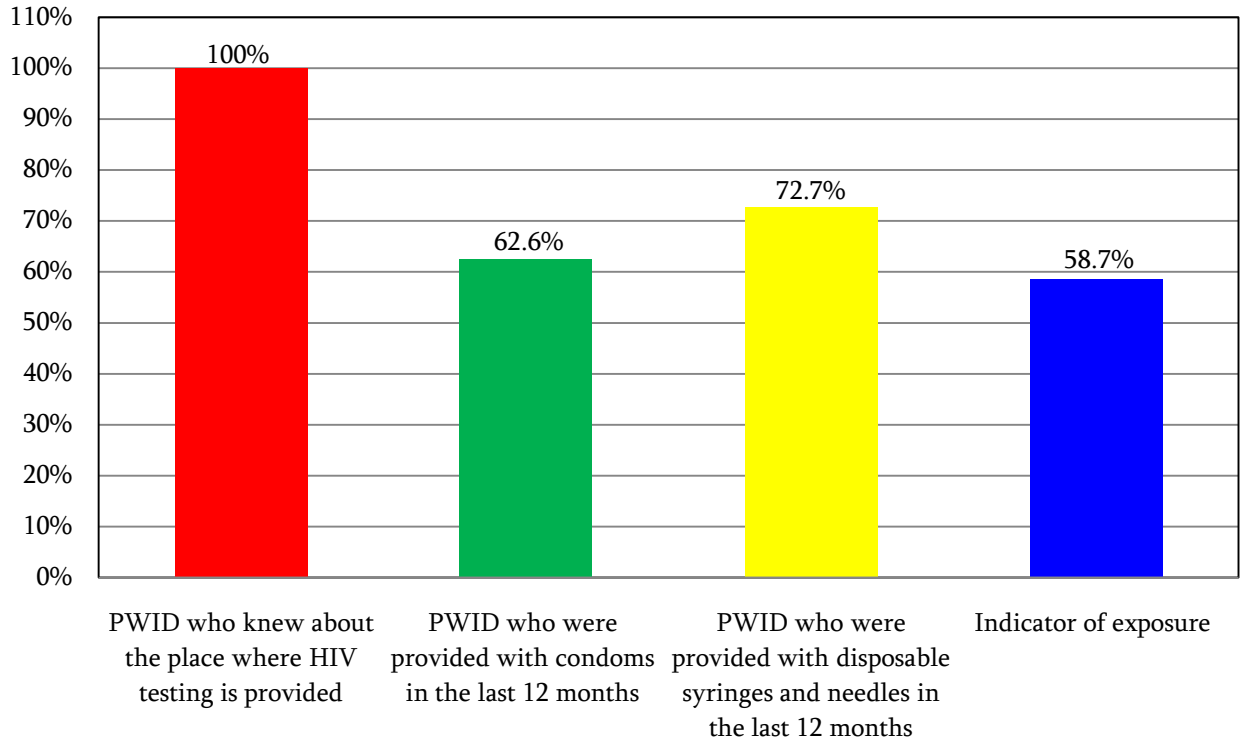
Figure 15. *Accessibility/availability of HIV counselling and testing services for PWID in Gyumri city*



During the past 12 months 62.6% of those surveyed were provided with condoms, and 72.7% of the PWID indicated about being provided with disposable syringes and needles.

58.7% of PWID in Gyumri city were involved in HIV prevention programmes (Figure 16).

Figure 16. *Exposure to HIV interventions of PWID in Gyumri city*



1.3. Persons who inject drugs (Vanadzor city)

Biological and behavioural surveys were conducted among PWID in Vanadzor city.

A total of 50 PWID with mean age of 43 were surveyed.

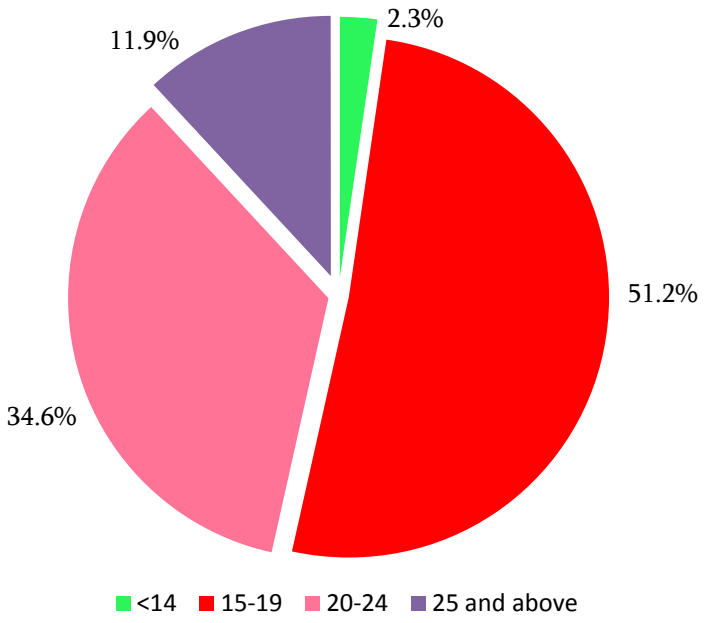
Major characteristics of the surveyed PWID are presented in Table 6. More details on this can be found in Appendix 1.

Table 6.

Characteristics of PWID (Vanadzor city)	
Gender	**n=50**
Male	100%
Age group	**n=50**
30 and above	100%
Age	**n=50**
Mean age	43
Median	42
Age at first drug use	**n=50**
Mean age	19.6
Median	19
Age at first sex	**n=50**
Mean age	16.6
Median	17
Number of casual partners in the past 1 year	**n=34**
Average number	3.1

Age of 51.2% of PWID at their first drug use experience was 15-19 years old (Figure 17). Mean age of their first experience in drug use was 19.6, and the median was 19.

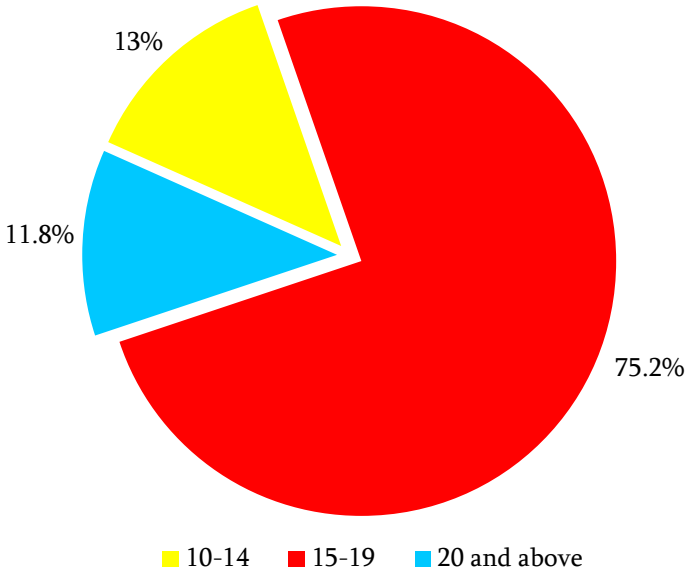
Figure 17. *Age of PWID at their first drug use experience (Vanadzor city)*



The overwelming najority (89.9%) of the surveyed used injecting drugs in the last 1 month.

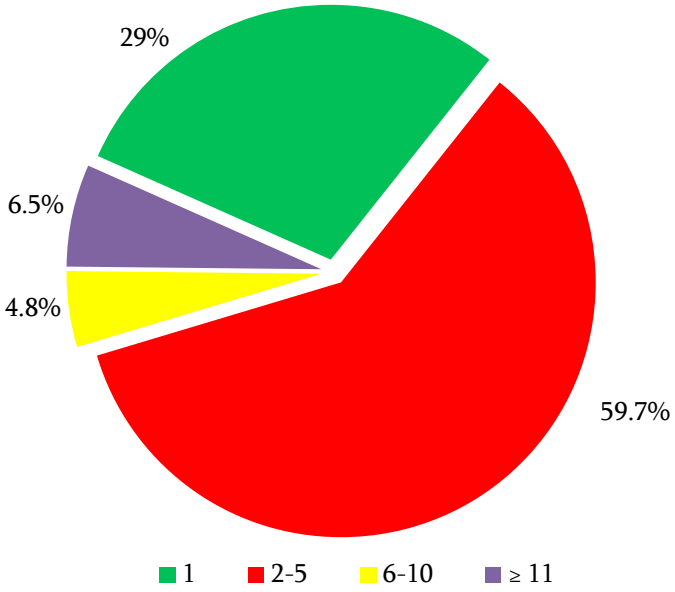
The age at first sex of 75.2% of the surveyed PWID was 15-19 (Figure 18). The mean age at first sex was 16.6, the median was 17.

Figure 18. *Age of PWID at their first sex (Vanadzor city)*



68% of the surveyed PWID reported having sex with casual partners in the past 1 year, whereas, more than half of them (71%) had two or more casual partners (Figure 19).

Figure 19. *Number of casual partners of PWID in the past year (Vanadzor city)*



The percentage of the PWID who did not perceive their risk of HIV infection was 14.9%.

Biological Indicators

Biological surveillance was conducted among PWID in Vanadzor city to assess the prevalence of HIV, syphilis, hepatitis C among them.

HIV prevalence

HIV prevalence among PWID in Vanadzor city was 3.8% (0-8.9% 95% CI).

Syphilis prevalence

No case of syphilis was detected among PWID in Vanadzor city.

Hepatitis C prevalence

Hepatitis C prevalence among PWID in Guymri city was 81.8% (55.1-97.1% 95% CI).

Knowledge

The majority (64.5%) of those surveyed believed that it is possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner. The percentage of PWID identifying that condom use can reduce the risk of HIV transmission was 94.2%. The majority (67.5%) of those surveyed knew that a healthy-looking person can be HIV-infected. The percentage of the PWID rejecting misconception of HIV transmission through shaking hands with an HIV-infected person was 97.9%, and by sharing a meal with an HIV-infected person - 75.9%.

All the surveyed PWID knew that it is possible to get HIV by getting injections with a needle that was already used by someone else and 89.2% believed that one can avoid HIV transmission by switching to non-injecting drug use.

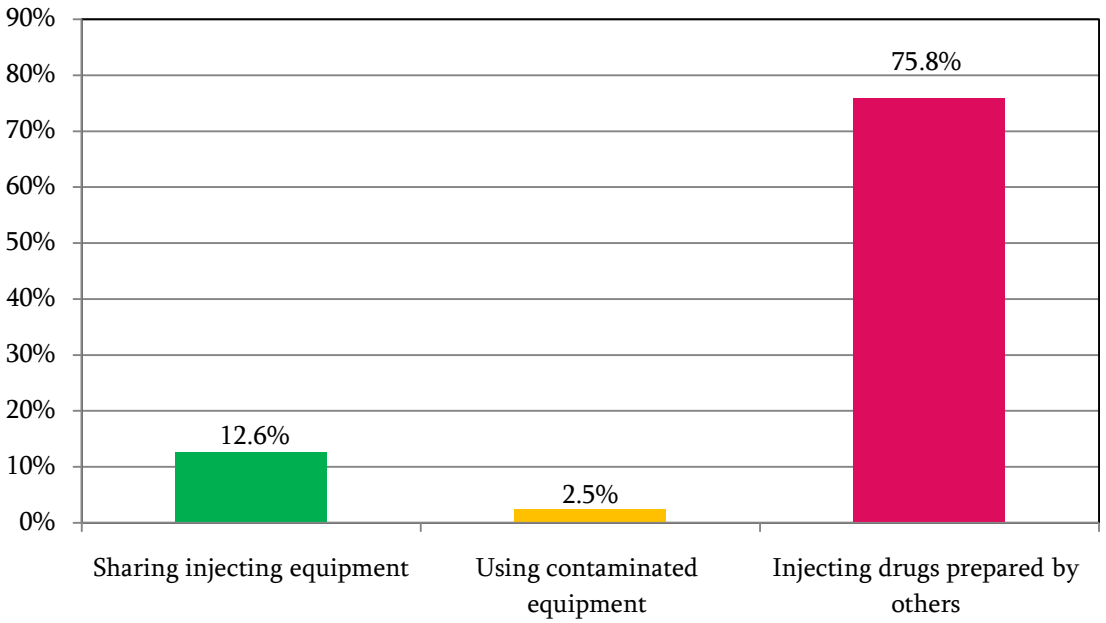
HIV knowledge of the surveyed PWID was 59.2%.

Risk behaviour

Contaminated equipment use in the last 1 month was reported only by 2.5% of those surveyed, injecting equipment sharing - by 12.6%. Ever injecting drugs prepared by others was reported by 75.8% of those surveyed.

Some risk factors of drug injecting among PWID in Vanadzor city are presented in Figure 20.

Figure 20. *Some risk factors of drug injecting among PWID in Vanadzor city*

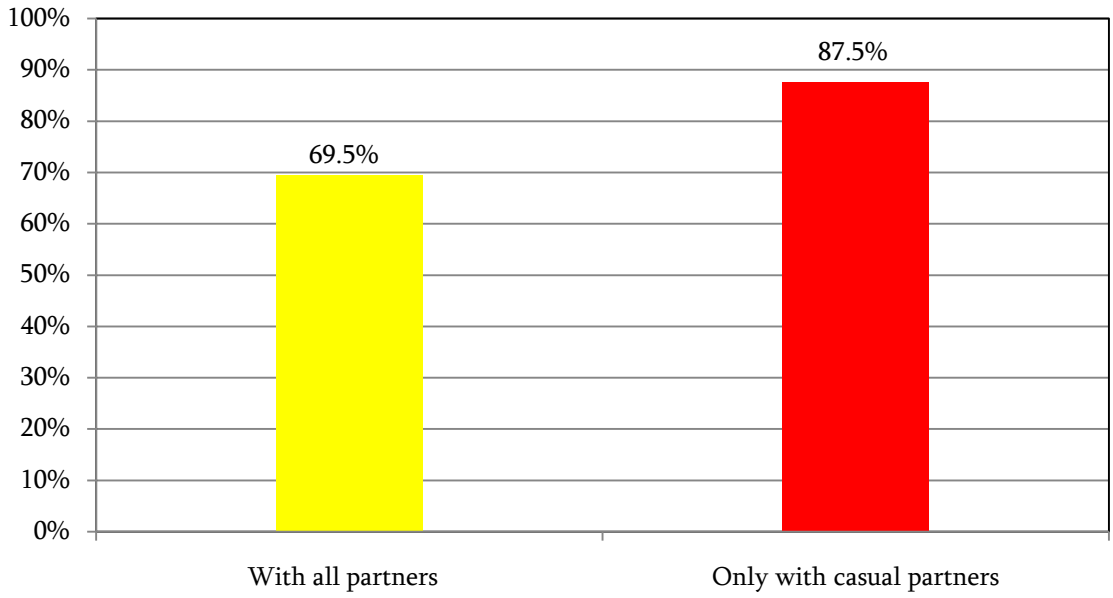


The absolute majority of the surveyed PWID reported using sterile needle and syringe in the last injection was 97.5%.

Having sexual intercourse in the past 30 days was reported by 74.4%of the PWID, of whom 69.5% used condoms at last sex.

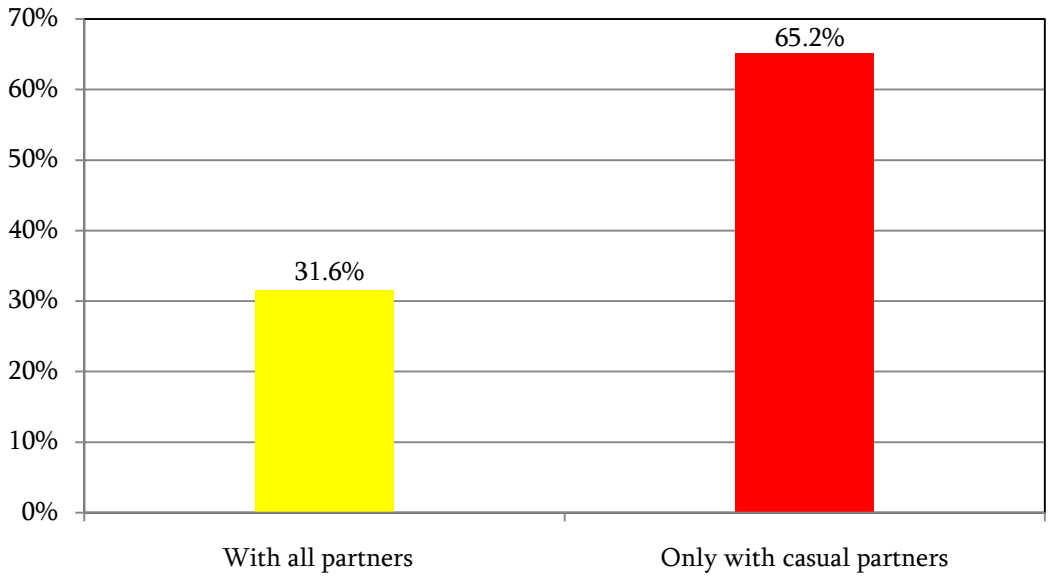
The overwhelming majority of the surveyed PWID (87.5%) used condoms at last sex with casual partners (Figure 21).

Figure 21. *Condom use among PWID at last sex (Vanadzor city)*



Consistent condom use among the PWID at sex with casual partners in the last 1 year was 65.2%, and with all partners - 31.6% (Figure 22).

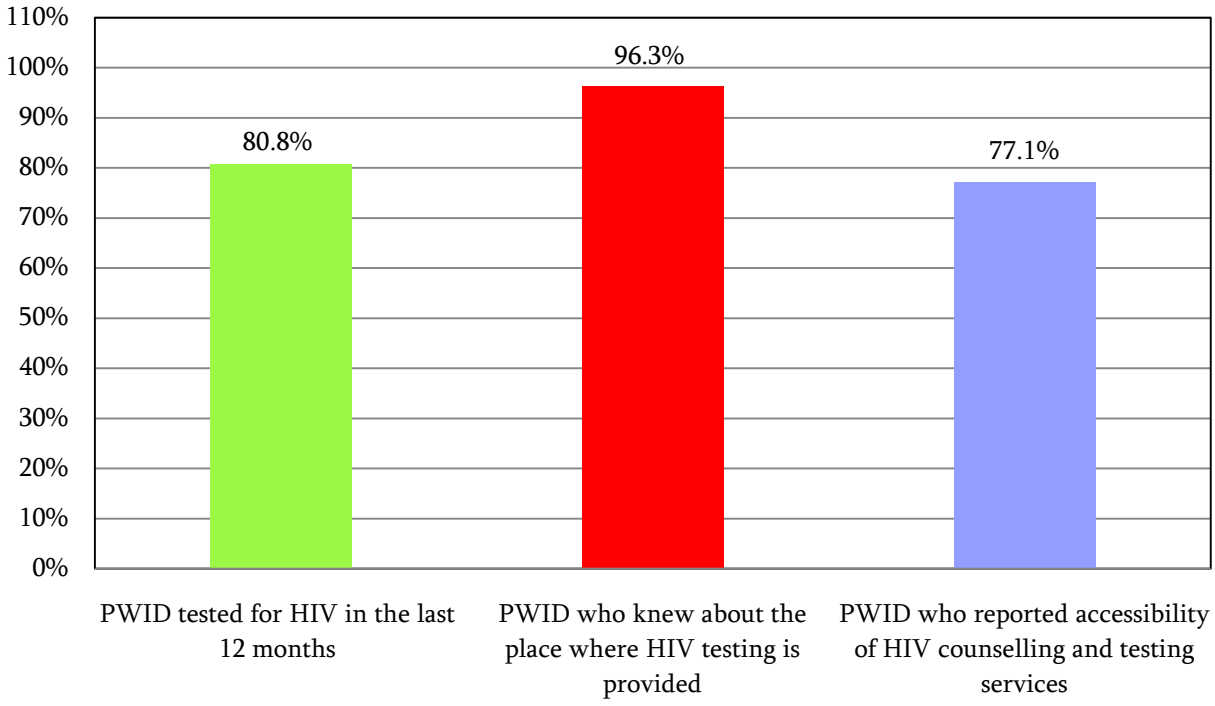
Figure 22. *Consistent condom use among PWID in Vanadzor city*



Exposure to HIV interventions

The percentage of the PWID who knew where they could undergo HIV testing if they wish to, was 96.3%. 77.1% indicated that the services providing counselling and testing on HIV are accessible/available for them. In the past 12 months 80.8% of the surveyed PWID were tested for HIV. 96.6% of them applied for the testing results information and received it (Figure 23).

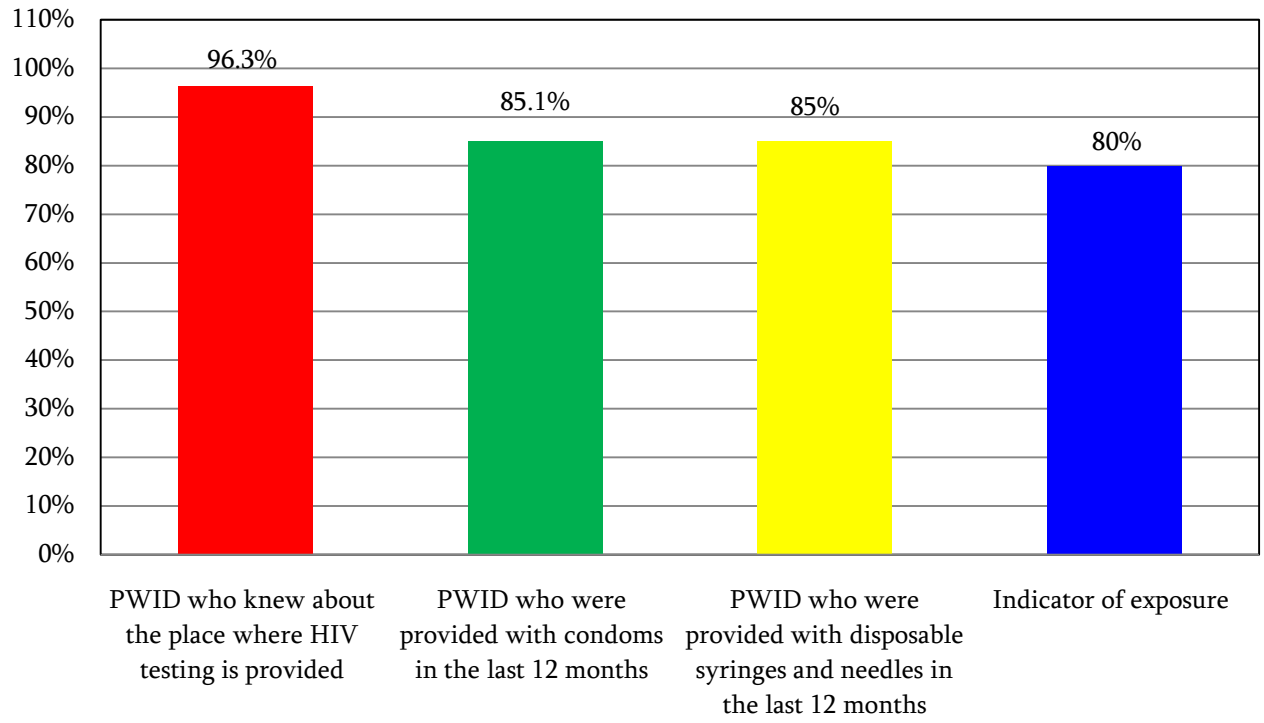
Figure 23. *Accessibility/availability of HIV counselling and testing services for PWID in Vanadzor* city



During the past 12 months 85.1% of those surveyed were provided with condoms, and 85.1% of the PWID indicated about being provided with disposable syringes and needles.

Exposure to HIV prevention programmes of PWID in Vanadzor city was 80% (Figure 24).

Figure 24. *Exposure to HIV interventions of PWID in Vanadzor city*



2. Sex workers

2.1. Sex workers (Yerevan city)

Biological and behavioural surveys were conducted among SWs in Yerevan city.

A total of 300 SWs with the mean age of 35.5 and the median of 35 were surveyed.

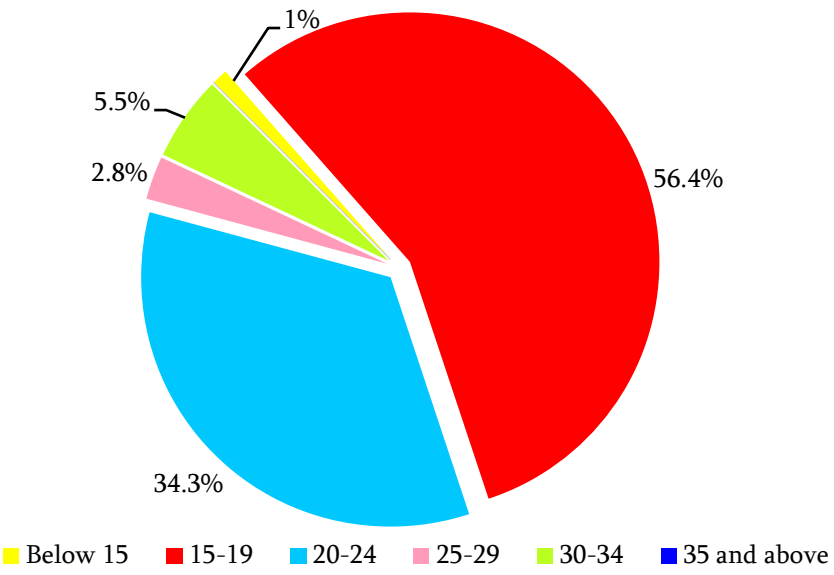
Major characteristics of the surveyed SWs are presented in Table 7. More details on this can be found in Appendix 2.

Table 7.

Characteristics of SWs (Yerevan city)	
Age group	**n=300**
Below 30	30.2
30 and above	69.8
Age	**n=300**
Mean age	35.5
Median	35
Age at first sex	**n=300**
Mean age	19.4
Median	19
Age at first sex in exchange for money	**n=290**
Mean age	25.8
Median	25
Number of clients in the last 1 month	**n=290**
Average number	22

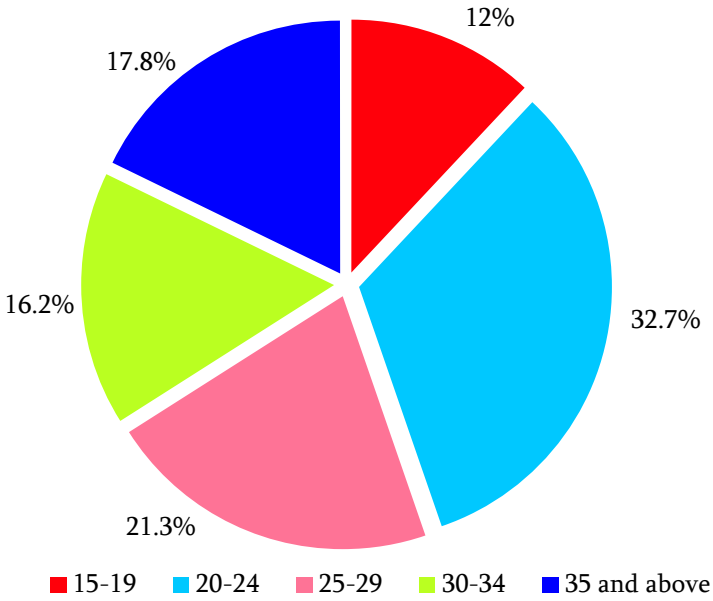
The age at first sex of more than 56.4% of the surveyed SWs was 15-19 (Figure 25). Mean age at first sex of the surveyed SWs was 19.4, and the median was 19.

Figure 25. *Age of SWs at their first sex (Yerevan city)*



Age of 54% of the SWs at their first sex for money was 20-29 years old (Figure 26). Mean age at first sex for money of the surveyed SWs was 25.8, and the median was 25.

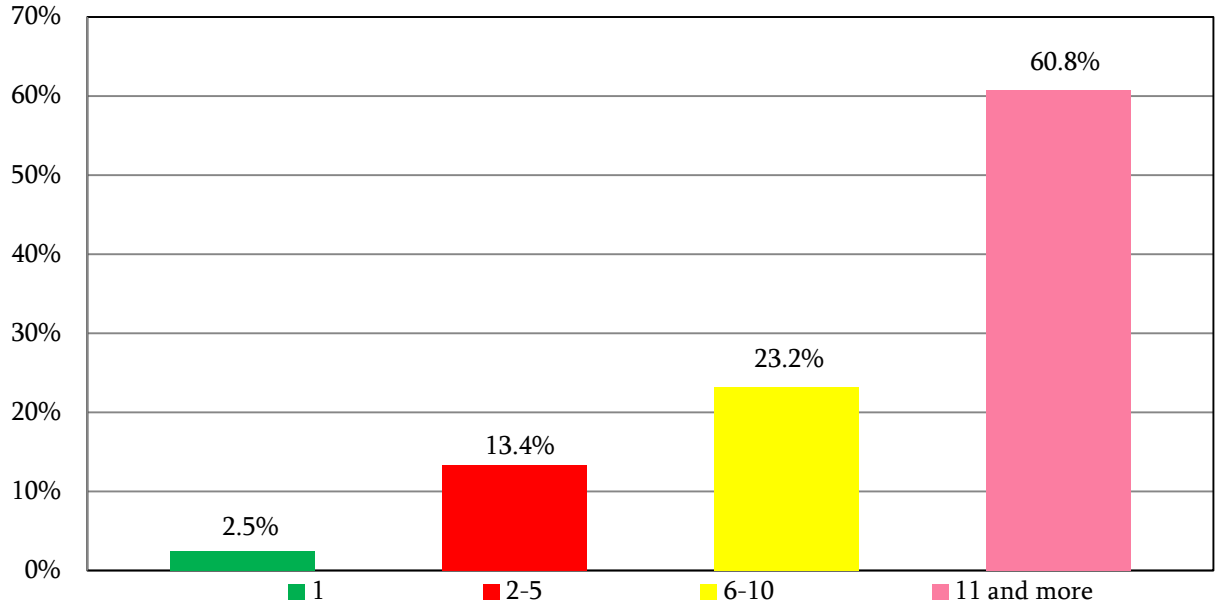
Figure 26. *Age of SWs at their first sex for money (Yerevan city)*



In the last 1 year 56.1% of those surveyed had sex with non-commercial partners.

On average, one SW had 22 clients per month. The number of clients in the last 1 month for 60.8% of the surveyed SWs was 11 (Figure 27).

Figure 27. *Number of clients of SWs in the last 1 month (Yerevan city)*



Experience in drug use was reported by 4.1% of the surveyed SWs.

The percentage of the SWs who did not perceive their risk of HIV infection was 13.7%.

The percentage of those surveyed who indicated that they had STIs or inflammation of genital organs during the last 12 months was 42.2%.

Biological Indicators

Biological surveillance was conducted among SWs in Yerevan city to measure the prevalence of HIV, syphilis, trichomoniasis and gonorrhoea among them (Figure 28).

HIV prevalence

No case of HIV infection was detected among SWs in Yerevan city.

Syphilis prevalence

Syphilis prevalence among SWs in Yerevan city was 0.8% (0-2.5%95% CI).

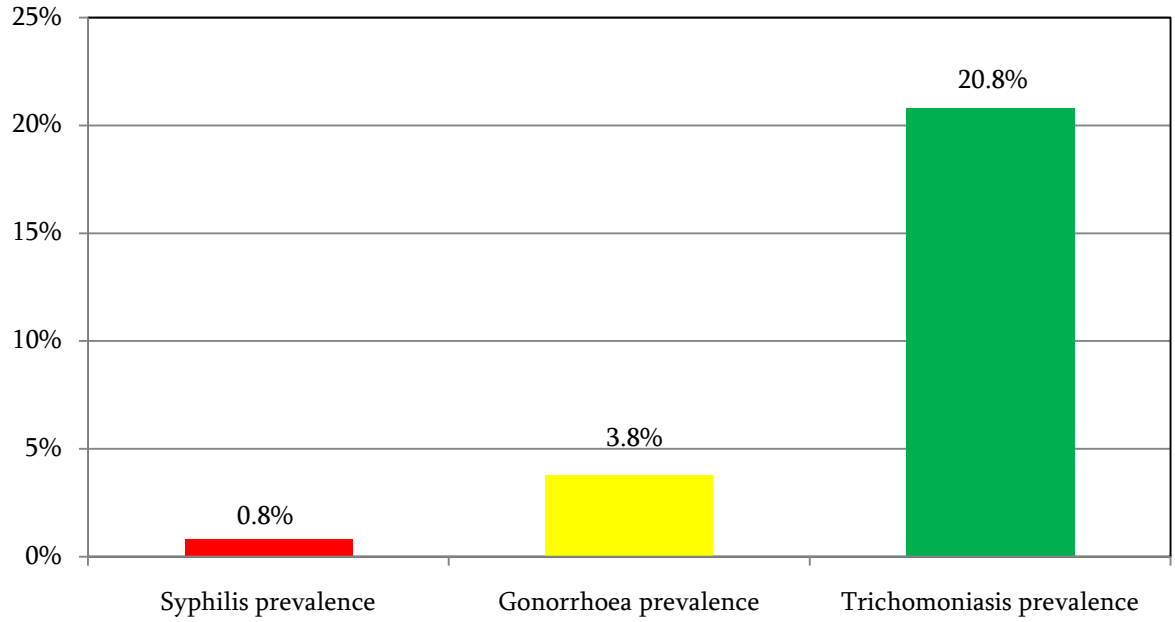
Trichomoniasis prevalence

Trichomoniasis prevalence among SWs in Yerevan city was 20.8% (11.1-27.6% 95% CI).

Gonorrhoea prevalence

Gonorrhoea prevalence among SWs in Yerevan city was 3.8% (0.7-10% 95% CI).

Figure 28. *Biological indicators among SWs in Yerevan city*



Knowledge

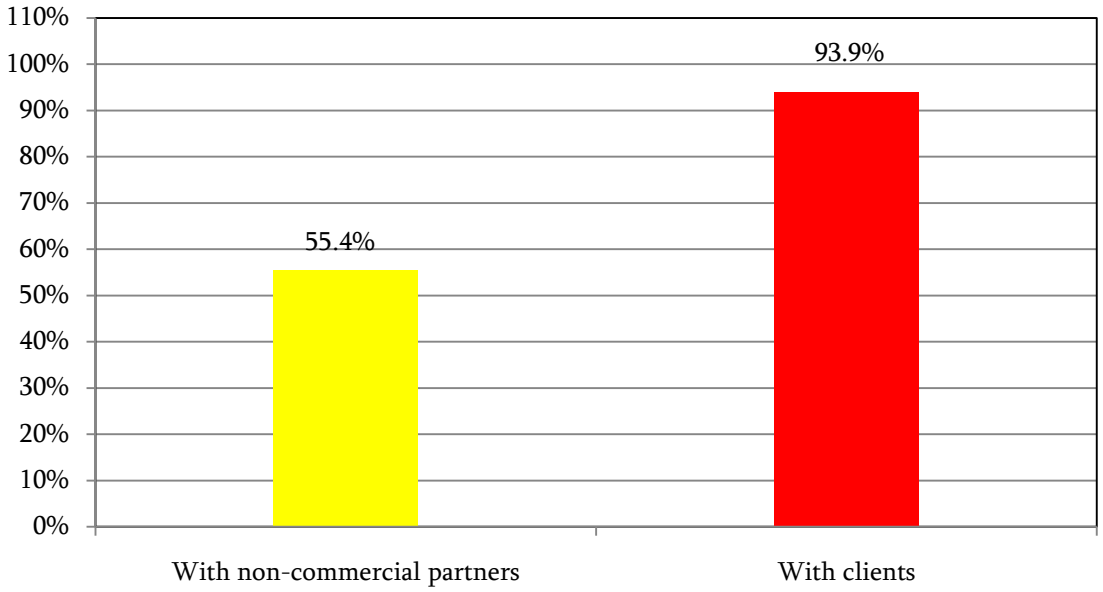
The overwhelming majority (86.9%) of the surveyed SWs believed that it is possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner, 94.8% of those who thought that condom use can reduce the risk of HIV transmission. The majority (71.2%) of those surveyed knew that a healthy-looking person can be HIV-infected. The percentage of the SWs rejecting misconception of HIV transmission through shaking hands with an HIV-infected person was 95.1%, and by sharing a meal with an HIV-infected person - 89%.

HIV knowledge of the surveyed SWs was 58.6%.

Risk behaviour

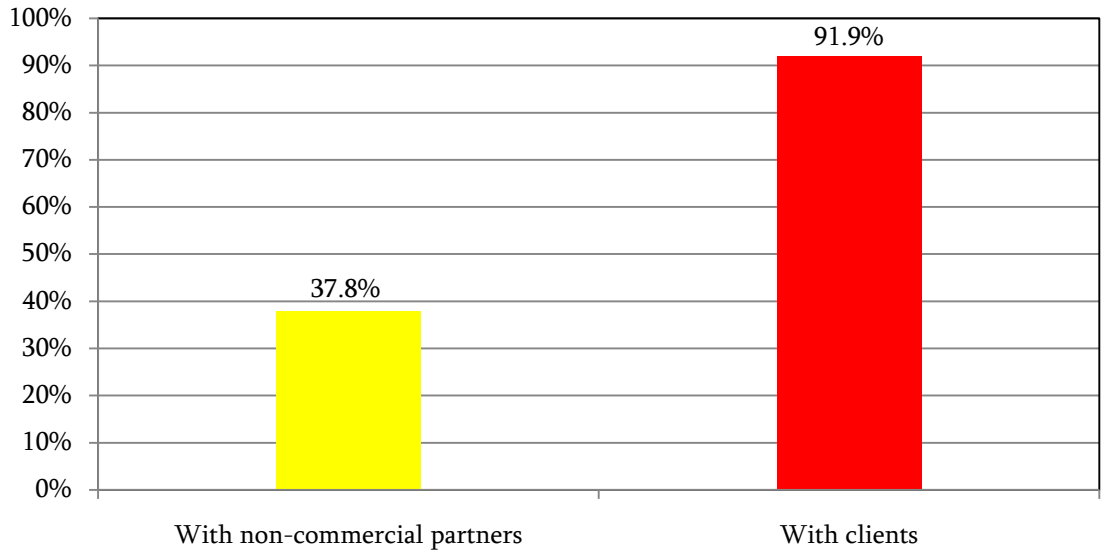
More than half (55.4%) of the surveyed SWs used condoms at last sex with non-commercial partners. The overwhelming majority (93.9%) of those surveyed used condoms at last sex with clients (Figure 29).

Figure 29. *Condom use among SWs at last sex (Yerevan city)*



Consistent condom use by the SWs at sex with non-commercial partners in the past 30 days was 37.8%, and with clients - 91.9% (Figure 30).

Figure 30. *Consistent condom use among SWs in the last 30 days (Yerevan city)*

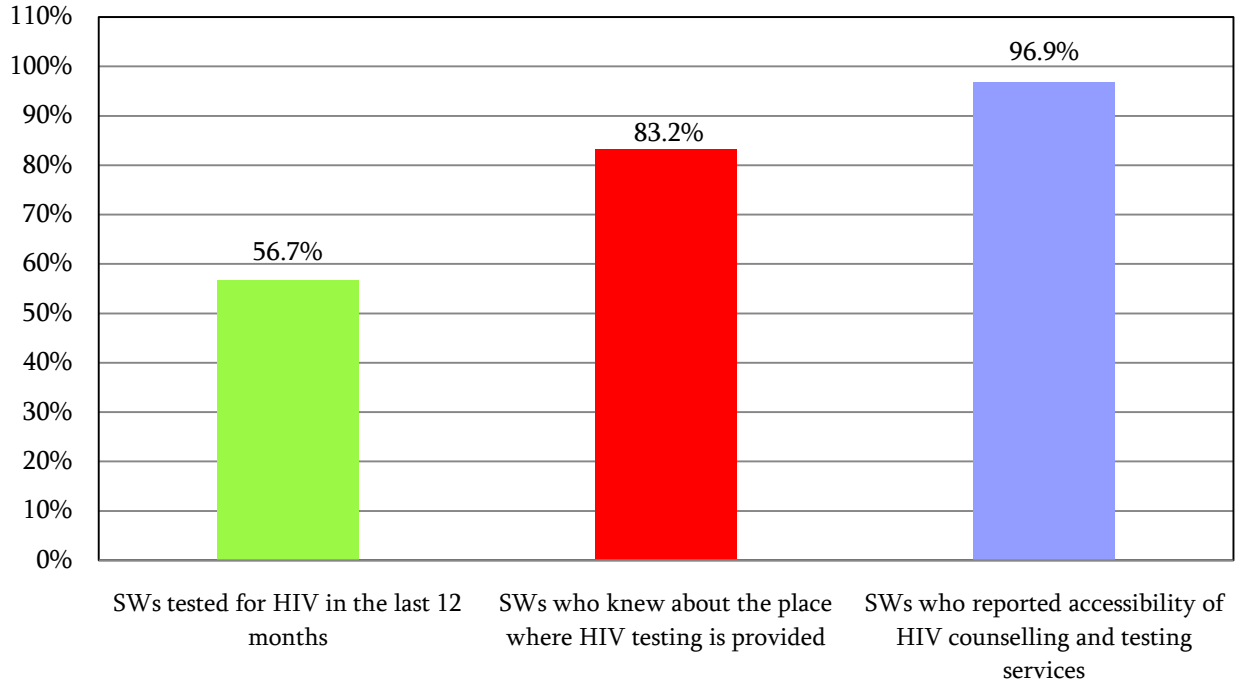


The percentage of SWs who reported having oral sex was 29%, of whom 82.1% used condoms at last oral sex. Having anal sex was reported by 18.8% of those surveyed, of whom 80.5% used condoms at last anal sex. 95.2% of those surveyed used condoms at last vaginal sex.

Exposure to HIV interventions

The percentage of the SWs who knew where they could undergo HIV testing if they wish to, was 83.2%, and 96.9% of them indicated that the services providing counselling and testing on HIV were accessible/available for them. In the past 12 months 56.7% of the surveyed SWs were tested for HIV, of whom 98.7% were tested voluntarily. All those who underwent HIV testing, applied for the testing results information and received it (Figure 31).

Figure 31. *Accessibility/availability of HIV counselling and testing services for SWs in Yerevan city*

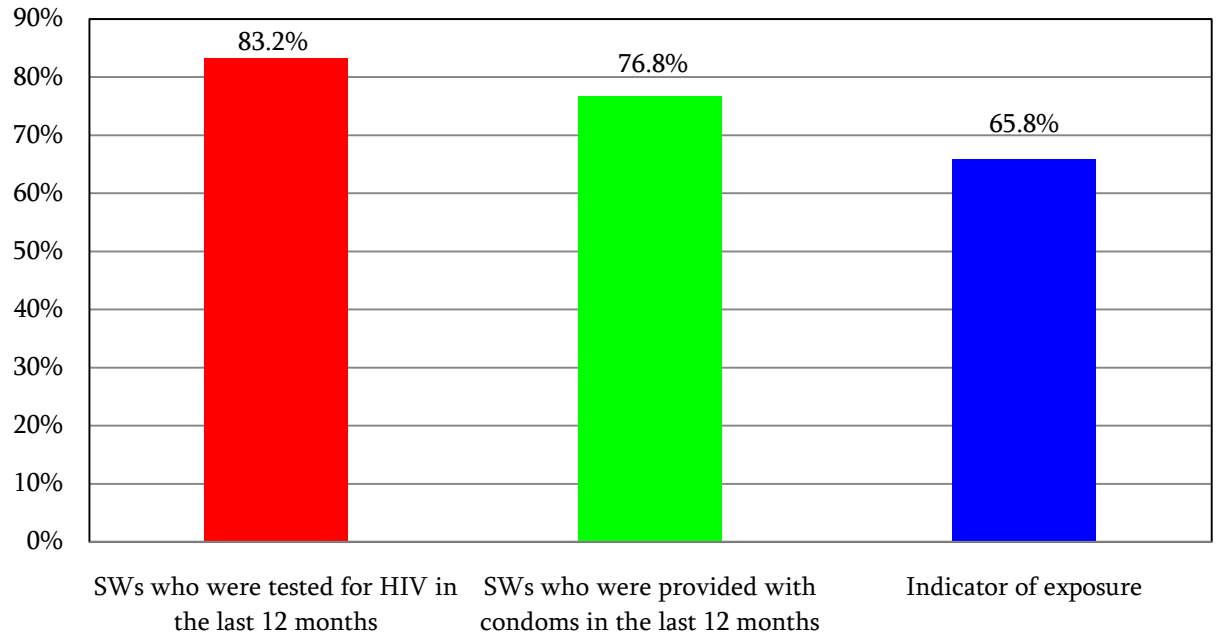


The percentage of SWs who indicated that services providing STI treatment were accessible/ available for them was 84.2%. In the past 12 months 63.5% of those surveyed were tested for STIs.

In the past 12 months 76.8% of those surveyed were provided with condoms.

Exposure to HIV prevention programmes of the SWs in Yerevan city was 65.8% (Figure 32).

Figure 32. *Exposure to HIV interventions of SWs in Yerevan city*



Of those SWs who had knowledge about HIV prevention 95.6% had access to the HIV prevention services and used condoms at last sex with clients.

Description of the major characteristics of SWs

Mean age of SWs in Yerevan city was 35.5. Those having secondary education made up 43.1%, those married - 13%.

Mean age of SWs at first sex was 19.4, and at first sex in exchange for money - 25.8.

In the past 1 year 56.1% of the SWs had sex with non-commercial partners. On average, one SW has 22 clients per month. Those surveyed SWs who had 2-5 clients in the past 1 month made up 60.8%.

The percentage of the SWs who had ever used drugs was 4.1%.

In the past 12 months 42.2% of those surveyed had STIs or inflammation of genital organs.

HIV knowledge of the surveyed SWs was 58.6%. The percentage of the SWs who did not perceive their risk of HIV infection was 15.6%.

In the past 12 months 56.7% of the surveyed SWs were tested for HIV, all of them applied for the testing results information and received it.

Exposure to HIV prevention programmes of SWs in Yerevan city was 65.8%.

Condom use at last sex with non-commercial partners was reported by 55.4% of the surveyed SWs, whereas at last sex with clients - by 93.9%.

Consistent condom use among the SWs at sex with non-commercial partners in the past 30 days was 37.8%, and with clients - 91.9%.

No case of HIV infection was detected among SWs under this survey.

Syphilis prevalence was 0.8%, trichomoniasis prevalence was 20.8%, gonorrhoea prevalence was 3.8%.

2.2. Sex workers (Gyumri city)

Biological and behavioural surveys were conducted among SWs in Gyumri city.

A total of 50 SWs with the mean age of 35 and the median of 34.5were surveyed.

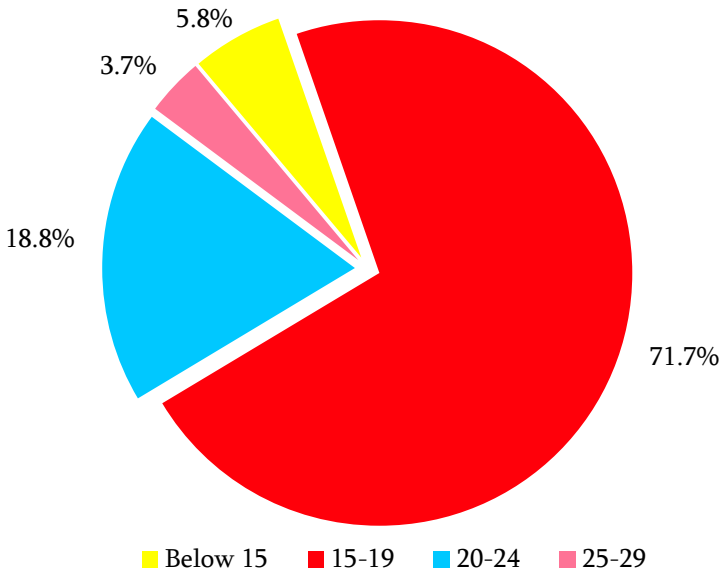
Major characteristics of the surveyed SWs are presented in Table 8. More details on this can be found in Appendix 2.

Table 8.

Characteristics of SWs (Gyumri city)	
Age group	**n=50**
Below 30	50.6%
30 and above	49.4%
Age	**n=50**
Mean age	35
Median	34.5
Age at first sex	**n=50**
Mean age	17.3
Median	17
Age at first sex in exchange for money	**n=50**
Mean age	23.4
Median	24
Number of clients in the last 1 month	**n=50**
Average number	18.8

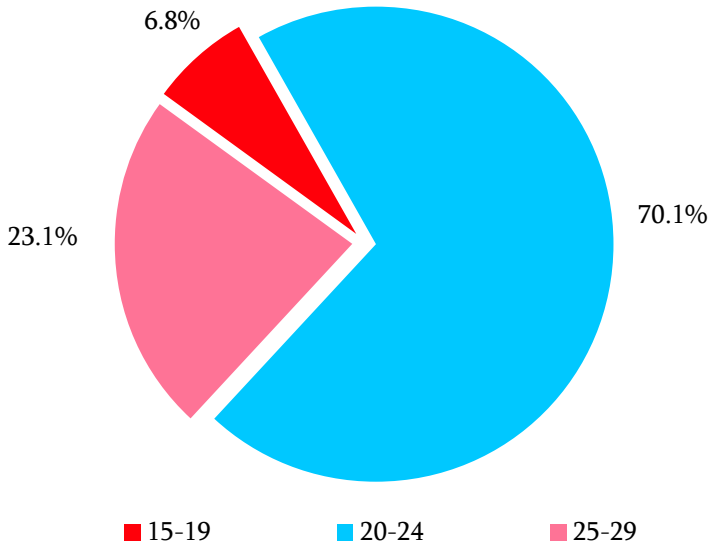
The age at first sex of the majority (71.7%) of the surveyed SWs was 15-19 (Figure 33). Mean age at first sex of the surveyed SWs was 17.3, and the median was 17.

Figure 33. *Age of SWs at their first sex (Gyumri city)*



70.1% of the surveyed SWs had their first sex for money at the age of 20-24 (Figure 34). Mean age at first sex for money of the surveyed SWs was 23.4, and the median was 24.

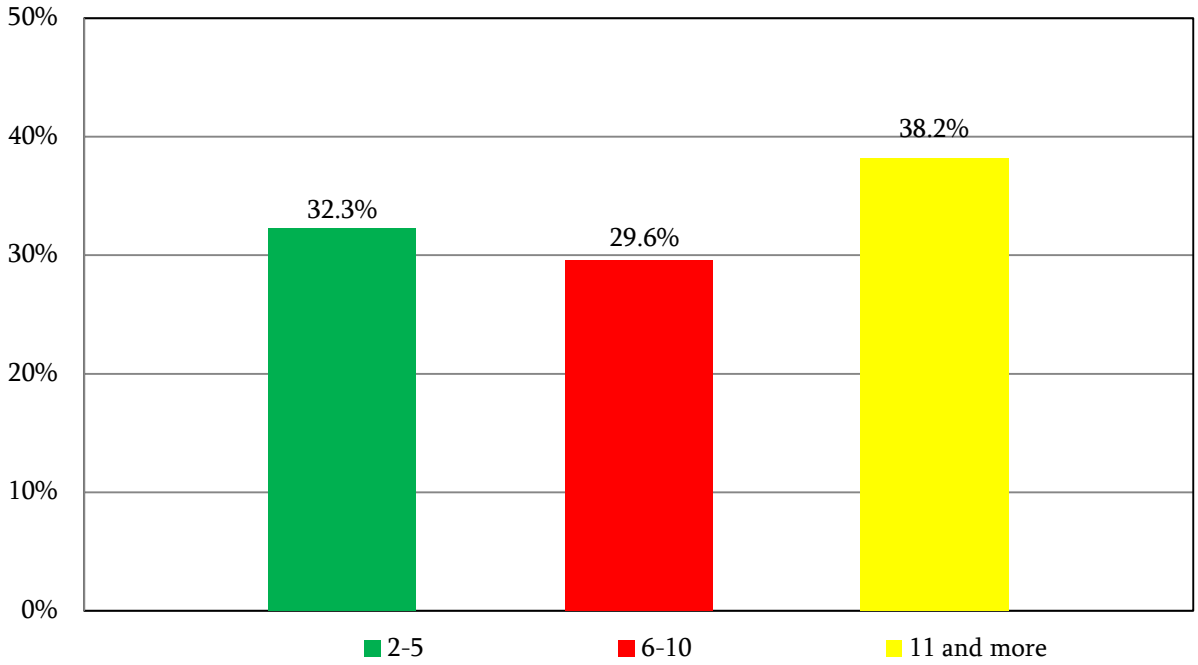
Figure 34. *Age of SWs at their first sex for money (Gyumri city)*



Having sex with non-commercial partners in the last 1 year was reported by 62.5% of those surveyed.

The number of clients in the last 1 month for 38.2% of the surveyed SWs was 11 (Figure 35). On average, one SW had 18.8 clients per month.

Figure 35. *Number of clients of SWs in the last 1 month (Gyumri city)*



3.1% of the surveyed SWs reported using drugs during their lifetime.

The percentage of the SWs who did not perceive their risk of HIV infection was 25.5%.

The percentage of those surveyed who indicated that they had STIs or inflammation of genital organs during the last 12 months was 64.3%.

Biological Indicators

Biological surveillance was conducted among SWs in Gyumri city to measure the prevalence of HIV, syphilis, trichomoniasis and gonorrhoea among them.

HIV Prevalence

No case of HIV infection was detected among SWs in Gyumri city.

Syphilis prevalence

Syphilis prevalence among SWs in Gyumri city was 1.3% (0-4.9% 95% CI).

Trichomoniasis prevalence

Trichomoniasis prevalence among SWs in Gyumri city was 25.9% (0.8-58.6 95% CI).

Gonorrhoea prevalence

No case of Gonorrhoea was detected among SWs in Gyumri city.

Knowledge

97.4% of the SWs believed that it is possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner.

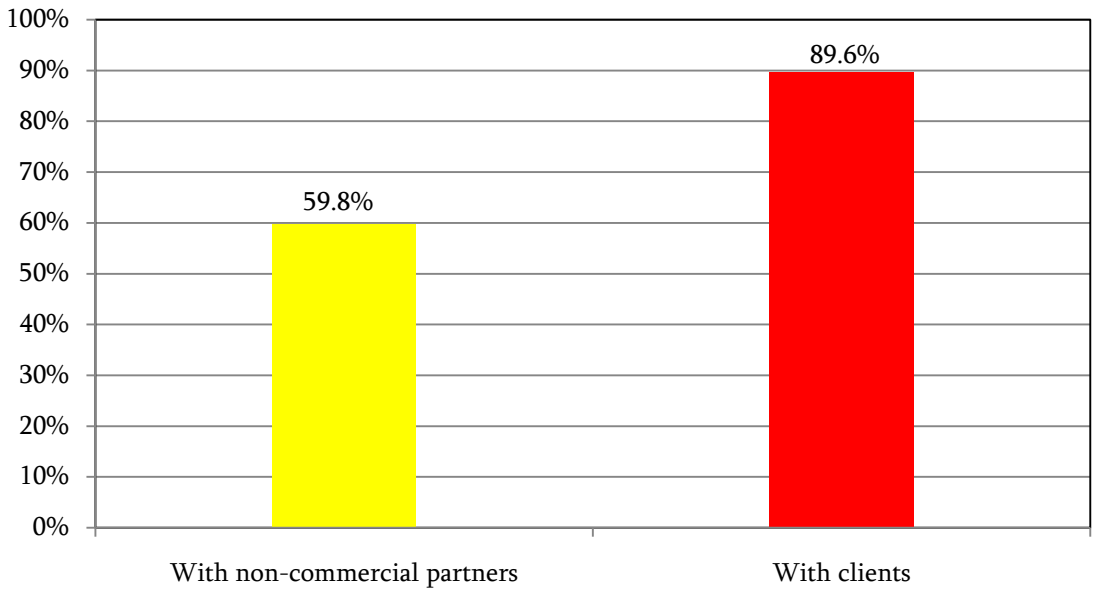
All of the surveyed SWs knew condom use reduces the risk of HIV transmission, that a healthy-looking person can be HIV-infected, that it is impossible to get HIV by sharing a meal with an HIV-infected person. 98.3% of the surveyed SWs knew that it is impossible to get HIV through shaking hands with an HIV-infected person.

HIV knowledge of the surveyed SWs was 95.5%.

Risk behaviour

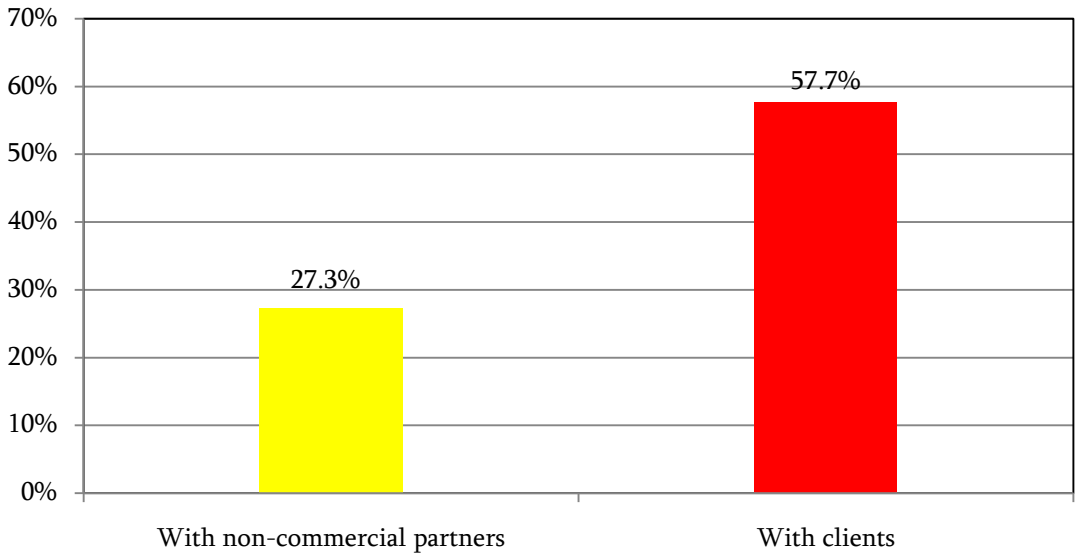
Condom use among the surveyed SWs at last sex with non-commercial partners was 59.8%. The overwhelming majority (89.6%) of those surveyed used condoms at last sex with clients (Figure 36).

Figure 36. *Condom use among SWs at last sex (Gyumri city)*



Consistent condom use at sex with non-commercial partners in the past 30 days was reported by 27.3% of the surveyed SWs, and at sex with clients - by 57.7% (Figure 37).

Figure 37. *Consistent condom use among SWs in the last 30 days (Gyumri city)*

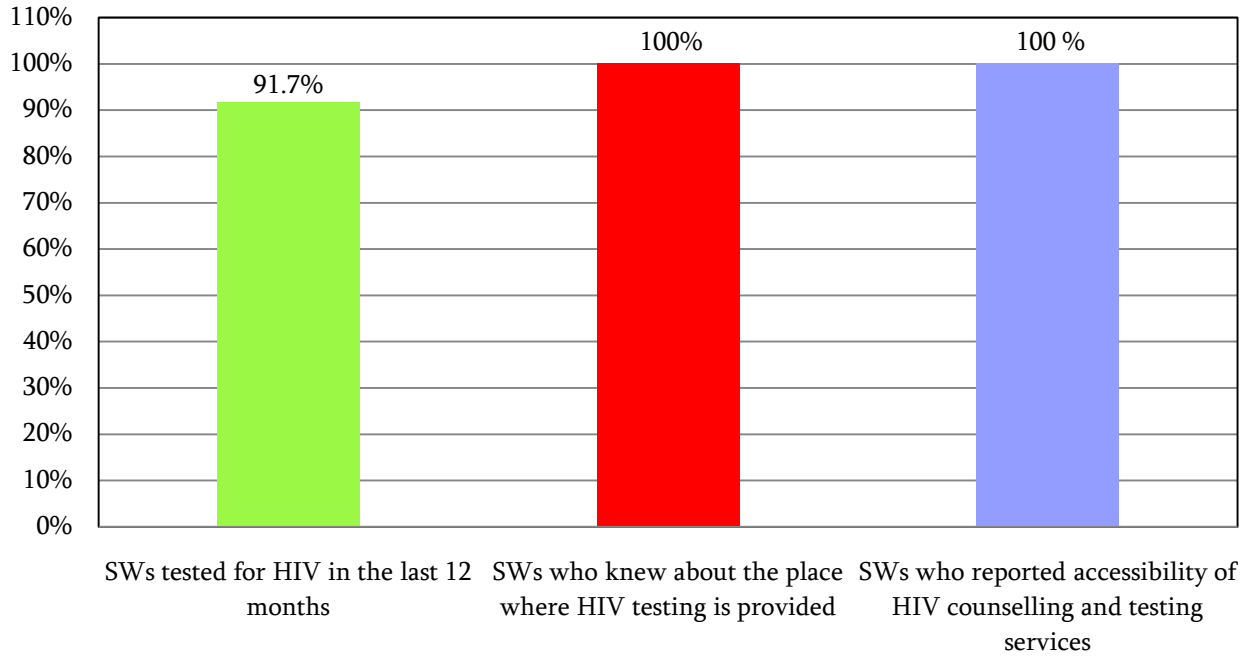


Three of the surveyed SWs reported having oral sex, of whom 2 did not use condom at last oral sex. Four of the surveyed SWs reported having anal sex, of whom 3 did not use condom at last anal sex. Condom use at last vaginal sex was reported by 87.7% of those surveyed.

Exposure to HIV interventions

All the surveyed SWs knew where they can undergo HIV testing if they wish to, and all of them indicated that the services providing counselling and testing on HIV were accessible/available for them. In the past 12 months 91.7% of the surveyed SWs were tested for HIV, all of them were tested on a voluntary basis. Almost all (96.3%) of those who underwent HIV testing, applied for the testing results information and received it (Figure 38).

Figure 38. *Accessibility/availability of HIV counselling and testing services for SWs in Gyumri city*

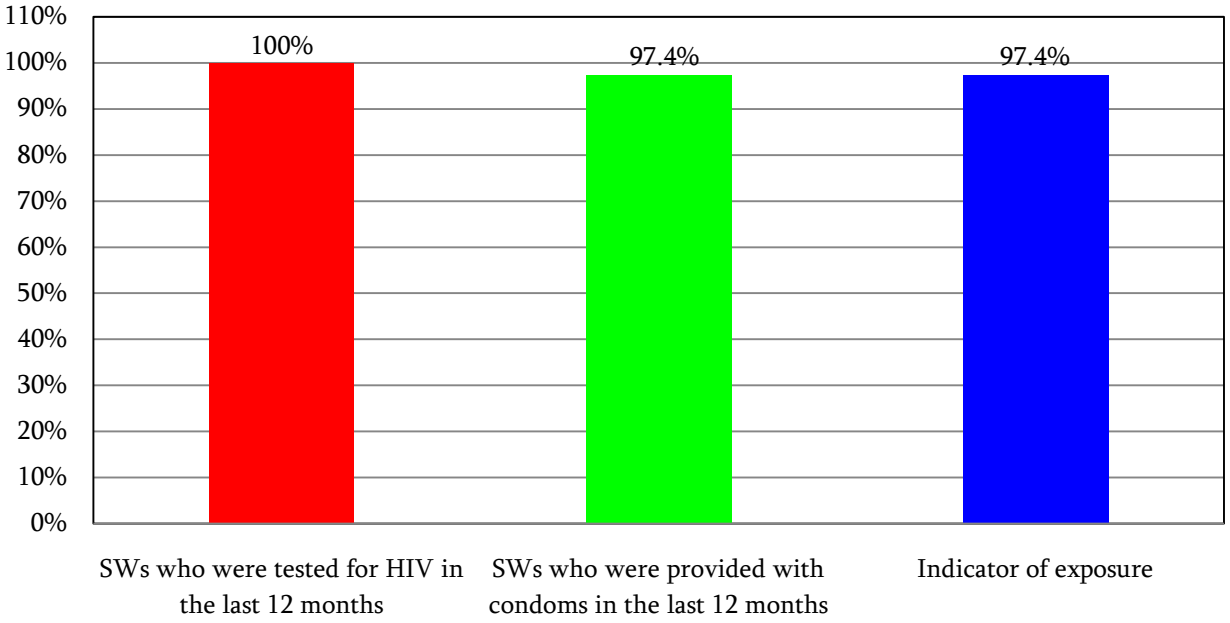


Forty eight percent of those surveyed indicated that the services providing STI treatment were accessible/available for them. In the past 12 months 74% of those surveyed were tested for STIs.

In the past 12 months 97.4% of those surveyed were provided with condoms.

Exposure to HIV prevention programmes of the SWs in Gyumri city was 97.4% (Figure 39).

Figure 39. *Exposure to HIV interventions of SWs in Gyumri city*



2.3. Sex workers (Vanadzor city)

Biological and behavioural surveys were conducted among SWs in Vanadzor city.

A total of 50 SWs with the mean age of 40.5 and the median of 40 were surveyed.

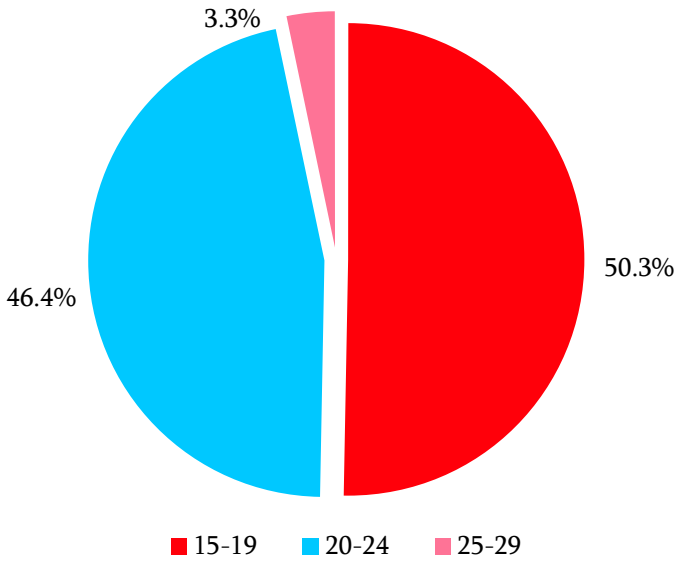
Major characteristics of the surveyed SWs are presented in Table 9. More details on this can be found in Appendix 2.

Table 9.

Characteristics of SWs (Vanadzor city)	
Age group	**n=50**
Below 30	23.2%
30 and above	76.8%
Age	**n=50**
Mean age	40.5
Median	40
Age at first sex	**n=50**
Mean age	19.7
Median	19
Age at first sex in exchange for money	**n=46**
Mean age	26.3
Median	25
Number of clients during the last month	**n=50**
Average number	16.3

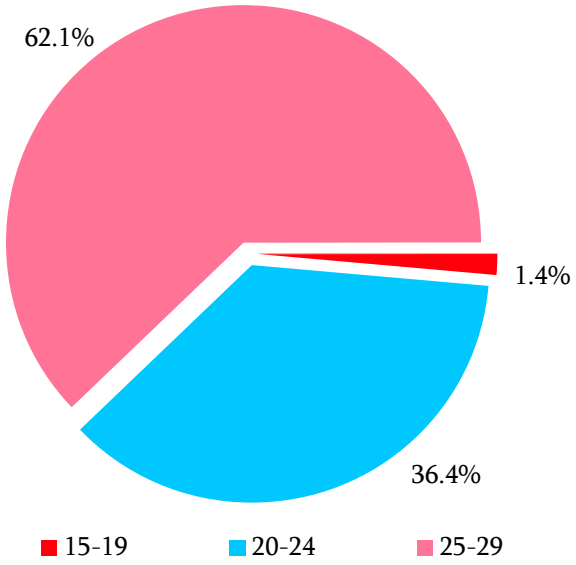
The age at first sex of 50.4% of the surveyed SWs was 15-19 (Figure 40). Mean age at first sex of the surveyed SWs was 19.7, and the median was 19.

Figure 40. *Age of SWs at their first sex (Vanadzor city)*



Age of 62.1% of the surveyed SWs at their first sex for money was 25 and above (Figure 41). Mean age at first sex for money of the surveyed SWs was 26.3, and the median was 25.

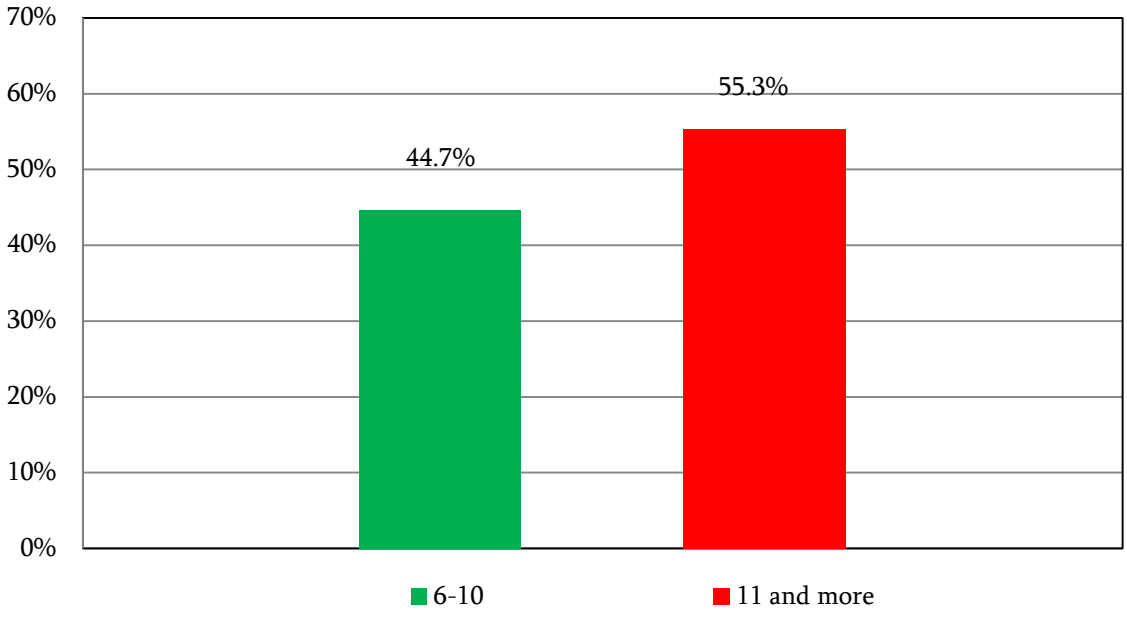
Figure 41. *Age of SWs at their first sex for money (Vanadzor city)*



In the last 1 year 35.8% of those surveyed had sex with non-commercial partners.

The number of clients in the last 1 month for 55.3% of the surveyed SWs was 11 (Figure 42). On average, one SW had 16.3 clients per month.

Figure 42. *Number of clients of SWs in the last 1 month (Vanadzor city)*



14.4% of the surveyed SWs reported using drugs during their lifetime, none of them reported injecting drug use.

16.4% of the surveyed SWs did not perceive her risk of HIV infection.

The percentage of those surveyed who indicated that they had STIs or inflammation of genital organs during the last 12 months was 31.8%.

Biological indicators

Biological surveillance was conducted among SWs in Vanadzor city to measure the prevalence of HIV, syphilis, trichomoniasis and gonorrhoea among them.

HIV prevalence

No case of HIV infection was detected among SWs in Vanadzor city.

Syphilis prevalence

Syphilis prevalence among SWs in Vanadzor city was 2.8% (0-9.9% 95% CI).

Trichomoniasis prevalence

Trichomoniasis prevalence among SWs in Vanadzor city was 21.1% (0-27.3% 95% CI).

Gonorrhoea prevalence

No case of gonorrhoea was detected among SWs in Vanadzor city.

Knowledge

The pecentage of the SWs who believed that it is possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner was 91.9%. All all of those surveyed thought that condom use can reduce the risk of HIV transmission. Similarly, all the surveyed knew that a healthy-looking person can be HIV-infected. All the surveyed SWs knew that it is impossible to get HIV through shaking hands with an HIV-infected person, or by sharing a meal with an HIV-infected person.

HIV knowledge of the surveyed SWs was 94.6%.

Risk behaviour

Condom use among the SWs at last sex with non-commercial partners was 53.2% and at last sex with clients - 98.6%.

Consistent condom use at sex with non-commercial partners in the past 30 days was reported by 61.7% of the surveyed SWs, and at sex with clients - by 94.9%.

Condom use among the surveyed SWs at last oral sex was 77.2% and at last anal sex - 88.3%. All of those surveyed indicated condom use at last vaginal sex.

Exposure to HIV interventions

All of the surveyed SWs knew where they can undergo HIV testing if they wish to, and all indicated that the services providing counselling and testing on HIV were accessible/available for them. In the past 12 months all of the surveyed SWs were tested for HIV, all of them applied for the testing results information and received it.

All the surveyed SWs indicated that the services providing STI treatment were accessible/available for them was. In the past 12 months 60.6% of those surveyed were tested for STIs.

All of those surveyed indicated that they were provided with condoms in the past 12 months.

Exposure to HIV prevention programmes of the SWs in Vanadzor city was 100%.

3. Men who have sex with men

3.1. Men who have sex with men (Yerevan city)

Biological and behavioural surveys were conducted among MSM in Yerevan city.

A total of 300 MSM with the mean age of 25, and the median of 24 were surveyed.

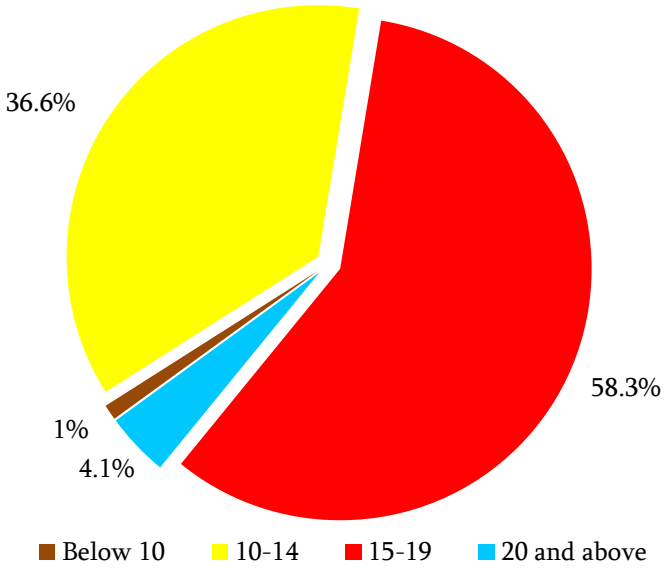
Major characteristics of the surveyed MSM are presented in Table 10. More details on this can be found in the Appendix 3.

Table 10.

Characteristics of MSM (Yerevan city)	
Age group	**n=300**
Below 25	61.5
25 and above	38.5
Age	**n=300**
Mean age	25
Median	24
Age at first sex	**n=300**
Mean age	18.7
Median	16
Number of partners per month	**n=294**
Average number	4.2

The age at first sex of the overwhelming majority (94.9%) of the surveyed MSM was 10-19 (Figure 43). Mean age of MSM at first sex was 18.7.

Figure 43. *Age of MSM at their first sex (Yerevan city)*



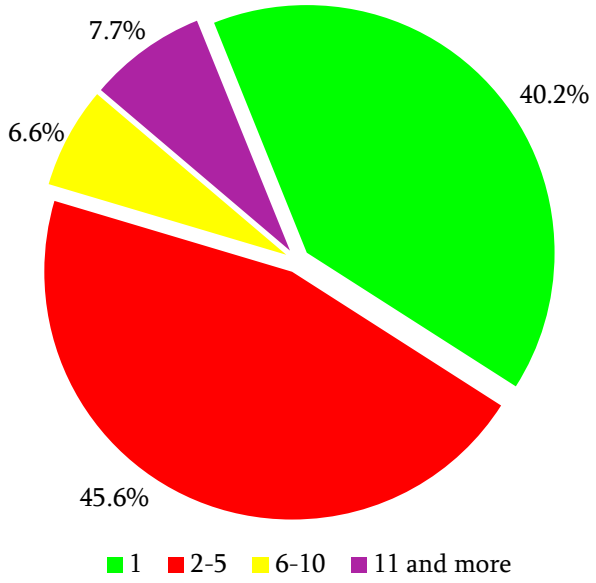
Fifty eight of those surveyed had only male sexual partners and 41% had both male and female partners.

Only insertive sex was practiced by 31.3% of the surveyed MSM, receptive sex - by 11.4%, both insertive and receptive sex by 57.3%.

47.6% of those surveyed had sexual intercourse with their regular partners, 45.5% - both with regular and casual sexual partners and 6.9% - only with casual sexual partners.

The surveyed MSM had on average 4.2 sexual partners per month (Figure 44).

Figure 44. *Number of sexual partners of MSM per month (Yerevan city)*



71.8% of those surveyed had sex with casual partners in the past year.

The data obtained from the survey show that 18.7% of those surveyed had ever had sex for money, of whom 53.9% (n=27) did that periodically.

The percentage of the surveyed MSM who had ever used drugs was only 13.4% (n=59), of whom 2.2% (n=12) had used injecting drugs.

The percentage of the MSM who did not perceive their risk of HIV infection was 40.7% .

Biological Indicators

Biological surveillance was conducted among MSM in Yerevan city to measure the prevalence of HIV, syphilis and hepatitis B among them (Figure 45).

HIV prevalence

HIV prevalence among MSM in Yerevan city was 0.4% (0-0.9% 95% CI).

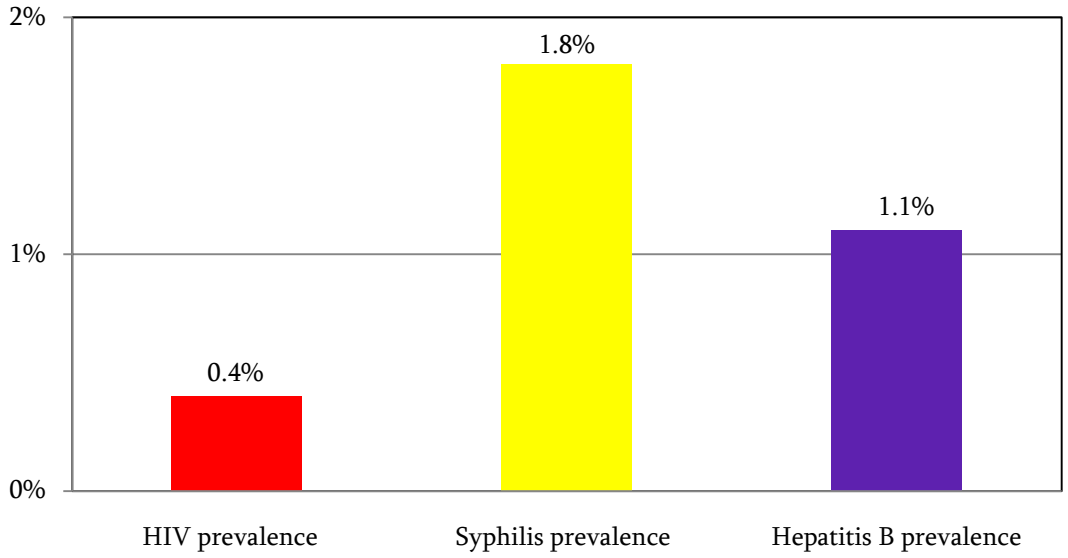
Syphilis prevalence

Syphilis prevalence among MSM in Yerevan city was 1.8% (0.2-4.8% 95% CI).

Hepatitis B prevalence

Hepatitis B prevalence among MSM in Yerevan city was 1.1% (0.2-2.4% 95% CI).

Figure 45. *Biological indicators among MSM in Yerevan city*



Knowledge

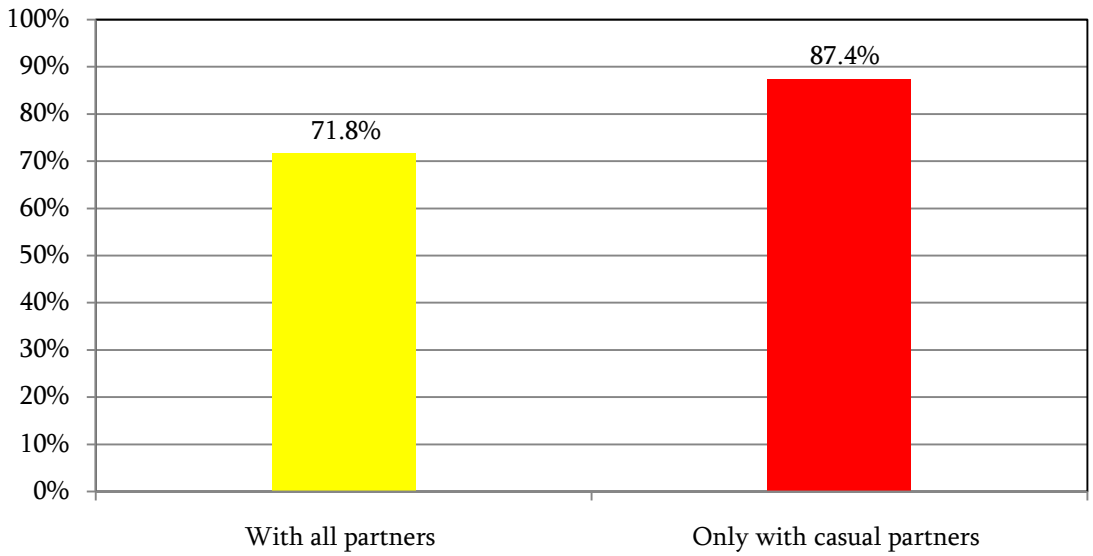
The overwhelming majority (91%) of those surveyed believed that it is possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner, 94.8% the surveyed MSM thought that condom use can reduce the risk of HIV transmission. The overwhelming majority (91%) of those surveyed knew that a healthy-looking person can be HIV-infected. The percentage of the MSM rejecting misconception of HIV transmission through shaking hands with an HIV-infected person was 94.6% and by sharing a meal with an HIV-infected person - 91.7%.

HIV knowledge of the surveyed MSM was 78.9%.

Risk behaviour

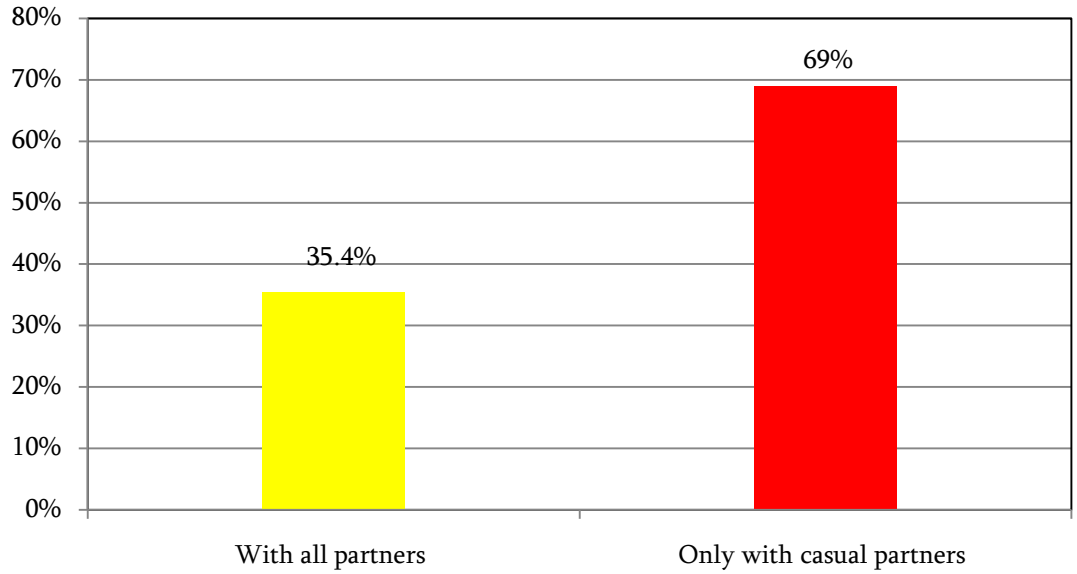
The overwhelming majority (87.4%) of those surveyed used condoms at last sex with casual partners. Consistent condom use among the surveyed MSM at sex with all their partners in the past 1 year was 71.8% (Figure 46).

Figure 46. *Condom use among MSM at last sex (Yerevan city)*



Sixty nine percent of those surveyed used condoms consistently at sex with casual partners. Consistent condom use among the surveyed MSM with all their sexual partners was 35.4% (Figure 47).

Figure 47. *Consistent condom use among MSM (Yerevan city)*

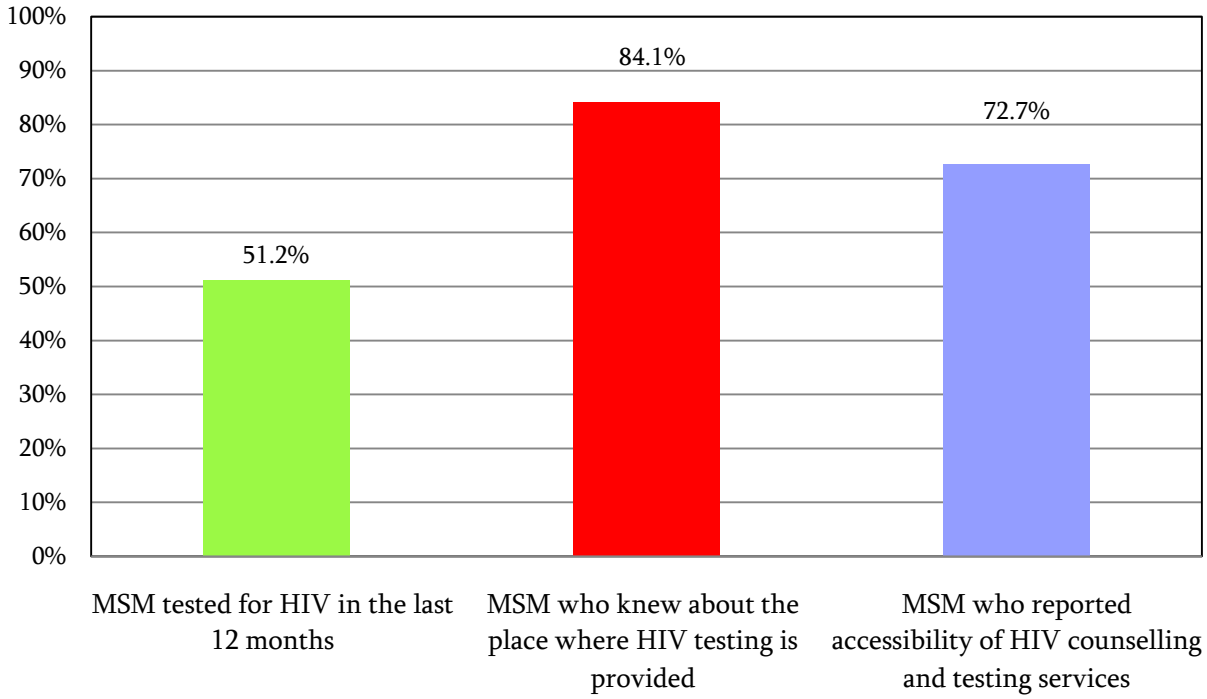


41.1% of those surveyed used condoms at last oral sex, 70% - at last anal sex. The percentage of the MSM who indicated that they had STI history was 15.7%.

Exposure to HIV interventions

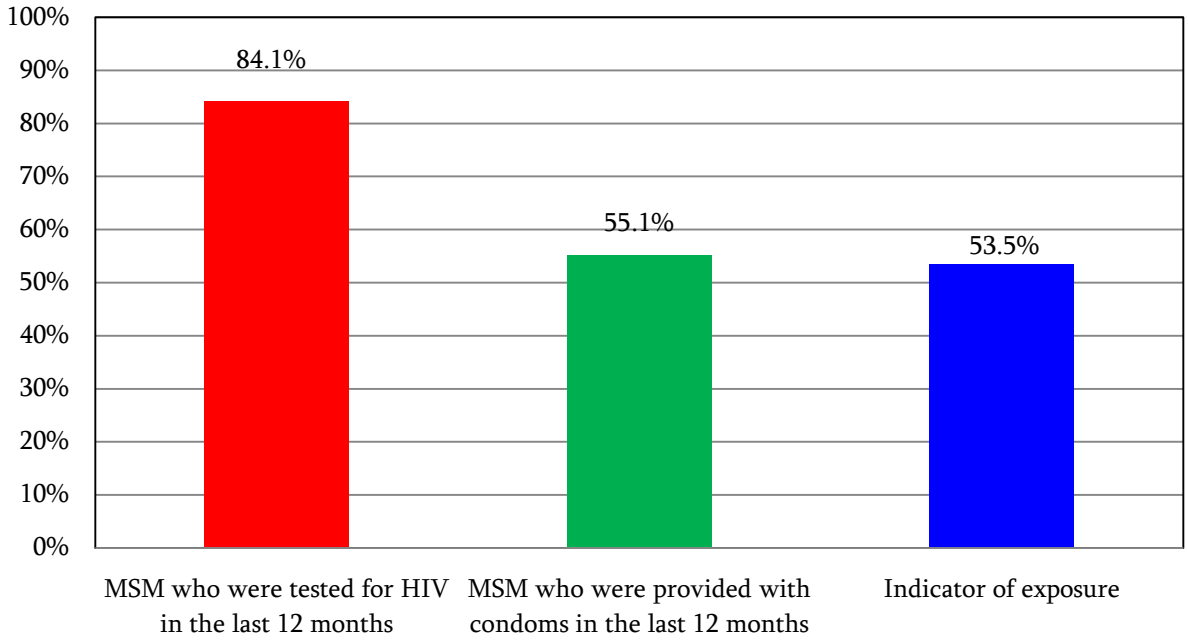
The percentage of the MSM who knew where they could undergo HIV testing if they wish to, was 84.1%, and 72.2% indicated that the services providing counselling and testing on HIV were accessible/available for them. In the last 12 months only 51.2% of those surveyed underwent HIV testing, of whom 97.8% applied for the testing results information and received it (Figure 48).

Figure 48. *Accessibility/availability of HIV counselling and testing services for MSM in Yerevan city*



Within the last 12 months 55.1% of those surveyed were provided with condoms. 53.5% of MSM in Yerevan city were involved in HIV prevention programmes (Figure 49).

Figure 49. *Exposure to HIV interventions of MSM in Yerevan city*



The percentage of MSM who had knowledge about HIV prevention who also had access to the HIV prevention services and used condoms at last anal sex was 87.4%.

Description of the major characteristics of MSM

Mean age of MSM in Yerevan city was 25. Those having secondary education made up 45.9%, those having higher education - 23.9%, those married - 3.8%.

Mean age of MSM at first sex was 18.7.

The surveyed MSM had on average 4.2 sexual partners per month.

71.8% of those surveyed had sex with casual partners in the past year, and 18.7% had ever had sex for money.

The percentage of the MSM who had ever used drugs was only 13.4%, of whom 12 had used injecting drugs.

HIV knowledge of the surveyed MSM was 78.9%. The percentage of the MSM who did not perceive their risk of HIV infection was 40.7%.

In the last 12 months 51.2% of those surveyed underwent HIV testing, of whom 97.8% applied for the testing results information and received it.

53.5% of MSM in Yerevan city were involved in HIV prevention programmes.

HIV prevalence among MSM in Yerevan city was 0.4%.

Syphilis prevalence among MSM in Yerevan city was 1.8%.

Hepatitis B prevalence among MSM in Yerevan city was 1.1%.

3.2. *Men who have sex with men (Gyumri city)*

Biological and behavioural surveys were conducted among MSM in Gyumri city.

A total of 50 MSM with the mean age of 21.5 and the median of 21 were surveyed.

Major characteristics of the surveyed MSM are presented in Table 11. More details on this can be found in Appendix 3.

Table 11.

Characteristics of MSM (Gyumri city)	
Age group	**n=48**
Below 25	95.9%
25 and above	4.1%
Age	**n=48**
Mean age	21.5
Median	21
Age at first sex	**n=50**
Mean age	17.6
Median	17
Number of casual partners per month	**n=47**
Average number	2.3

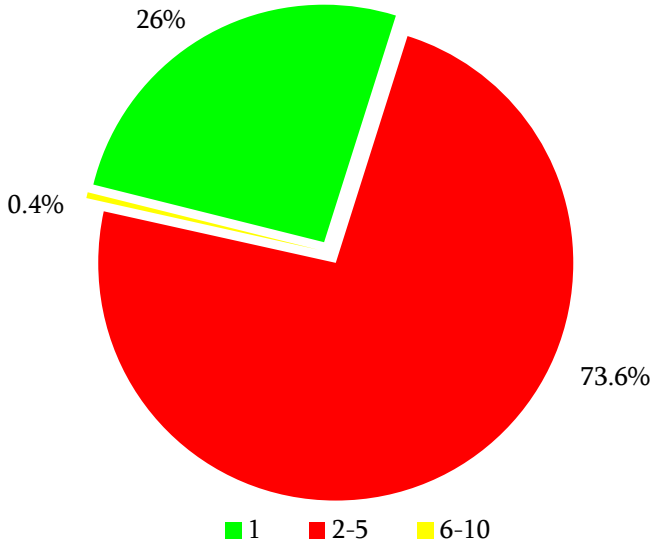
The age at first sex of the 97.1% of the surveyed MSM was 15-19 (Figure 51). The mean age at first sex was 17.6, and the median was 17.

Forty nine percent of those surveyed had only male sexual partners and 51% had both male and female partners. Fifty one percent of the surveyed MSM practiced only insertive sex, 20.8% - receptive sex, and 28.2% - both insertive and receptive sex.

87.3% of those surveyed had sexual intercourse only with their regular partners, 12.7% - both with regular and casual sexual partners.

The surveyed MSM had on average 2.3 - per month (Figure 50).

Figure 50. *Number of sexual partners of MSM per month (Gyumri city)*



In the past year 37.8% of those surveyed had sex with casual partners.

The data obtained from the survey show that 97.7% of those surveyed had never had sex for money.

19.9% (n=12) of those surveyed had ever used drugs in their lifetime.

No one of the the surveyed MSM rejected the risk of HIV infection for themselves.

Biological Indicators

Biological surveillance was conducted among MSM in Gyumri city to measure the prevalence of HIV, syphilis and Hepatitis B.

HIV prevalence

HIV prevalence among MSM in Gyumri city was 1.4% (0-4.7% 95% CI).

Syphilis prevalence

No case of syphilis was detected among MSM in Gyumri city.

Hepatitis B prevalence

Hepatitis B prevalence among MSM in Gyumri city was 1.4% (0-4.3% 95% CI).

Knowledge

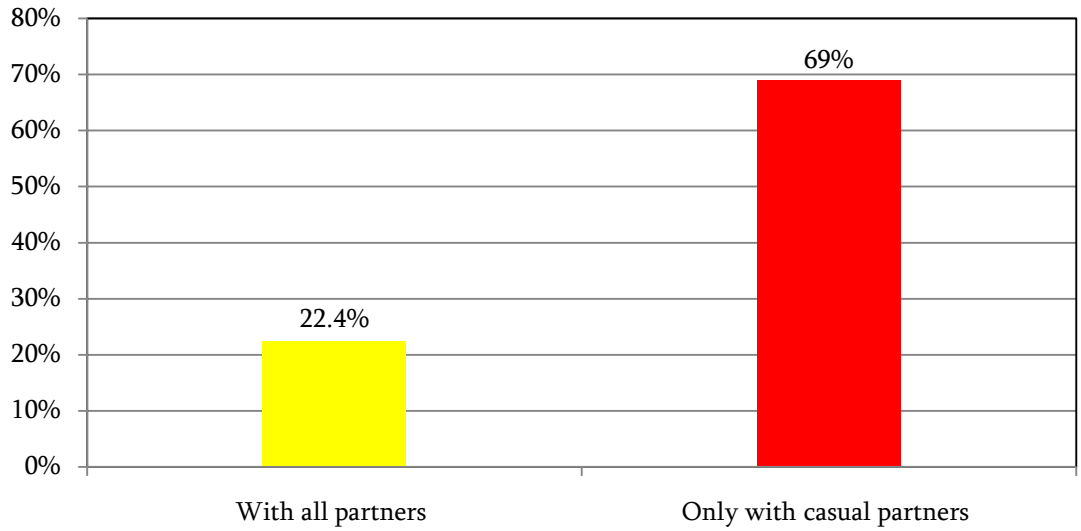
80.4% of those surveyed believed that it is possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner, 89.8% of the surveyed MSM thought that condom use can reduce the risk of HIV transmission. The overwhelming majority (79.2%) of those surveyed knew that a healthy-looking person can be HIV-infected. Ninety five percent of the surveyed MSM knew that it is impossible to get HIV through shaking hands with an HIV-infected person, and 91.5% considered it to be impossible to get HIV by sharing a meal with an HIV-infected person.

HIV knowledge of the surveyed MSM was 69.8%.

Risk behaviour

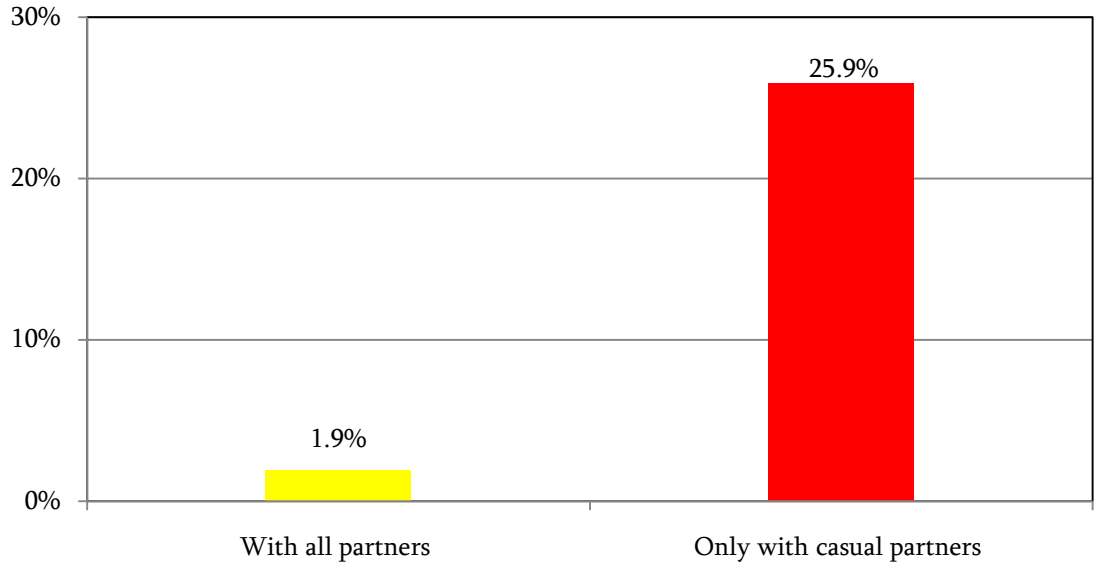
Condom use among the MSM at last sex with casual partners was 69% and at last sex with all their partners - 22.4% (Figure 51).

Figure 51. *Condom use among MSM at last sex (Gyumri city)*



Consistent condom use among the surveyed MSM with all their sexual partners during the past one year was only 1.9%, with casual partners - 25.9% (Figure 52).

Figure 52. *Consistent condom use among MSM (Gyumri city)*



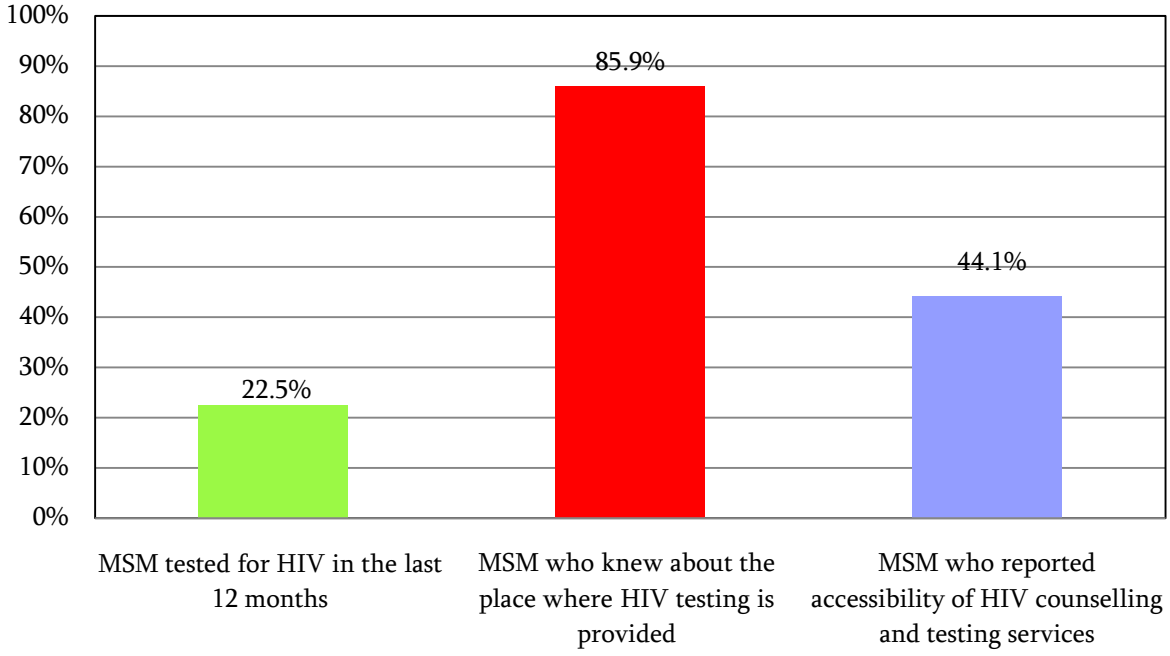
No one of the surveyed MSM used condom at last oral sex, 7.4% - used condom at last anal sex

The percentage of the MSM who indicated that they had STI history was 35.3%.

Exposure to HIV interventions

85.9% of the surveyed MSM knew where they can undergo HIV testing if they wish to, and 44.1% indicated that the services providing counselling and testing on HIV were accessible/available for them. In the last 12 months 22.5% of those surveyed underwent HIV testing, 78.2% of them applied for the testing results information and received it (Figure 53).

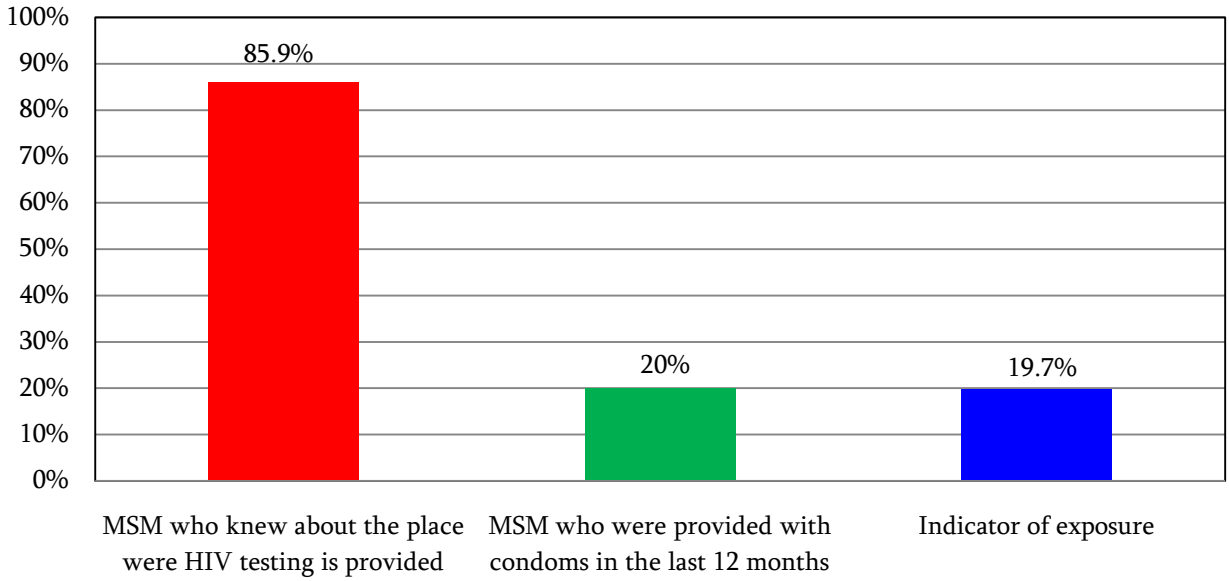
Figure 53. *Accessibility/availability of HIV counselling and testing services for MSM in Gyumri city*



Within the last 12 months 20% of those surveyed were provided with condoms.

Exposure to HIV prevention programmes of MSM in Gyumri city was 19.7% (Figure 54)

Figure 54. *Exposure to HIV interventions of MSM in Gyumri city*



3.3. Men who have sex with men (Vanadzor city)

Biological and behavioural surveys were conducted among MSM in Vanadzor city.

A total of 50 MSM with the mean age of 26.6 and the median of 25 were surveyed.

Major characteristics of the surveyed MSM are presented in Table 12. More details on this can be found in Appendix 3.

Table 12.

Characteristics of MSM (Vanadzor city)	
Age group	**n=50**
Below 25	40.7%
25 and above	59.3%
Age	**n=50**
Mean age	26.6
Median	25
Age at first sex	**n=50**
Mean age	17.4
Median	17
Number of casual partners per month	**n=49**
Average number	2.9

The age at first sex of the 95.1% of the surveyed MSM was 15-19. The mean age at first sex was 17.4, and the median was 17.

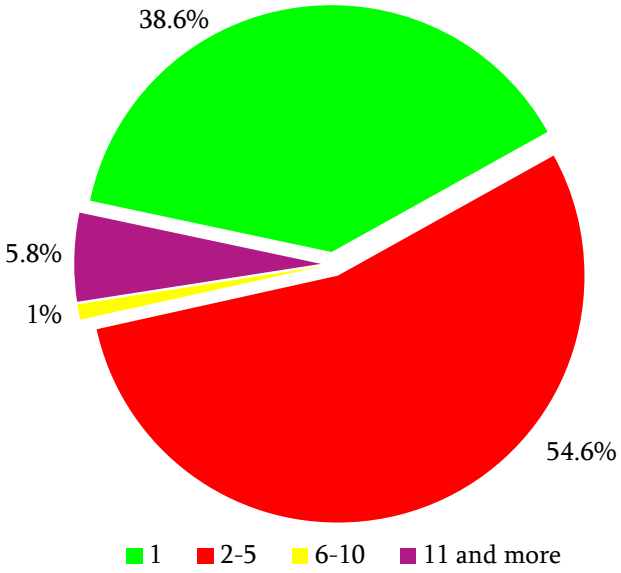
7.5% of those surveyed had only male sexual partners and 92.5% had both male and female partners.

15.1% of the surveyed MSM practiced only insertive sex, 3.4% - receptive sex, and 81.6% - both insertive and receptive sex.

93.8 % of those surveyed had sexual intercourse with their regular partners, 4.3% - both with regular and casual sexual partners and 1.9% - only with casual sexual partners.

The surveyed MSM had on average 2.9 sexual partners per month (Figure 55).

Figure 55. *Number of sexual partners of MSM per month (Vanadzor city)*



18.3% of those surveyed had sex with casual partners in the past year.

The data obtained from the survey show that almost all (99.3%) of those surveyed had never had sex for money.

No one of the surveyed MSM reported that they had used drugs in their lifetime.

The percentage of the MSM who did not perceive their risk of HIV infection was only 4.7%.

Biological Indicators

Biological surveillance was conducted among MSM in Vanadzor city to measure the prevalence of HIV, syphilis and Hepatitis B.

HIV prevalence

HIV prevalence among MSM in Vanadzor city was 1.9% (0-3.3% 95% CI).

Syphilis prevalence

Syphilis prevalence among MSM in Vanadzor city was 1.8% (0-5.7% 95% CI).

Hepatitis B prevalence

Hepatitis B prevalence among MSM in Vanadzor city was 1.6% (0-4.9% 95% CI).

Knowledge

84.3% of those surveyed believed that it is possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner, 99.1% of the surveyed MSM thought that condom use can reduce the risk of HIV transmission. 99.1% of those surveyed knew that a healthy-looking person can be HIV-infected. The percentage of the MSM rejecting misconception of HIV

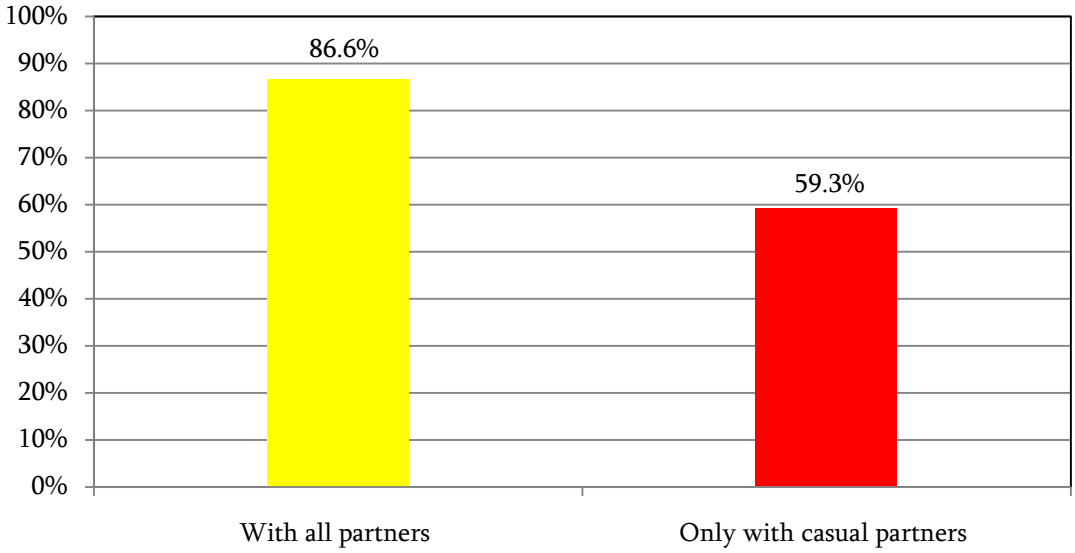
transmission through shaking hands with an HIV-infected person was 86.1% and by sharing a meal with an HIV-infected person - 98.3% .

HIV knowledge of the surveyed MSM was 85.7%**.**

Risk behaviour

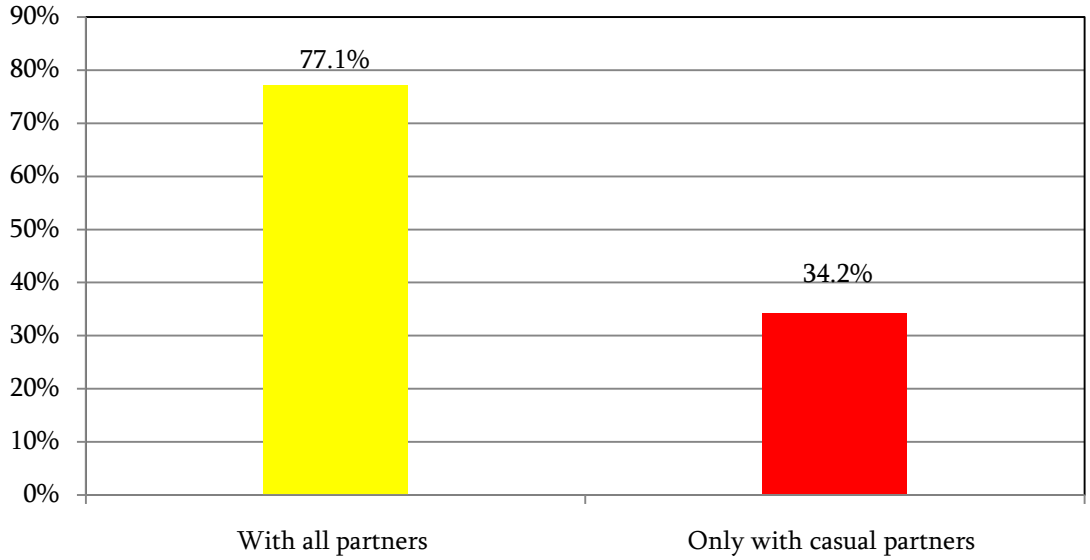
59.3% (n=6) of those who had sex with casual partners used condoms at last sex with those partners and 86.6% of those surveyed used condoms at last sex with all their partners (Figure 56).

Figure 56. *Condom use among MSM at last sex (Vanadzor city)*



Consistent condom use at sex with casual partners among the MSM who had sex with casual partners was 34.2%, with all their sexual partners - 77.1% (Figure 57).

Figure 57. *Consistent condom use among MSM (Vanadzor city)*



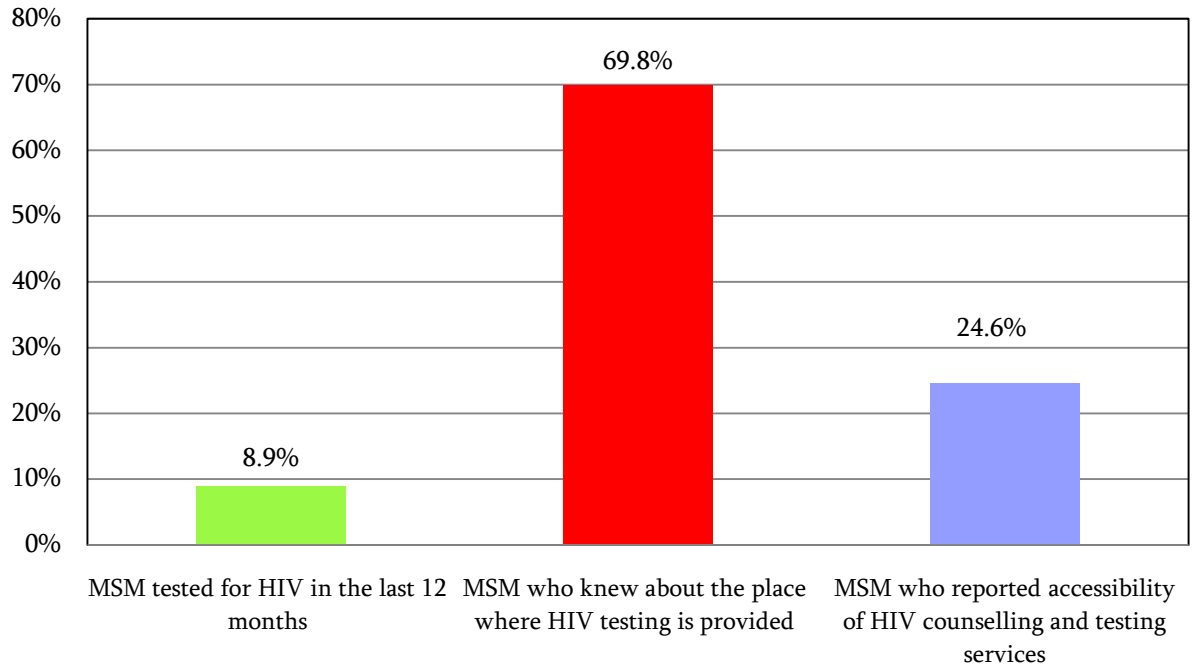
Condom use among the MSM at last oral sex was 25.9%, at last anal sex - 97.5%.

The percentage of the MSM who indicated that they had STI history was 3%.

Exposure to HIV interventions

69.8% of the surveyed MSM knew where they can undergo HIV testing if they wish to, and 24.6% of them indicated that the services providing counselling and testing on HIV were accessible/available for them. In the last 12 months 8.9% of those surveyed underwent HIV testing, all of them applied for the testing results information and received it (Figure 58).

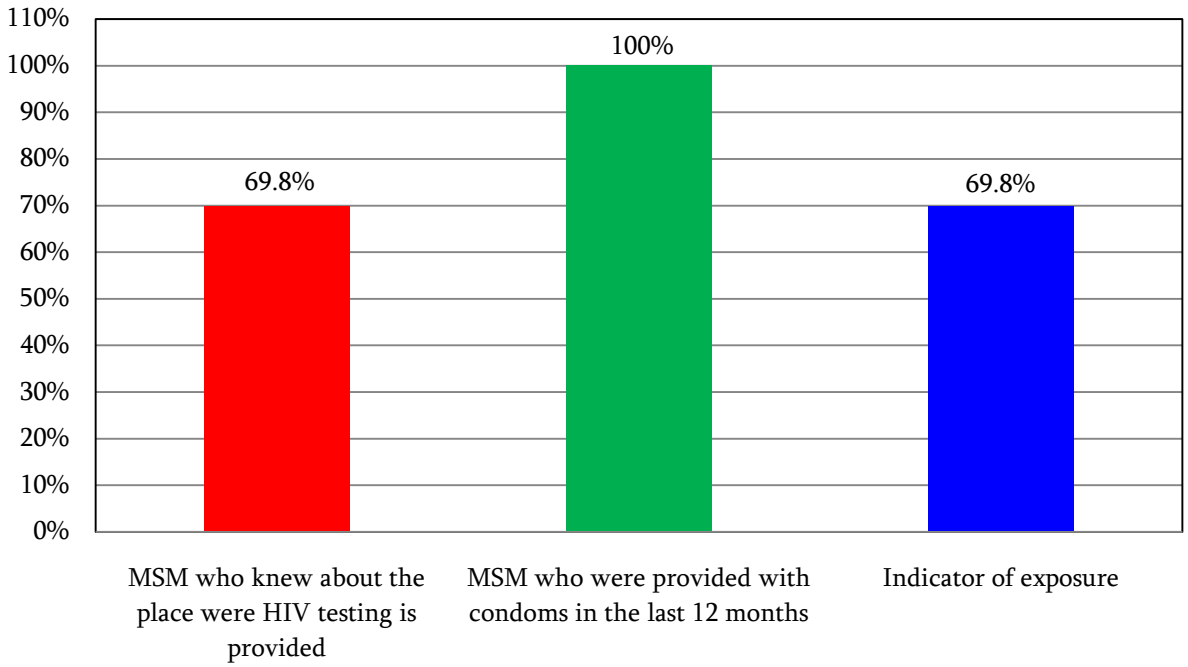
Figure 58. *Accessibility/availability of HIV counselling and testing services for MSM in Vanadzor city*



Within the last 12 months all those surveyed were provided with condoms.

Exposure to HIV prevention programmes of MSM in Vanadzor city was 69.8% (Figure 59).

Figure 59. *Exposure to HIV interventions of MSM in Vanadzor city*



4. Youth

Behavioural surveys were conducted among the youth. A total of 1200 young people with the mean age of 18.3, and the median of 18 were surveyed.

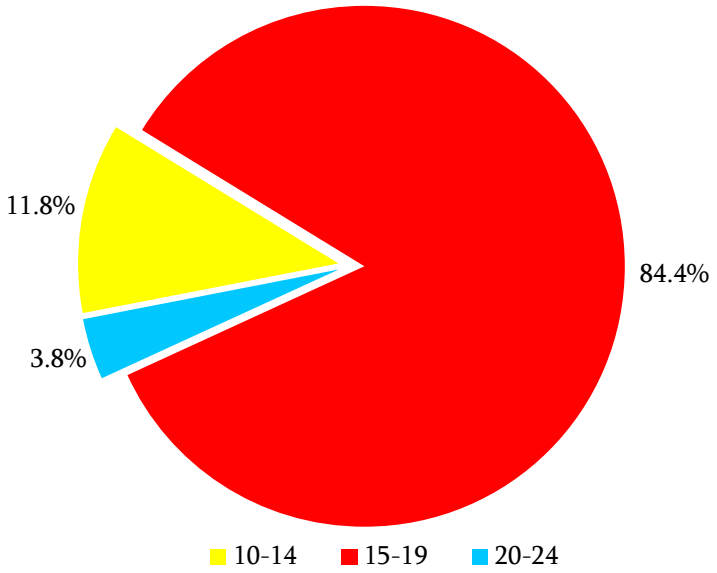
Major characteristics of the surveyed young people are presented in Table 13. More details on this can be found in Appendix 4.

Table 13.

Characteristics of the youth	
Age group	**n=1192**
15-19	76.5%
20-24	23.5%
Age	**n=1192**
Mean age	18.3
Median	18
Age at first sex	**n=281**
Mean age	16.1
Median	16
Number of casual partners in the past 1 year	**n=178**
Average number	5.2

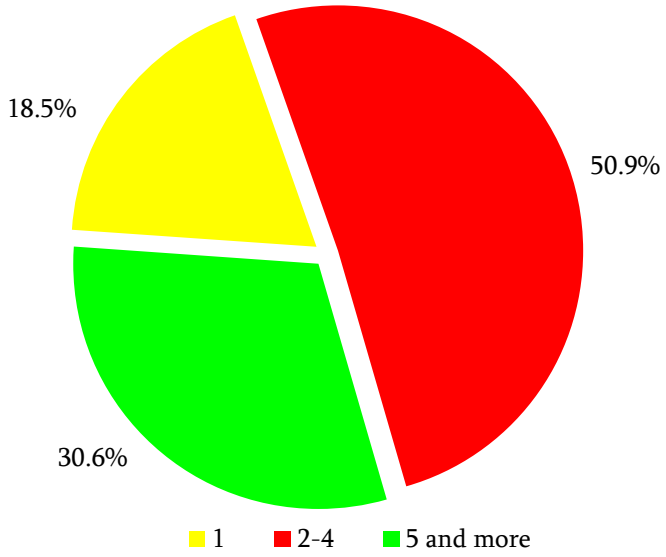
The percentage of the surveyed young people who reported that they had ever had sex was 23.4%. The age at first sex of the overwhelming majority of them (84.4%) was 15-19 (Figure 60). The mean age at first sex was 16.1, and the median was 16.

Figure 60. *Age of the young people at their first sex*



65.2% of young people who had ever had sex reported having sex with casual partners in the last year, whereas their overwhelming majority (81.5%) had two or more casual partners (Figure 61).

Figure 61. *Number of casual partners of the young people in the past year*



Fifty-nine (4.9%) of the surveyed young people reported that they had used drugs in their lifetime, of whom 0.3% (n=3) had ever injected drugs. Cannabis/marijuana was reported as the most frequently used drug (94%). The age of using drugs for the first time of 77.8% of young people having experience in drug use was 15-19. Mean age of the first experience in drug use of those surveyed was 16.6, and the median was 16.

The majority of those surveyed (60%) did not perceive the risk of HIV infection for them.

Knowledge

47.3% of those surveyed believed that it is possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner, 55.8% thought that condom use can reduce the risk of HIV transmission. The majority (62.8%) of those surveyed knew that a healthy-looking person can be HIV-infected. 71.6% of the surveyed young people knew that it is impossible to get HIV through shaking hands with an HIV-infected person, and 59.3% considered it to be impossible to get HIV by sharing a meal with an HIV-infected person.

HIV knowledge of the surveyed young people was 22.4%.

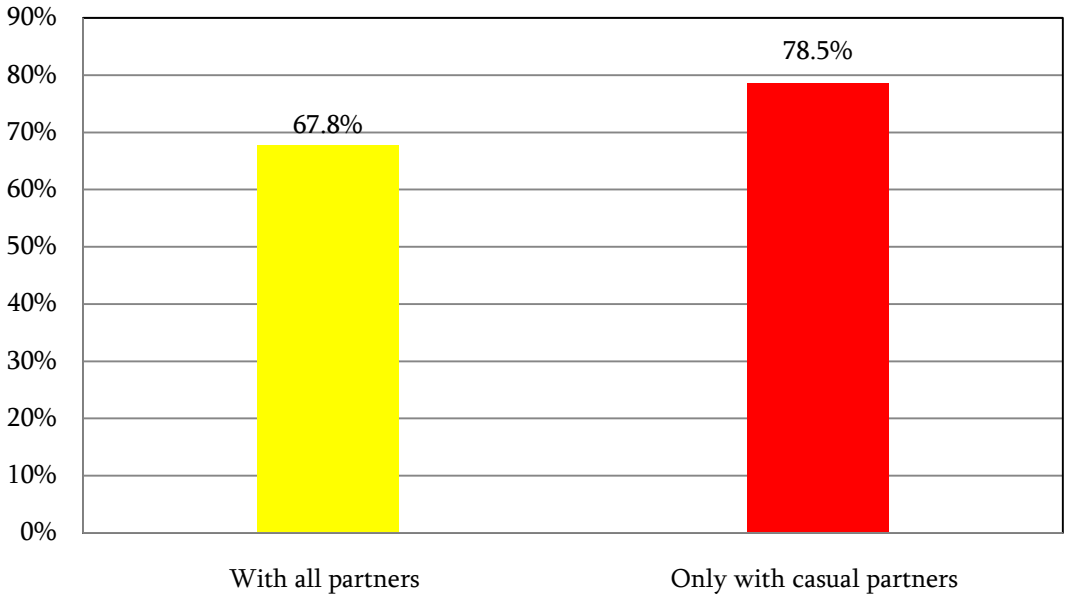
Risk behaviour

82.4% of the surveyed young people used condoms at first sex, 77.4% - at last sex.

In the past 30 days 44.3% (n=120) of the surveyed young people had sex, of whom 67.8% (n=80) used condoms at last sex.

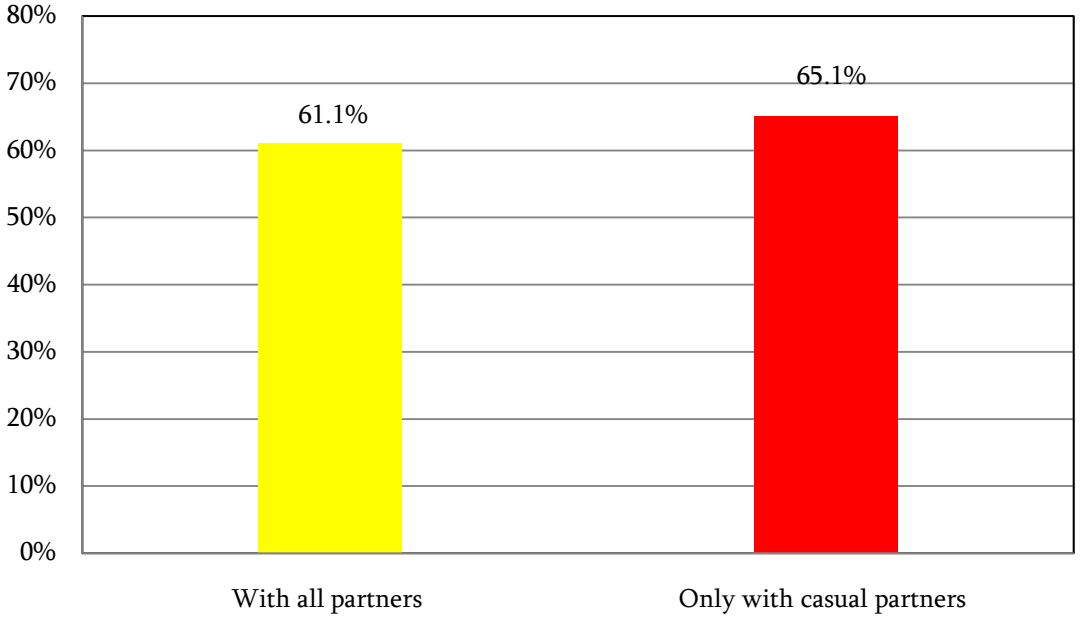
The overwhelming majority (78.5%) of those surveyed used condoms at last sex with casual partners (Figure 62).

Figure 62. *Condom use at last sex among the young people*



The majority (65.1%) of the surveyed young people consistently used condoms at sex with casual partners in the past 1 year. Consistent condom use with all sexual partners in the past 1 year was reported by 61.1% of those surveyed (Figure 63).

Figure 63. *Consistent condom use among the young people*



Exposure to HIV interventions

In the past 12 months only 4.2% of the surveyed young people were tested for HIV, of whom 95.7% applied for the testing results information and received it.

5. Migrants

Biological and behavioural surveys were conducted among the migrants. A total of 550 migrants with the mean age of 36 and the median of 32 were surveyed.

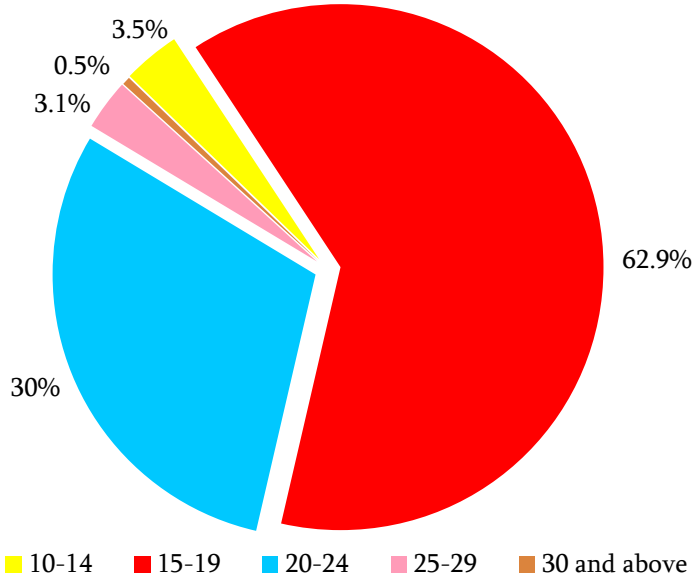
Major characteristics of the surveyed migrants are presented in Table 14. More details on this can be found in Appendix 5.

Table 14.

Characteristics of the migrants	
Gender	**n=550**
Male	94.9%
Female	5.1%
Age group	**n=550**
Below 35	56.5%
35 and above	43.5%
Age	**n=550**
Mean age	36
Median	32
Age at first drug use	**n=44**
Mean age	20.4
Median	20
Age at first sex	**n=547**
Mean age	18.5
Median	18
Number of casual partners in the past 1 year	**n=296**
Average number	3.0

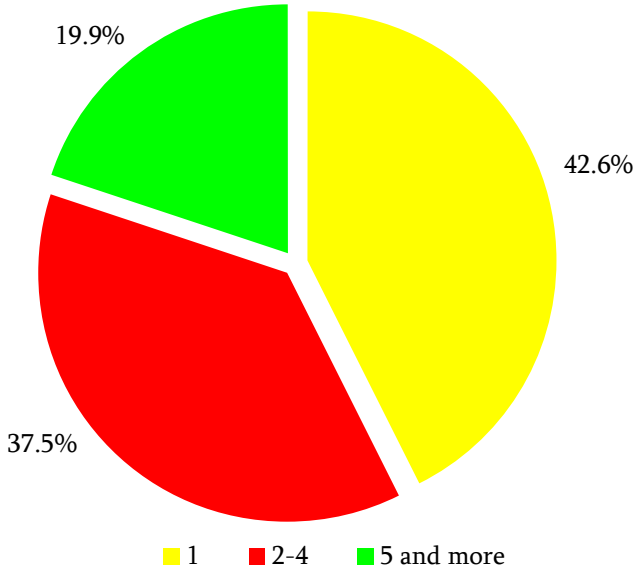
Almost all the surveyed migrants (99.3%) reported that they had ever had sex, whereas the age at first sex of 62.9% of the surveyed migrants was 15-19 (Figure 64). The mean age at first sex was 18.5, and the median was 18.

Figure 64. *Age of the migrants at their first sex*



54.9%-of the surveyed migrants reported having sex with casual partners during the past year, of whom 57.4%-had two or more casual partners during the past year (Figure 65).

Figure 65. *Number of casual partners of the migrants in the past year*



The percentage of the migrants reporting that they had used drugs in their lifetime was 8.1%, of whom 0.4% (n=2) - that they had injected drugs. Mean age of the first experience in drug use of those surveyed was 20.4, the median was 20.

The overwhelming majority (90.5%) of those surveyed had been away from the country for more than one month in the past year.

The migrants who did not perceive their risk of HIV infection made up 79.3%.

Knowledge

The overwhelming majority of those surveyed (80.2%) believed that it is possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner, 77.7% thought that condom use can reduce the risk of HIV transmission. 62.2% of those surveyed knew that a healthy-looking person can be HIV-infected. 55.6% of the surveyed migrants knew that it is impossible to get HIV through shaking hands with an HIV-infected person, and 44.5% considered it to be impossible to get HIV by sharing a meal with an HIV-infected person.

HIV knowledge of the surveyed migrants was 24.4%.

Biological Indicators

Biological surveillance was conducted among migrants in Yerevan city to assess the prevalence of HIV, syphilis, hepatitis B and C among them.

HIV prevalence

HIV prevalence among migrants was 0.4% (0-0.9% 95% CI).

Syphilis prevalence

No case of syphilis was detected among the surveyed migrants.

Hepatitis B prevalence

Hepatitis B prevalence among migrants was 0.4% (0-0.9% 95% CI).

Hepatitis C prevalence

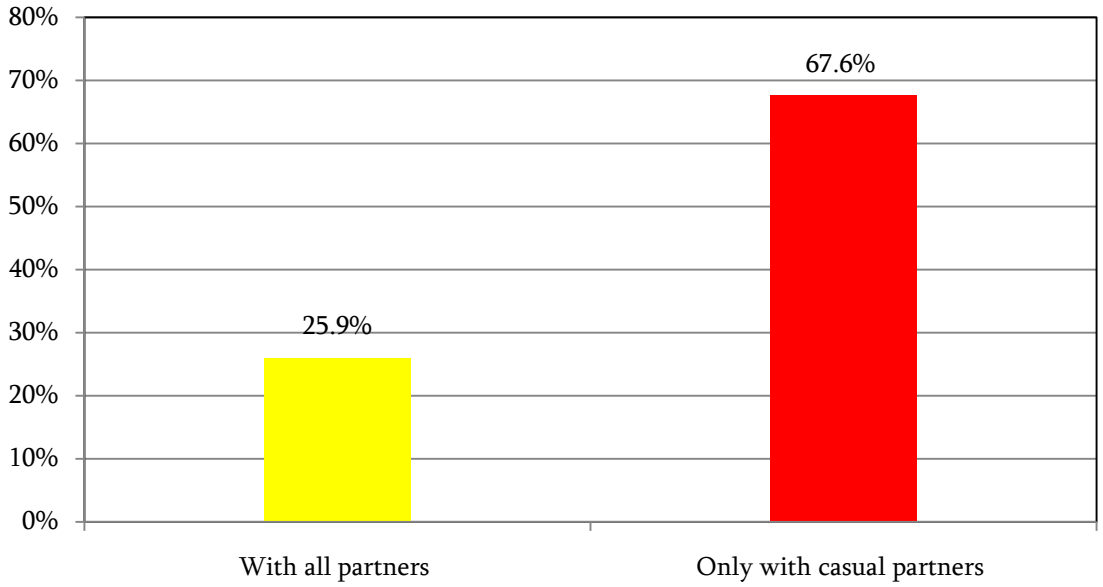
Hepatitis C prevalence among migrants was 0.5% (0-1.3% 95% CI).

Risk behaviour

The overwhelming majority of those surveyed (80.3%) had sexual intercourse in the past 30 days. Only 25.9% of those surveyed used condom at last sex. Condom use at last sex was reported by 26.4% of males and 16% of females.

Condom use among the migrants at last sex with casual partners was 67.6% (Figure 66).

Figure 66. *Condom use among the migrants at last sex*



48.3% of the surveyed migrants consistently used condoms at sex with casual partners in the past year.

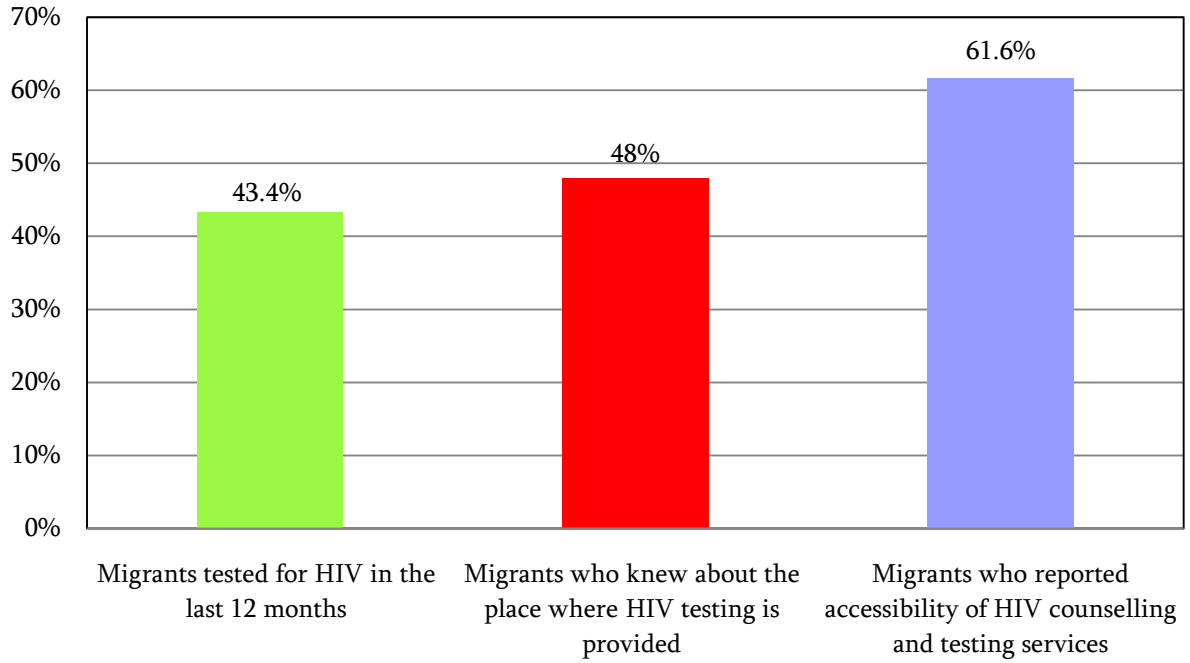
Sixty seven percent of the surveyed migrants had sex with casual partners abroad, 23% - both abroad and in Armenia. Condom use at last sex with casual partners abroad was reported by 66.1% of the migrants, consistent condom use - by 51.4%.

Exposure to HIV interventions

The percentage of the migrants who knew where they can undergo HIV testing if they wish to was 48%, and 61.6% indicated that the services providing counselling and testing on HIV were accessible/available for them.

In the past 12 months only 43.4% of the surveyed migrants were tested for HIV. The vast majority of them (97.4%) applied for the testing results information and received it (Figure 67).

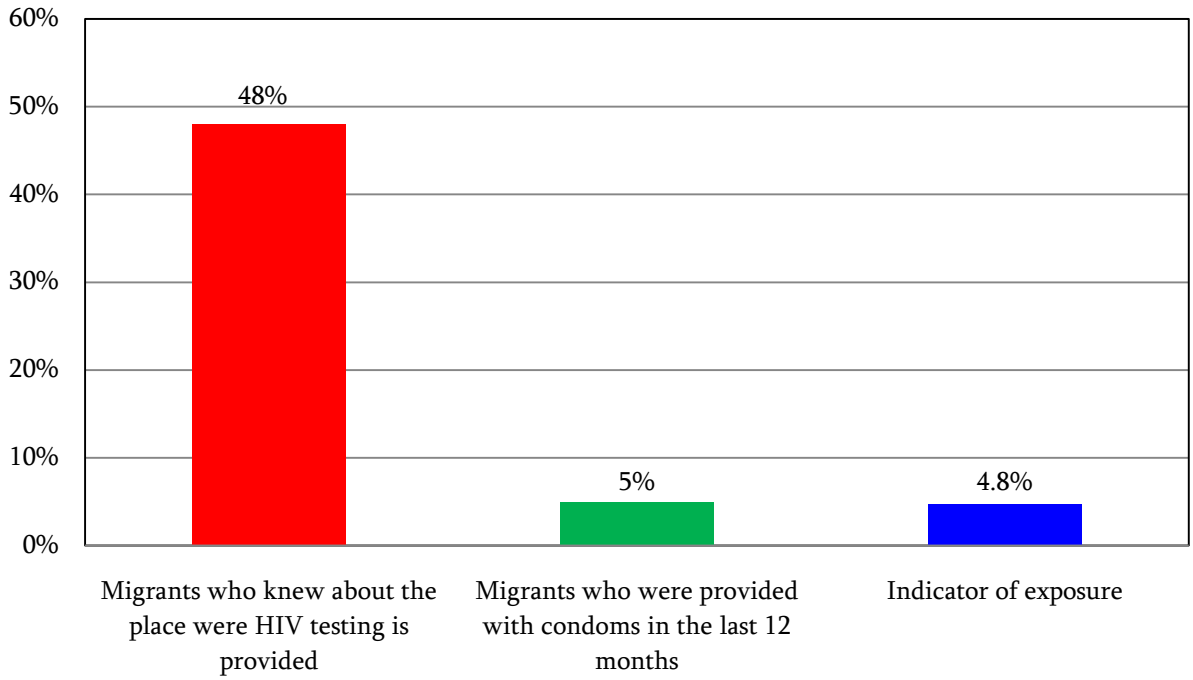
Figure 67. *Accessibility/availability of HIV counselling and testing services for the migrants*



In the past 12 months only 5% of those surveyed were provided with condoms.

Exposure to HIV prevention programmes of the migrants was 4.8% (Figure 68).

Figure 68. *Exposure to HIV interventions of the migrants*



6. Prisoners

Behavioural surveys were conducted among prisoners. A total of 350 prisoners with the mean age of 37.1and the median of 36 were surveyed.

Major characteristics of the surveyed prisoners are presented in Table 15. More details on this can be found in Appendix 6.

Table 15.

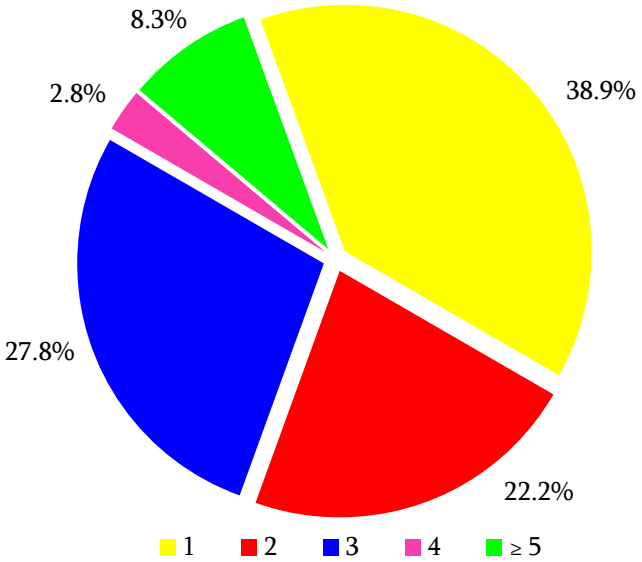
Characteristics of prisoners	
Age group	**n=324**
15-24	10.5%
25-34	34.6%
35-44	30.6%
45-54	16.7%
55 and above	7.7%
Age	**n=324**
Mean age	37.1
Median	36
Age at first drug use	**n=193**
Mean age	17.2
Median	17
Number of casual partners in the past 1 year	**n=72**
Average number	2.3

46.7% of the surveyed prisoners served their sentence in the criminal-executive institutions for the first time, 28.6% - for the second time and 24.7% - for the third time or more.

The absolute majority (96.6%) of the surveyed prisoners reported that they had ever had sex. The age at first sex of 74.1% of them was 15-19. The mean age at first sex was 17.2, and the median was 17.

46.1% of those surveyed indicated that they had sex with casual partners in the last 1 year, whereas 61.1% of them - with two or more casual partners (Figure 69).

Figure 69. *Number of casual partners of prisoners in the past year*



54.8% (n=190) of the surveyed prisoners reported that they had used drugs in their lifetime, of whom 53.4% were aged 15-19 when they first used drugs. Mean age of the first experience in drug use of those surveyed was 18.9, and the median was 18.

65.1% (n=123) of the prisoners having experience in drug use, had ever injected drugs. 39.7% (n=25) of the surveyed prisoners were aged 20-24 when they first injected drugs. Mean age of the first injecting drug use experience of those surveyed was 25.

21.9% of those surveyed prisoners did not perceive the risk of HIV infection for them.

Knowledge

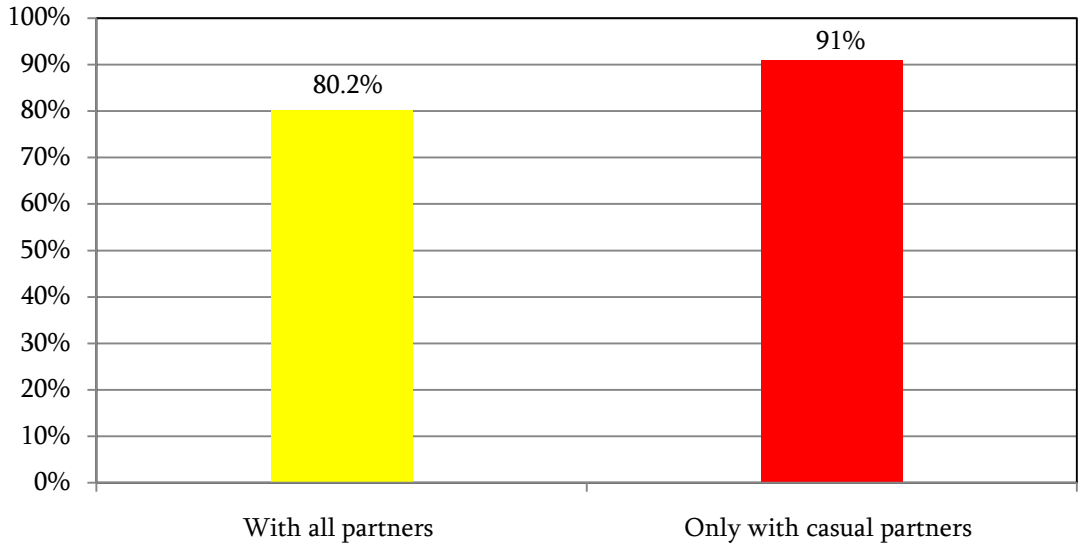
The percentage of those who of those surveyed who believed that it is possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner was 74.9%, 78.8% thought that condom use can reduce the risk of HIV transmission. 60.9% of those surveyed knew that a healthy-looking person can be HIV-infected. The percentage of the prisoners rejecting misconception of HIV transmission through shaking hands with an HIV-infected person was 89%, and by sharing a meal with an HIV-infected person - 80%. 85.9% of the surveyed prisoners knew that it is possible to get HIV by getting injections with a needle that was already used by someone else and 55.1% believed that one can avoid HIV transmission by switching to non-injecting drug use.

HIV knowledge of the surveyed prisoners was 38.4%.

Risk behaviour

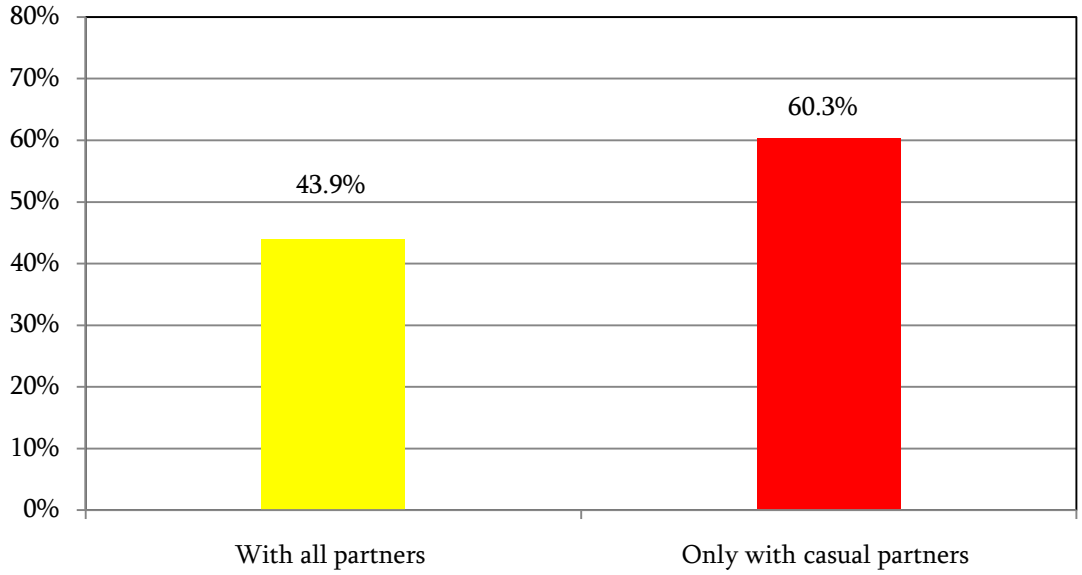
52.9% of the surveyed prisoners had sexual intercourse in the past 30 days, of whom only 80.2% used condoms at last sex. Condom use at last sex was reported only by 72.8% of those surveyed. The overwhelming majority of those surveyed (91%) used condoms at last sex with casual partners (Figure 70).

Figure 70. *Condom use among prisoners at last sex*



Consistent condom use among the prisoners at sex with casual partners in the last 1 year was 60.3%, with all their sexual partners - only 43.9% (Figure 71).

Figure 71. *Consistent condom use among prisoners*



62.8% (n=71) of those surveyed who had drug use experience had injected drugs in the last 1 month, where 66.7% (n=46) reported sharing injecting equipment, and 38.6% (n=27) - using non-sterile injecting equipment. Of those prisoners having experience in injecting drug use 82.1% (n=92) used sterile needle and syringe last time they injected drugs.

64.7% (n=77) of the prisoners having injecting drug use experience of had ever used drugs prepared by others.

Exposure to HIV interventions

Though 89.6% of those surveyed indicated that they had access to HIV counselling and testing services, 49.7% of the surveyed prisoners underwent HIV testing in the last 12 months. 96.4% of them applied for the testing results information and received it. 94.7% of HIV tests were undergone voluntarily.

Within the frameworks of preventive programmes during the past 12 months 69.3% of those surveyed were provided with condoms. To the opinion of 93.8% of those surveyed, a prisoner, in case of need, could obtain condoms in criminal-executive institutions. Also, 77% of those surveyed indicated that in case of necessity it is possible to obtain injecting equipment in criminal-executive institutions.

Discussion of the results

Analysis of the results of the numerous behavioural surveys conducted among the target population groups suggests that the answers given by the respondents to some questions associated with risky behaviour may not fully reflect their behavioural characteristics, such as, for example, drug use, number of sexual partners, as well as risky behaviours, practices related to condom use, injecting equipment use. They may be to some extent overstated or under-reported by the respondents. That can be explained by certain reasons. In particular, by the social stigma attached by the society to certain population groups, by their fear to face discrimination, etc.

The researchers created the most favourable conditions to ensure the maximum openness in the responses given by the participants. The interviews were conducted in private comfortable places, the surveys were anonymous, no names or other personal identifiers were recorded, and confidentiality was maintained. The participants were explained that the data obtained from the interview would be analysed in the context of the whole target population, and would not be linked back to persons. The participants were informed on the importance of their responses and were encouraged to provide accurate responses.

Despite all of this, however, it is possible that some of the received indicators could be slightly overestimated while others may be underestimated.

Also, analyzing the survey results, one should take into consideration that as compared to Yerevan city, the sizes of the key populations at higher risk of HIV exposure in Gyumri and Vanadzor cities are much smaller. At the same time, the coverage of preventive programmes implemented in those cities is comparatively extensive. Therefore, whatever large sample size were, the percentage of MARPs representatives exposed to preventive programmes, in the number of participants of this surveillance would have been considerable.

Interpreting the survey results, one should consider the criteria used for inclusion the populations into the survey, and sites where the surveys were conducted. In particular, the migrants from Shirak, Lori, Ararat, Armavir, Gegharkunik, Kotayk marzes were recruited for the survey conducted among this population group. Students of higher and secondary technical educational institutions of Yerevan city were involved into the group of youth aged 15-24. The surveys among PWID, SWs and MSM were carried out in Yerevan, Gyumri and Vanadzor cities, and the obtained results should be interpreted with the reference to those cities.

Interpreting the results obtained in each group, one should take into consideration the particularities of the applied survey methodology. Interpreting some obtained figures, it is necessary to indicate not only the average percentage, but also the received range.

Conclusions and recommendations

The objectives of this surveillance were attained: the prevalence of HIV infection among PWID, SWs, MSM and migrants was measured, the prevalence of hepatitis C among PWID, the prevalence of hepatitis B among MSM, the prevalence of syphilis among PWID, SWs, MSM, and migrants, the prevalence of gonorrhoea and trichomoniasis among SWs, hepatitis B and C among migrants were measured. Key risk behaviours were measured, estimates of intervention exposure were provided. The obtained data may be used for evaluating the success of implemented preventive activities, for advocacy and policy-making, and, in case of need, for additional studies.

To strenthen HIV Surveillance to halt the spread of HIV and raise efficiency of the activities on the response to the HIV epidemic.

To strengthen HIV surveillance and early HIV detection among PWID through enhancing HIV counselling and testing services appealability and their provision coverage.

To strengthen STI surveillance and early STI detection among SWs through expansion of STI testing among SWs and their coverage with STI treatment.

To strengthen HIV surveillance and early HIV detection among MSM through enlarging appealability for HIV testing and counselling services, expanding provider-initiated HIV testing and counseling coverage.

To strengthen HIV surveillance and early HIV detection among migrants by enlarging apealability for HIV testing and counselling services and their provision coverage through comprehensive package of HIV services.

To strengthen HIV surveillance and early HIV detection among prisoners through enhancing provider-initiated HIV testing and counselling services.

To strengthen HIV surveillance and early HIV detection among youth through enlarging apealability for HIV testing and counselling services, increasing indicator of HIV prevention knowlege through providing education on the HIV issues and enhancing advocacy of healthy life style.

Taking into account the role of HIV biological and behavioural surveillance in evaluating the success of implemented preventive activities, in developing and introducing effective preventive programmes, it is necessary to conduct the surveillance repeatedly.

Appendices

Appendix 1. Descriptive analysis of data from biological and behavioural surveillance among persons who inject drugs

Table 16. *Socio-demographic characteristics of PWID*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
Gender									
Male	292	96.1	91.5-99.2	49	97.4	92.2-100	50	100	
Female	8	3.9	0.8-8.5	1	2.6	0-7.8	0		
Age group									
Younger than 30	22	8.4	4.6-12.9	16	46.4	30.6-63			
30 and older	278	91.6	87.1-95.4	34	53.6	37-69.4	50	100	
Age									
Mean (years)		44.2			37.5			43	
Median (years)		44			39			42	
Family status									
Single	61	22.3	15.7-28.9	10	28	9-45	8	14.2	3.7-18.9
Married	196	67.3	60.5-74.8	23	37.5	29.7-59.3	38	65.4	62.6-90.6
Divorced	36	9	5.5-12.6	9	17.9	6-33.8	3	15.5	0.9-21.1
Civil marriage	3	0.6	0-1.4	3	12.2	1.7-20.6			
Widowed	4	0.8	0.1-1.7	1	4.4	0-8.5	1	4.9	0-7.3
Education									
Incomplete secondary	37	12.4	7.1-19	6	17.7	6.1-32.6	4	8.3	0.6-21.9
Secondary	209	68.6	60.2-75.5	20	33.2	16.8-57.7	26	60.8	45.7-74.6
Secondary technical	18	6.7	3.7-10.5	14	32.5	15.6-38.7	4	5.6	0.8-12.9
Incomplete higher	5	1.9	0.4-3.9	8	13.2	5.8-26.1	7	12	3-22.8
Higher	31	10.3	6.4-14.9	2	3.4	0-8.7	9	13.3	4.2-23.8

Table 17. *Sexual activity and number of sexual partners of PWID*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
Those sexually active									
Yes	300	100		50	100		50	100	
Age at first sex									
10-14	41	14.1	9.2-19.1	2	2.2	0-2.4	8	13	1.5-25.4
15-19	210	68	60.4-74.9	48	97.8	97.6-100	36	75.2	66.3-90
20 and older	49	17.9	12.3-25.1				6	11.8	2.4-18.5
Mean (years)		17.1			17.1			16.6	
Median (years)		17			17			17	
PWID who had casual partners in the past 1 year									
Yes	162	48.3	40-56.5	45	90		34	68	
Number of casual partners in the past year									
1	47	30.3	22.1-42.2	14	29.3	16.9-49.1	13	29	8.8-57.3
2-5	88	58.2	46.7-67.2	29	68.5	47.4-82.6	14	59.7	29.4-82.3
6-10	15	7.8	2.8-13.8	2	2.2	0-6.3	5	4.8	0-11.4
11 and more	12	3.7	1.1-7.7				2	6.5	0-15
Mean (number)		5.4			2.4			3.1	
Median (number)		2			2			2	
PWID who had sex in the past 30 days									
Yes	251	82.7	76.4-89.1	49	95.4	92.3-100	39	74.4	62.3-91.5

Table 18. *Condom use among PWID*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
Condom use at last sex									
Yes	94	40.3	32.9-49.4	33	86.2	69.2-96.7	26	69.5	51.8-83.7
Indicator of condom use at last sex									
Indicator	79	41.7	34.4-51.6	32	84.5	67.6-95.2	19	71.2	62-90.6
Condom use at last sex with a casual partner									
Yes	87	62.1	49.9-79	42	92.2	81.6-100	28	87.5	81-97.9
Frequency of condom use with casual partners in the past 1 year									
Every time	75	54.2	44.1-72.1	36	84.1	63.1-99.3	23	65.2	47.6-88
Not always	51	27.1	11.1-35.9	7	15.9	0.9-36.9	8	28.3	10.1-44.1
Never	35	18.7	9.5-30.3				3	6.5	0-13.2
Frequency of condom use in the past 1 year									
Every time	66	28.3	19.7-35.5	16	48.5	22-71.3	13	31.6	12.7-53.6
Not always	114	35	28.6-43.3	31	49.3	27.4-75.8	23	50.2	30.6-68.1
Never	106	36.7	29-44.6	1	2.2	0-6.3	13	18.2	7.9-33.2

Table 19. *Drug use experience*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
Age at first drug use									
Under 14	26	6.2	3.7-9.2	0			2	3.4	0-5.1
15-19	137	47.7	40.9-56.1	20	49.6	28-74	24	58.8	46.4-80.8
20-24	55	16.5	11.3-23.3	22	39.1	19.7-54.8	19	30.4	11.6-46.1
25 and older	82	29.6	21.3-35.7	8	11.3	2.2-25	5	7.4	1.6-11.5
Mean (years)		20.3			21			19.6	
Median (years)		18.5			20.5			19	
Frequency of drug use in the past 1 month									
1-4	125	57.7	48-66.5	24	47.9	28.5-61.2	17	37.5	22.9-62
5-9	37	18.7	10.8-25.5	10	22.9	6.9-46.5	15	39.6	18.4-57.2
10 and more	88	23.5	17.1-32.3	12	29.2	18.4-43.9	12	22.9	7.9-37.3
Mean		11.8			6.4			8	
Median		4.5			3.5			5	
The most frequently used in the past 3 months									
Heroine	33	11.5	6.3-17.5				8	16.9	2.3-36.9
Chernyashka	125	39.7	32.7-48.0	31	56.7	39.5-70.8	25	35.9	17.1-60.6
Desomorphine (Petrol)	131	39.3	31.5-46.5	32	57.6	44.2-73.6	39	93.1	82.9-99.4
Other	49	22.9		3	5.5	0-15.9	6	8.9	
PWID who sought treatment for addiction in the past 1 year									
Yes	97	37.8	30.3-46.3	13	43.2	17.4-64.7	41	77.5	74.8-96.6
Type of provided treatment									
Registered	45	49.9	37.2-62.9	13	100		23	68.8	53-80
Anonymous	46	50.1	37.1-62.8				19	31.2	20-47
PWID who ever had problems with the police related to their drug usage									
Yes	110	33.5	26.5-41.1	28	46	30.6-64.5	40	91.8	84.7-96.3

Table 20. *Some behavioural characteristics of PWID*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
Sharing injecting equipment in the past 1 month									
Yes	146	42	34.7-50.9	36	75.1	56.9-89.6	10	10.2	2.9-22.5
Ever injecting drugs prepared by others									
Yes	208	63.7	55.9-72.2	47	93.5	85.6-99	34	75.8	58.7-88.2
Using sterile needle and syringe at last injection									
Yes	289	97.1	94.8-99.1	50	100		49	99	96.5-100
Indicator of usage of sterile needle and syringe at last injection									
Indicator	242	96.9	94.2-99.3	49	100		42	95.2	82.3-100
Disinfecting syringes and needles before injecting drugs									
Yes. always	18	5.2	2.1-9	1	1.5		1	1	
Sometimes	12	2.3	0.8-4.2	1	1.5				
Never	4	1.7	0.2-7.7						
Use only disposable syringes and needles	266	90.8	86.7-94.6	47	97	91.5-100	49	99	96.5-100

Table 21. *Knowledge about HIV prevention and HIV risk perception among PWID*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
Is it possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner?									
Yes	265	90.7	86.9-93.9	50	100		46	64.5	
Can condom use reduce the risk of HIV transmission?									
Yes	267	86.4	80.9-92.2	50	100		47	94.2	92.6-100
Can a healthy-looking person be HIV-infected?									
Yes	246	82.5	75-88.2	49	95.4	92.2-100	45	67.5	
Is it possible to get HIV by sharing a meal with an HIV-infected person?									
No	230	81	74.8-86	50	100		47	75.9	
Is it possible to get HIV through shaking hands with an HIV-infected person?									
No	253	87.5	81.8-91.7	50	100		49	97.9	96.4-100
Is it possible to become HIV infected by using an injection needle that was already used by someone else?									
Yes	289	97.4	95-99.2	50	100		50	100	
Is it possible to avoid HIV infection by switching to non-injecting drugs?									
Yes	239	79.7	72.9-85.7	47	91.7	80.7-100	43	89.2	75.9-98.1
Indicator of knowledge about HIV prevention									
Indicator	183	60.9	53.5-68.5	46	88.9	73.3-97.7	34	59.2	39.9-82.8
HIV risk perception									
Highly probable	50	13.8	9.3-20.3	14	21.1	12.7-45	11	23	12.6-36.2
Hardly probable	146	47.1	39.2-53.8	29	72.4	49.9-84.7	30	62.1	42.7-78.6
No risk	100	39.2	31.4-46.8	2	6.5	0-10.2	8	14.9	3-31.4

Table 22. Exposure to HIV interventions of PWID

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
PWID who knew where they can undergo HIV testing									
Yes	252	86	80.7-90.4	50	100		49	96.3	93.8-100
PWID who knew how to access to HIV counselling and testing services									
Yes	230	77.4	70.4-82.9	49	90.9	85.4-100	46	77.1	76.8-99.6
No	40	12.9	8.7-18.4				3	15.3	0-21.2
Do not know	30	9.7	5.3-15.3	1	9.1	0-14.6	1	7.6	
PWID who underwent HIV testing in the last 12 months									
Yes	66	26	19.5-33.9	19	38.1	24.2-53.3	45	80.8	76.9-98.4
PWID who received testing results information									
Yes	60	24.9	18.3-33	12	53.6	52.9-100	45	100	
PWID who were provided with condoms in the last 12 months									
Yes	34	8.1	4.6-12.6	33	62.6	41.9-79.2	43	85.1	70.8-96.7
PWID who received disposable syringes and needles in the last 12 months									
Yes	34	8.7	5.4-12.9	37	72.7	54.4-89.6	43	85.1	71.6-97.2
Indicator of PWID's exposure to HIV interventions									
Indicator	26	6.3	3.5-9.7	30	58.7	39.7-76.2	43	80	71.4-97.1

Table 23. *Biological indicators among PWID in Yerevan city*

	n	**%**	**95% CI**
HIV prevalence			
PWID positive for HIV	13	4	1.8-6.7
Syphilis prevalence			
PWID positive for syphilis	9	3.7	0.8-8.4
Hepatitis C prevalence			
PWID positive for hepatitis C	155	52.1	43.7-60.1

Appendix 2. Descriptive analysis of the data from biological and behavioural surveillance among sex workers

Table 24. *Socio-demographic characteristics of SWs*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95%CI**	**n**	**%**	**95%CI**	**n**	**%**	**95%CI**
Age group									
Younger than 30	85	30.2	23-41.8	16	50.6	21.3-67.7	9	23.2	3.9-42.6
30 and older	215	69.8	58.2-77	34	49.4	32.3-78.7	41	76.8	57.4-96.1
Age									
Mean age (years)		35.5			35			40.5	
Median (years)		35			34.5			40	
Family status									
Single	95	29.9	21.6-39.1	5	43.2	5.6-59.8	12	31.5	23.2-62.8
Married	48	13	6.3-16.2	9	19.3	5.7-47.8	6	17.6	2.2-32.3
Divorced	112	41.6	34.9-54.6	25	29.8	21.8-61.4	24	38.2	13.5-55.9
Cohabit with their partners	19	6.9	2.5-13.4	1	0.8	0-3.1	1	2.8	0-4.1
Widowed	25	8.6	2.9-13.5	9	6.8	2.3-14	7	9.8	1-16.1
Education									
Incomplete secondary	69	26.1	18.7-36.1	24	32.6	14.2-55.4	5	16.7	2.4-37.4
Secondary	139	43.1	31.3-49.7	20	57.7	35.6-82	10	23.7	5.4-46.8
Secondary technical	7	1.1	0-3.4	5	7.2	1.2-11.6	21	28.8	13.5-45.4
Incomplete higher	23	6.5	2.5-12.6	1	2.4	0-3.4	9	19.9	7.2-33.3
Higher	61	23.3	16-33.3				5	10.9	2.9-24.2

Table 25. *Sexual activity of SWs and number of their sexual partners*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95%CI**	**n**	**%**	**95%CI**	**n**	**%**	**95%CI**
Age at first sex									
Younger than 15	6	1	0.1-1.8	6	5.8	1.5-12.1			
15-19	175	56.4	45.6-64.3	35	71.7	54.1-86.4	27	50.4	26-66.9
20-24	94	34.3	27.2-45.4	7	18.8	7.4-34.7	21	46.4	29.1-72
25 and above	15	2.8	1.2-6.9	2	3.7	0-9.3	2	3.3	0-9.2
Mean age (years)		19.4			17.3			19.7	
Median (years)		19			17			19	
Age at first sex in exchange for money									
Younger than 15	1	0							
15-19	39	12	5.9-19.6	7	6.8	1.8-19.3	3	1.4	0-3.7
20-24	102	32.7	25-42.7	24	70.1	37-84.1	16	36.4	11-43.4
25-29	70	21.3	13.7-28.1	19	23.1	10.4-51.5	27	62.1	55.5-86.9
30-34	40	16.2	8.9-27.1						
35 and older	38	17.8	9-24.9						
Mean age (years)		25.8			23.4			26.3	
Median (years)		25			24			25	
Number of clients in the last 1 month									
1	4	2.5	0-5.6						
2-5	40	13.4	7.1-20.7	4	32.3	2.6-63.3			
6-10	49	23.2	15.3-35	11	29.6	8.6-55.6	19	44.7	16.3-61.7
11 and more	197	60.8	49.7-69.9	35	38.2	20.6-63.5	31	55.3	38.3-83.7
Mean age (number)		22			18.8			16.3	
Median (number)		16			20			15	
SWs having non-commercial sexual partners in the past 1 year									
Yes	171	56.1	43.2-65	25	62.5	38.7-79.8	23	35.8	19.8-54.1

Table 26. *Condom use among SWs*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95%CI**	**n**	**%**	**95%CI**	**n**	**%**	**95%CI**
Condom use at last sex with non-commercial partner									
Yes	98	55.4	37.5-73.8	10	59.8		10	53.2	6.9-83.2
Frequency of condom use at sex with non-commercial partner in the past 30 days									
Every time	61	37.8	26-57.2	4	27.3		9	61.7	0-88.6
Almost every time	43	15.4	6.8-22.7	8	35.3		3	0	0
Sometimes	46	28.5	11.6-37.4	10	33.7		4	23.4	0-100
Never	23	18.2	8.2-35	3	3.7		7	15	0-27.8
Indicator of condom use at last sex with a client									
Indicator	278	93.9	89.2-97.6	44	89.6	77.4-97.6	47	98.6	97.6-100
Frequency of condom use with clients in the past 30 days									
Every time	262	91.9	85.8-95.5	40	57.7	32-86.8	42	94.9	88.6-98.9
Almost every time	19	3.7	1.5-6.8	8	40.9	12.4-67.5	4	5.1	1.1-11.4
Sometimes	15	3.6	1.1-8.6	1	1.4	0-3.2	4	0	
Never	2	0.8	0-2.6						
Condom use at last oral sex									
Yes	80	82.1	74-93.8	1	1.3	0-4.9	37	77.2	54.4-98.6
Condom use at last anal sex									
Yes	49	80.5	61.4-93.5	1	1.3	0-4.7	27	50.3	29.5-73.3
Condom use at last vaginal sex									
Yes	281	95.2	90.4-98.3	44	87.7	72.4-96.3	49	100	

Table27. *Knowledge about HIV prevention and HIV risk perception among SWs*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95%CI**	**n**	**%**	**95%CI**	**n**	**%**	**95%CI**
Is it possible to reduce the risk of HIV infection by having sexual relations with one uninfected faithful sexual partner?									
Yes	264	86.9	77.3-92.8	49	97.4	90.9-100	46	91.9	85.1-99.8
Is it possible to reduce the risk of HIV infection by using condoms?									
Yes	266	94.8	92.2-98.3	50	100		50	100	
Can a healthy-looking person be HIV infected?									
Yes	218	71.2	60.4-80.4	50	100		50	100	
Is it possible to become HIV infected by sharing a meal with a person infected with HIV?									
No	267	89	78.9-94.8	50	100		50	100	
Is it possible to become HIV infected through shaking hands with an HIV-infected person									
No	281	95.1	86.9-98.7	49	98.3	93.4-100	50	100	
Indicator of knowledge about HIV prevention									
Indicator	182	58.6	47.3-67.8	48	95.5	87.3-100	46	94.6	86.8-99.8
HIV risk perception									
Highly probable	37	13.7	6.4-21.7	1	0.9	0-3.2	25	47.3	25.5-71.7
Hardly probable	213	70.7	56.2-78.4	22	73.6	61.7-87.8	16	36.3	12.6-53
No risk	44	15.6	10.7-28.3	25	25.5	11.7-36.7	9	16.4	5.2-38.4

Table 28. *Exposure to HIV interventions of SWs*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95%CI**	**n**	**%**	**95%CI**	**n**	**%**	**95%CI**
SWs who knew where they can undergo HIV testing									
Yes	265	83.2	75.6-92.2	50	100		50	100	
SWs who knew how to access to HIV counselling and testing services									
Yes	284	96.9	94.6-99	50	100		50	100	
SWs who underwent HIV testing in the last 12 months									
Yes	197	56.7	48.9-69.2	47	91.7	77.7-100	49	100	
SWs who received information about their testing results									
Yes	197	100		47	100		49	100	
SWs who underwent STI testing in the last 12 months									
Yes	222	63.5	54.2-73.3	38	74	44.4-92.8	36	60.6	39.9-83
SWs who were provided with condoms in the last 12 months									
Yes	250	76.8	64.4-83.6	49	97.4	90.5-100	49	100	
Indicator of SWs' exposure to HIV interventions									
Indicator	228	65.8	54.7-74.8	49	97.4	90.7-100	49	100	

Table 29. *Comparative data on some characteristics of SWs having at least one STI and those without STIs. Yerevan city*

	SWs having at least one STI (n=68)			SWs without STI (n=232)		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**
SWs in Yerevan						
Total	68	24.2	14.8-31.8	232	75.8	68-85.5
Age						
Mean age (years)		35.4			35.5	
Education						
Secondary education	52	79.3	58.6-92.6	156	66.9	55.7-75.8
Family status						
Married	10	15.8	1.4-20.6	38	12.7	6.4-18.5
Number of clients in the past 1 month						
Mean (number)		24			21.5	
Condom use at last sex with a non-commercial partner						
Yes	23	69.2	52.8-94.7	75	52.7	33.2-69.5
Condom use at last sex with a client						
Yes	64	95.8	86.4-100	214	93.2	87.7-97.6
Consistent condom use with non-commercial partners in the past 30 days						
Yes	18	60.3	39.3-89.6	43	29.9	17-47.7
Consistent condom use with clients in the past 30 days						
Yes	62	94.2	85.4-100	200	90.6	82.3-95.3

Table 30. *Biological indicators among SWs in Yerevan city*

	n	%	95% CI
HIV prevalence			
SWs seropostive for HIV	0	0	
Syphilis prevalence			
SWs seropostive for syphilis	5	0.8	0-2.5
Trichomoniasis prevalence			
SWs seropostive for trichomoniasis	61	20.8	11.1-27.6
Gonorrhoea prevalence			
SWs seropostive for gonorrhoea	10	3.8	0.7-10

Appendix 3. Descriptive analysis of the data from biological and behavioural surveillance among men who have sex with men

Table 31. *Socio-demographic characteristics of MSM*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
Age group									
Under 25	168	61.5	50.4-69.5	43	95.9	90.4-100	21	40.7	20-58.1
25 and older	132	38.5	30.5-49.6	5	4.1	0-9.6	29	59.3	41.9-80
Age									
Mean (years)		25			21.5			26.6	
Median (years)		24			21			25	
Family status									
Single	263	91	88.1-94.7	47	97.2	88.4-99.7	32	52.1	34.6-74.7
Married	17	3.8	1.9-6.2				11	33.3	9.6-55.6
Divorced	15	3	1.5-5.3	3	2.8	0-6.9	6	14.6	0-32.8
Cohabit with their partners	5	2.2	0.1-2.9						
Education									
Incomplete secondary	4	1.2	0-2.6	19	54.4	33-73.8			
Secondary	146	45.9	37.5-57.5	9	13.4	6-27.8	22	45.5	23.9-64.7
Secondary technical	32	15.7	6.9-27.2	9	15.9	2.4-28.4	13	23.6	6.8-45.3
Incomplete higher	31	13.3	6.7-16.8	7	15	6.1-32.2	3	4.7	0.4-10.3
Higher	87	23.9	17-32.1	2	1.3		12	26.2	12.8-42.6

Table 32. *Sexual activity and number of sexual partners of MSM*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
Age at first sex									
Younger than 10	8	1	0.3-2.3						
10-14	109	36.6	26.2-46.4				1	0.6	0-1.4
15-19	169	58.3	48.4-68.9	47	97.1	93.3-100	44	95.1	88.8-99.3
20 and older	14	4.1	1.3-8.2	3	2.9	0-6.7	5	4.2	0-10.8
Mean (years)		18.7			17.6			17.4	
Median(years)		16			17			17	
Gender of sexual partners at present									
Only male sexual partners	178	58	46.6-64.9	21	49	31.9-66.3	5	7.5	0.3-19.1
Only female sexual partners	3	1	0-2.5						
Both male and female partners	111	41	33.7-52.4	28	51	33.7-68.1	45	92.5	80.9-99.7
Type of sexual partners									
Regular partners	132	47.7	36.2-55.9	37	87.3	79.8-95.8	46	93.8	87.7-98.8
Casual sexual partners	28	6.9	3.5-11.1				1	1.9	0-5.8
Both regular and casual sexual partners	140	45.5	37-57.2	9	12.7	3.5-19.6	3	4.3	0-9.9
Number of partners per month									
Mean (number)		4.2			2.3			2.9	
Median (number)		2			2			2	
MSM having casual partners in the past 1 year									
Yes	214	71.8	63.2-80.1	22	37.8	29.9-54.8	11	18.3	6.7-34.7
MSM who had paid sex									
Yes	79	18.7	11.2-28.9	1	2.3	0-8.1	1	0.7	0-1.2

Table 33. *Condom use among MSM*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
Condom use at last sex									
Yes	218	71.8	62.4-79.5	9	22.4	10.5-36	43	86.6	74.6-96.2
Condom use at last sex with a casual partner									
Yes	185	87.4	78.8-94.1	13	69	45.5-88.1	6	59.3	
Frequency of condom use with casual partners in the past 1 year									
Every time	148	69	52.8-81.6	2	25.9	0-36.7	4	34.2	23.9-52.1
Not always	56	25.5	13.6-42.1	19	66.1	59.8-97.3	4	13.4	
Never	8	5.5	1.4-10.2	2	7.9	0-13.4	1	52.4	
Frequency of condom use in the past 1 year									
Every time	117	35.4	27.8-44.4	2	1.9	0-9.8	38	77.1	65.9-89.1
Not always	140	50.1	39.9-58.4	40	85.5	72.6-96	11	21.1	9.2-32.5
Never	41	14.5	9.5-21.1	6	12.6	1.9-23.8	1	1.8	0-5.7
Condom use at last oral sex									
Yes	120	37.5	28.1-48.1	0	0		14	25.9	12.1-39.5
Condom use at last anal sex									
Yes	203	70	60.3-76.8	4	7.4	1.1-15.3	43	97.5	93.1-100
Indicator of condom use at last anal sex									
Indicator	188	65.3	56.5-72.4	3	6.8	0-14.1	43	96.3	

Table 34. *Drug use experience among MSM*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
MSM who have drug use experience									
Yes	59	13.4	8-17.1	12	19.9	10.1-35.5	0	0	

Table 35. *Knowledge about HIV prevention and HIV risk perception among MSM*

	Yerevan city (n=300)			Gyumri city (n=50)			Vanadzor city (n=50)		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
Is it possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner?									
Yes	272	91	86-94.9	41	80.4	58.8-93.9	47	84.3	80.1-100
Can condom use reduce the risk of HIV transmission?									
Yes	284	94.8	89.4-98.6	43	89.8	80.4-97	49	99.1	97.1-100
Can a healthy-looking person be HIV-infected?									
Yes	265	91	86.4-94.4	34	79.2	64.6-89.5	49	99.1	97-100
Is it possible to get HIV by sharing a meal with an HIV-infected person?									
No	272	91.7	85.3-95.1	44	91.5	84.2-97.6	49	98.3	97.2-100
Is it possible to get HIV through shaking hands with an HIV-infected person?									
No	281	94.6	91.1-97.3	49	95	91.3-100	48	86.1	86.1-100
Indicator of knowledge on HIV prevention									
Indicator	228	78.9	71.2-85	30	69.8	52.2-84.4	44	85.7	72.5-97.9

HIV risk perception									
Highly probable	5	1.2	0-3.2	20	35.4	17.1-52.9	1	1.3	0-3
Hardly probable	166	58.1	49.7-69.5	28	64.6	47.1-82.9	45	94	81-99.7
No risk	123	40.7	29.3-49				4	4.7	0.2-17.2

Table 36. *Exposure to HIV interventions among MSM*

	Yerevan (n=300)			Gyumri (n=50)			Vanadzor (n=50)		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**	**n**	**%**	**95% CI**
MSM who knew where they can undergo HIV testing									
Yes	250	84.1	77.2-89.6	37	85.9	70.2-96.5	38	69.8	46.9-86.4
MSM who knew how to access to HIV counselling and testing services									
Yes	188	72.7	63.4-80.4	12	44.1	20.3-61.2	16	24.6	10.5-45.4
MSM who underwent HIV testing in the last 12 months									
Yes	151	51.2	40-60.3	10	22.5	5.8-41.6	9	8.9	2.3-22.5
MSM who received information about their testing results									
Yes	144	97.8	92.2-100	8	78.2	52.6-100	9	100	
MSM who were provided with condoms in the last 12 months									
Yes	165	55.1	43.4-64	10	20	8.8-36.2	50	100	
MSM exposure indicator									
Indicator	155	53.5	42.7-62.9	10	19.7	8.6-35.7	38	69.8	47.1-86.4

Table 37. *Comparative data on some characteristics of MSM having at least one STI and those without STIs. Yerevan city*

	MSM who have at least 1 STI (n=11)			MSM who have no STI (n=289)		
	n	**%**	**95% CI**	**n**	**%**	**95% CI**
MSM in Yerevan						
Total	11	2.8	0.8-5.9	289	97.2	94-99.2
Mean age (years)		28.2			24.9	
Condom use at last sex with casual partners						
Yes	7	100		178	86.8	
Condom use at last sex with all partners						
Yes	10	94	69-100	208	71	61.5-78.7
Consistent condom use with casual partners in the past 1 year						
Yes	6	81.1		142	68.1	
Consistent condom use with all partners in the past 1 year						
Yes	5	65.3	55-90.7	112	35.1	27.4-44.1

Table 38. *Biological indicators among MSM in Yerevan city*

	n	**%**	**95% CI**
HIV prevalence			
MSM positive for HIV	4	0.4	0-0.9
Syphilis prevalence			
MSM positive for syphilis	6	1.8	0.2-4.8
Hepatitis B prevalence			
MSM positive for hepatitis B	5	1.1	0.2-2.4

Appendix 4. Descriptive analysis of data from behavioural surveillance among youth

Table 39. *Socio-demographic characteristics of young people*

	n=1200	%	95% CI
Gender			
Male	424	35.4	32.7-38
Female	773	64.6	62-67.3
Age group			
15-19	912	76.5	74-78.9
20-24	280	23.5	21.1-26
Age			
Mean age (years)		18.3	
Median (years)		18	
Family status			
Single	1143	97.9	97.2-98.7
Married	21	1.8	1.1-2.6
Divorced	1	0.1	0-0.3
Civil marriage	1	0.1	0-0.3
Widowed	1	0.1	0-0.3
Education			
Incomplete secondary	19	1.6	0.9-2.3
Secondary	76	6.4	4.9-7.7
Secondary technical	340	28.5	25.9-31
Incomplete higher	458	38.4	35.6-41.3
Higher	300	25.1	22.8-27.5
Place of residence			
City	1004	85.7	83.6-87.7
Village	167	14.3	12.3-16.4

Table 40. *Sexual activity and number of sexual partners of young people*

	n=1200	%	95% CI
Those sexually active			
Yes	281	23.4	21-26
Age at first sex			
10-14	28	11.8	8-16
15-19	200	84.4	79.3-89
20-24	9	3.8	1.7-6.3
Mean age (years)		16.1	
Median (years)		16	
Young people who had sex in the past 30 days			
Yes	120	44.3	38.4-50.2
Young people who had casual partners in the past 1 year			
Yes	178	65.2	59.3-71.4
Number of casual partners in the past 1 year			
1	23	18.5	11.3-25.8
2	28	22.6	15.3-30.4
3	22	17.7	11.1-24.8
4	13	10.5	5.6-16.3
5 and more	38	30.6	23-38.5
Mean (number)		5.2	

Table 41. *Condom use among young people*

	n=1200	%	95% CI
Condom use at first sex			
Yes	220	82.4	77.9-86.5
Condom use at last sex			
Yes	80	67.8	59.8-75.9
Condom use at last sex with casual partner			
Yes	139	78.5	72.2-84.4
Frequency of condom use with casual partners in the past 1 year			
Every time	114	65.1	57.9-72.3
Not always	51	29.1	22.4-36.3
Never	10	5.7	2.8-9.7

Table 42. *Drug use experience among young people*

	n=1200	%	95% CI
Those who have drug use experience			
Yes	59	4.9	3.7-6.1
Age at first drug use			
10-14	8	17.8	6.7-28.9
15-19	35	77.8	64.4-88.9
20-24	2	4.4	0-11.1
Mean age (years)		16.6	
Median (age)		16	
The most frequently used drugs in the lifetime			
Cannabis/Marijuana	47	94	86.4-100
Those having experience in injecting drugs			
Yes	3	0.3	0-0.5

Table 43. *Knowledge about HIV prevention and HIV risk perception among young people*

	n=1200	%	95% CI
Is it possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner?			
Yes	532	47.3	44.4-50.4
Can condom use reduce the risk of HIV transmission?			
Yes	630	55.8	52.9-58.9
Can a healthy-looking person be HIV-infected?			
Yes	725	62.8	59.9-65.6
Is it possible to get HIV by sharing a meal with an HIV-infected person?			
No	687	59.3	56.3-62.1
Is it possible to get HIV through shaking hands with an HIV-infected person?			
No	832	71.6	69-74.1
Indicator of knowledge about HIV prevention			
Indicator	242	22.4	19.9-24.8
HIV risk perception			
Highly probable	67	6.2	4.7-7.6
Hardly probable	367	33.8	30.9-36.6
No risk	652	60	57.1-62.9

Appendix 5. Descriptive analysis of the data from behavioural surveillance among the migrants

Table 44. *Socio-demographic characteristics of the migrants*

	n=550	%	95% CI
Gender			
Male	522	94.9	92.9-96.7
Female	28	5.1	3.3-7.1
Age group			
15-24	89	16.2	13.1-19.3
25-34	222	40.4	36.2-44.9
35-44	89	16.2	12.9-19.3
45-54	94	17.1	14.2-20.5
55 and older	56	10.2	7.6-12.8
Age			
Mean age (years)		36	
Median (years)		32	
Family status			
Single	114	20.7	17.5-24.5
Married	426	77.5	73.8-80.9
Divorced	7	1.3	0.4-2.4
Civil marriage	2	0.4	0-0.9
Other	1	0.2	0-0.7
Education			
Incomplete secondary	53	9.7	7.2-11.8
Secondary	356	64.8	61-69.4
Secondary technical	72	13.1	10.3-16.4
Incomplete higher	8	1.5	0.5-2.6
Higher	60	10.9	8.5-13.7
Age at first sex			
Mean age (years)		18.5	
Median (years)		18	
Number of casual partners in the past year			
Mean (number)		3	

Table 45. *Sexual activity of the migrants and number of their sexual partners*

	n=550	%	95% CI
Those sexually active			
Yes	545	99.3	98.5-99.9
Age at first sex			
10-14	19	3.5	2-5.3
15-19	344	62.9	59-67
20-24	164	30	26.5-33.7
25-29	17	3.1	1.6-4.4
30 and more	3	0.5	0-1.3
Mean age (years)		18.5	
Median (years)		18	
Migrants having sex in the past 30 days			
Yes	437	80.3	77.2-83.3
Migrants having casual partners in the past 1 year			
Yes	298	54.9	50.6-59.2
Number of casual partners in the past 1 year			
1	126	42.6	36.7-48.1
2	59	19.9	15.7-25.5
3	31	10.5	7.1-14
4	21	7.1	4.4-10
5 and more	59	19.9	15.9-24.7
Mean (number)		3	

Table 46. *Condom use among the migrants*

	n=550	%	95% CI
Condom use at last sex			
Yes	140	25.9	22.4-29.5
Condom use at last sex with casual partner			
Yes	198	67.6	62.5-72.8
Frequency of condom use at sex with casual partners in the past 1 year			
Every time	143	48.3	42.1-53.5
Not always	78	26.4	21.4-32.3
Never	75	25.3	20.5-30.3

Table 47. *Drug use experience among the migrants*

	n=550	%	95% CI
Migrants who ever used drugs			
Yes	44	8.1	6-10.4
Age at first drug use			
10-14	1	2.3	0-6.8
15-19	20	45.5	29.5-59.1
20-24	15	34.1	20.5-47.7
25 and older	8	18.2	6.8-29.5
Mean age (years)		20.4	
Median (years)		20	
Those having experience in injecting drugs			
Yes	2	0.4	0-0.9

Table 48. *Knowledge about HIV prevention and HIV risk perception among the migrants*

	n=550	%	95% CI
Is it possible to reduce the risk of HIV infection by having sexual relations with one uninfected faithful sexual partner?			
Yes	437	80.2	77.1-83.1
Is it possible to reduce the risk of HIV infection by using condoms?			
Yes	422	77.7	74-80.8
Can a healthy-looking person be HIV infected?			
Yes	338	62.2	58.1-66
Is it possible to become HIV infected by sharing a meal with a person infected with HIV?			
No	242	44.5	40.4-48.5
Is it possible to become HIV infected through shaking hands with an HIV-infected person			
No	303	55.6	51.2-59.8
Indicator of knowledge about HIV prevention			
Indicator	132	24.4	20.7-28.4
HIV risk perception			
Highly probable	12	2.2	1.1-3.5
Hardly probable	100	18.5	14.9-21.6
No risk	430	79.3	76-83

Table 49. *Biological indicators among migrants*

	n	%	95% CI
HIV prevalence			
Migrants positive for HIV	2	0.4	0-0.9
Hepatitis B prevalence			
Migrants positive for hepatitis B	2	0.4	0-0.9
Hepatitis C prevalence			
Migrants positive for hepatitis C	3	0.5	0-1.3

Appendix 6. Descriptive analysis of data from behavioural surveillance among the prisoners

Table 50. *Socio-demographic characteristics of the prisoners*

	n=350	%	95% CI
Gender			
Male	330	94.3	91.4-96.6
Female	20	5.7	3.4-8.6
Age group			
15-24	34	10.5	7.4-13.6
25-34	112	34.6	29.9-40.1
35-44	99	30.6	25.9-36.1
45-54	54	16.7	12.9-21.1
55 and older	25	7.7	4.9-10.8
Age			
Mean age (years)		37.1	
Median (years)		36	
Family status			
Single	110	32	27-37.2
Married	128	37.2	32-42.7
Divorced	81	23.5	19.2-27.7
Civil marriage	21	6.1	4.1-8.7
Widowed	4	1.2	0.3-2.3
Education			
Incomplete secondary	42	12.5	8.8-16.1
Secondary	146	43.3	38.6-48.4
Secondary technical	58	17.2	13.4-21.7
Incomplete higher	33	9.8	6.5-13.4
Higher	58	17.2	13.4-21.7

Table 51. *Sexual activity of the prisoners and number of their sexual partners*

	n=350	%	95% CI
Those sexually active			
Yes	338	96.6	94.3-98.3
Age at first sex			
10-14	17	8.8	5.1-13.5
15-19	143	74.1	66.7-79.9
20-24	31	16.1	11.4-21.4
25 and older	2	1	0-2.6
Mean age (years)		17.2	
Median (years)		17	
Prisoners who had sex in the past 30 days			
Yes	173	52.9	47.9-58.5
Prisoners who had casual partners in the past 1 year			
Yes	148	46.1	41.7-51.2
Number of casual partners in the past year			
1	28	38.9	27.8-50
2	16	22.2	13.9-33.3
3	20	27.8	16.7-37.8
4	2	2.8	0-6.9
5 and more	6	8.3	2.8-15.3
Median (number)		2.3	

Table 52. *Condom use among the prisoners*

	n=350	%	95% CI
Condom use at last sex			
Yes	158	72.8	66.8-78.8
Condom use at last sex with casual partner			
Yes	131	91	86.2-95.6
Frequency of condom use at sex with casual partners in the past 1 year			
Every time	88	60.3	51.3-67.8
Not always	49	33.6	26.1-42.4
Never	9	6.2	2.5-10.4
Frequency of condom use in the past 1 year			
Every time	129	43.9	38-50
Not always	91	31	26.1-35.8
Never	74	25.2	20.3-30.2

Table 53. *Drug use experience among the prisoners*

	n=350	%	95% CI
Prisoners who ever used drugs			
Yes	190	54.8	49.3-60
Age at first drug use			
10-14	15	14.9	8.8-23
15-19	54	53.4	45-64.4
20-24	20	19.8	11.6-26.9
25-29	7	6.9	2.9-12.2
30-34	3	3	0-6.9
35 and older	2	2	0-5
Mean age (years)		18.9	
Median (years)		18	
Those having experience in injecting drugs			
Yes	123	65.1	57.9-72.5

Table 54. *Knowledge about HIV prevention and HIV risk perception among the prisoners*

	n=350	%	95% CI
Is it possible to reduce the risk of HIV transmission by having one faithful uninfected sexual partner?			
Yes	254	74.9	70.2-79.6
Can condom use reduce the risk of HIV transmission?			
Yes	275	78.8	74.4-83.4
Can a healthy-looking person be HIV-infected?			
Yes	213	60.9	55.7-65.8
Is it possible to avoid becoming infected with HIV by switching to non-injecting drugs?			
Yes	190	55.1	49.9-60.1
Is it possible to get HIV by sharing a meal with an HIV-infected person?			
No	280	80	74.9-84
Is it possible to get HIV through shaking hands with an HIV-infected person?			
No	309	89	85.8-92.5
Indicator of knowledge about HIV prevention			
Indicator	129	38.4	33.3-43.8
HIV risk perception			
Highly probable	48	14	10.5-17.8
Hardly probable	219	64	59.4-69.1
No risk	75	21.9	17.8-26

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