Behaviour monitoring and HIV-prevalence among injecting drug users as a component of second generation surveillance

ICF "International HIV/AIDS Alliance in Ukraine"

Analytical report

«Behaviour monitoring and HIV-prevalence among injecting drug users as a component of second generation surveillance»

(based on results of the 2011 biobehavioral survey)

Kiyv 2012

Альянс
Міжнародний Альянс з ВІЛ/СНІД в Україні

Український інститут соціальних досліджень імені Олександра Яременка
ГРОМАДСЬКА ОРГАНІЗАЦІЯ

ANALYTICAL REPORT

BEHAVIOR MONITORING AND HIV PREVALENCE AMONG INJECTING DRUG USERS AS A COMPONENT OF SECOND GENERATION SENTINELL SURVEILLANCE

(based on results of the 2011 biobehavioral survey)

Kyiv 2012

Authors:

O.M. Balakiryeva, Ph.D. in Sociology
T.V. Bondar, Ph.D. in Sociology
Yu.V. Sereda, Ph.D. in Sociology
Ya.O. Sazonova

CONTENTS

Introduction 4
Conceptual Framework 10
Research Methodology 12
Section 1. Social Portrait of Injecting Drug Users 21
1.1. Socio-demographic Characteristics of IDUs 21
1.2. Structural Changes in the Populations of IDUs 30
Section 2. Drug Injecting Practices 34
2.1. Duration of Drug Use 34
2.2. Frequency of Drug Use 37
2.3. Prevalence of Use of Different Kinds of Drugs 41
2.4. Risky Injecting Behaviors 44
2.5. Regional Differences and Dynamics 48
Section 3. Sexual Behavior and Compliance with Measures to Prevent HIV Sexual Transmission 55
3.1. Sexual Partners and Frequency of Sexual Contacts 55
3.2. Condom Use during Sexual Contacts 66
3.3. Regional Differences and Dynamics 73
Section 4. HIV Prevention Services 76
4.1. Experience in VCT 76
4.2. Safety of HIV-Positive IDUs' Behavior 82
4.3. Coverage by Prevention Services 83
4.4. Level of Awareness about HIV Transmission 91
Section 5. Linked Survey Results 94
5.1. HIV Prevalence Rates 94
5.2. Hepatitis C Prevalence 97
5.3. Exposure to HIV/Hepatitis C: Regression Analysis 102
Key Findings 112
Key Recommendations for Implementation of Prevention Programs 116
Appendix 1. Indicators of Awareness and Behavior of Injecting Drug Users on the List of Indicators under the National Plan for Monitoring and Evaluating the Effectiveness of the Response to HIV (national level) 118
Appendix 2. Indicators Of Awareness And Behavior of Injecting Drug Users on the List of Indicators under the National Plan for Monitoring and Evaluating the Effectiveness of the Response to HIV (regional level) 120
Appendix 3. Indicators of Awareness and Behavior of Injecting Drug Users on the List of Indicators under the National Plan for Monitoring and Evaluating the Effectiveness of the Response to HIV (regional level, disaggregated by age) 124

Introduction

According to the Ukrainian AIDS Center of the Ministry of Health of Ukraine, in 2011 there were 21,177 new cases (46.2 per 100 thousand population) of HIV - the highest figure since the start of HIV monitoring in Ukraine in 1987. In certain regions the epidemic is concentrated in cities; in 2011 the urban population accounted for 77.1% of new HIV cases. The share of those among the rural population has also increased, but at a very slow pace (from 2007 to 2011: 21.8%; 21.0%; 21.0%; 23.5%; 22.9%, respectively).

The age-gender structure of new HIV cases is dominated by people aged 25-49, whose share has gradually increased (from 2007 to 2011: 62.8%; 62.5%; 63.8%; 64.8%; 66.3%, respectively), and men, whose proportion has tended to decrease (from 2007 to 2011: the share of men ranges within 55.4-56.4%)[1].

Despite the annual growth of total number of people living with HIV, there is a positive trend towards the decline in the number of officially registered HIV-positive people aged 15-24: from 2,775 in 2005 to 1,907 in 2011. Over this period, the proportion of people aged 15-24 among new HIV cases (growth rate: -55%) and the HIV incidence rate in this age group (growth rate: -14%)[2] have declined. This may be indicative of some signs of stabilization of the HIV epidemic as a whole thanks to youth engaging in less risky behavior.

The main route of HIV transmission in Ukraine from 1995 to 2007, inclusive, was parenteral, mainly through injecting drugs. In 2008, for the first time since 1995, according to the persons tested, there was a change in the share of transmission with the sexual route becoming more prevalent than parenteral. In 2011 the percentage of people who contracted HIV through sexual contact increased to 49%, while parenteral transmission (drug injecting) was 31%[3]. Thus, injecting drug use remains a common way of getting HIV, and the population of IDUs continues to be one of the populations at risk of HIV, including sexually transmitted HIV from IDUs to persons who do not inject drugs.

It is important to emphasize that from 1999 to 2006 there was an increase in the absolute number of IDUs among new HIV cases on the backdrop of the yearly decrease in the number of IDUs as share of the total number of new HIV cases. In recent years (2006-2011)

[1] HIV in Ukraine: Informational Bulletin /MoH of Ukraine, Ukrainian AIDS Center, The L.V. Gromashevskyi Institute of Epidemiology and Infectious Diseases of AMS of Ukraine, Central SES of MoH of Ukraine. – 2011. – vol. no. 37. – p. 4.
[2] Ibid. – p. 11.
[3] Ibid. – p. 9.

there was a clear downward trend in the absolute number of new reported HIV cases among IDUs and proportion of IDUs among new HIV cases (see Figure 1)[4].

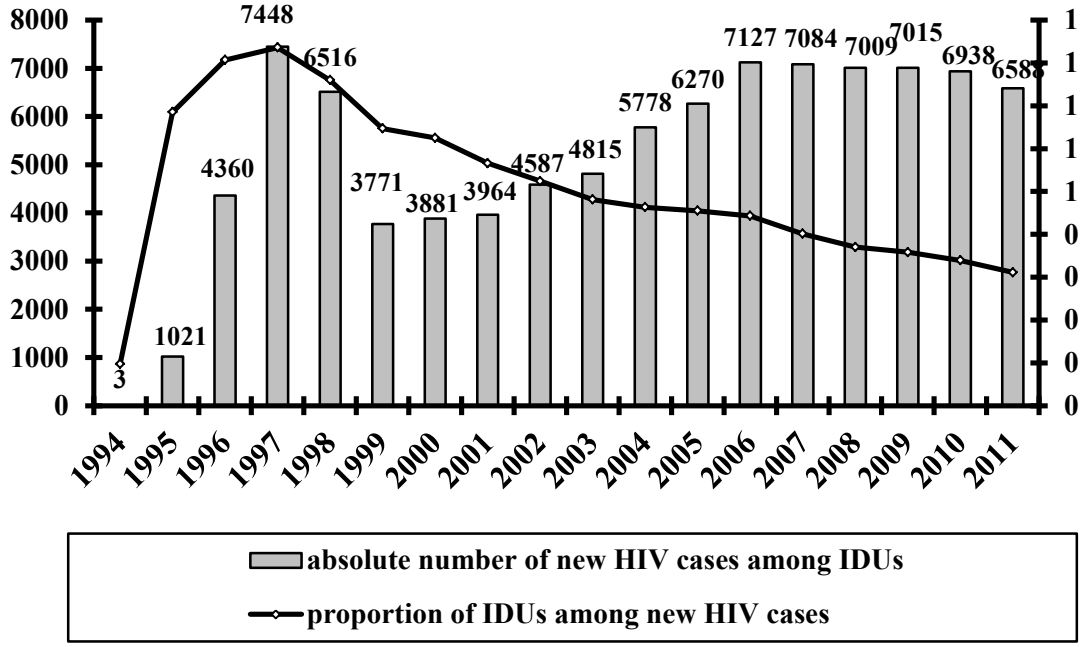


Figure 1. Officially Registered HIV Cases among Injecting Drug Users by Year, *persons*

The surveillance data confirmed by the results of routine monitoring of HIV prevalence among the population and data on people officially registered as HIV-positive are also indicative of the stabilization of the HIV epidemic among IDUs in Ukraine. In particular, there is a noticeable trend towards a gradual reduction in the percentage of IDUs among total new cases of HIV recorded: 2007 - 40.1%, 2008 - 37.0%, in 2009 - 35.8%, 2010 - 33.8%, and 2011 - 31.1%[5].

The second generation sentinel surveillance of HIV is a part of the National Monitoring and Performance Evaluation System for Measures to Control the HIV/AIDS Epidemic.

The aim of the surveillance is to track trends in the prevalence of HIV and provide information on potential behavioral factors that contribute to the spread of HIV in the society, and to use this information for awareness-raising activities, planning, monitoring and performance evaluation of prevention programs among target populations.

[4] Ibid. – p. 10.
[5]HIV in Ukraine: Inf. Bul. /MoH of Ukraine, Ukrainian AIDS Center, The L.V. Gromashevskyi Institute of Epidemiology and Infectious Diseases of AMS of Ukraine, Central SES of MoH of Ukraine. – 2011. – No.37.

Conducting biobehavioral surveys (study of behavior and blood testing for HIV) allows for analyzing the relationship between HIV status and behavioral practices.

Behavior monitoring among IDUs is carried out through systemic behavioral surveys that provide information on knowledge, attitudes (stereotypes, ideas and myths), behavior models and behavioral practices. Since 2007 monitoring surveys among injecting drug users have been accompanied by parallel rapid blood testing for HIV; since 2009 the biological component has involved blood tests not only for HIV but also for other markers.

The accumulated experience of earlier studies confirms the effectiveness of the RDS methodology[6] (Respondent Driven Sampling based on the sample sent by a respondent him/herself) to monitor the behavior of representatives of hard-to-reach populations. The advantage of the RDS methodology in contrast to other methodologies is that it helps reach representatives of latent populations and provide a statistical representation of the data received. An important aspect when analyzing data is to use the analytical tool of the RDS methodology (RDS AT) which makes it possible to determine structural characteristics of the target population and extend the results to the entire cohort.

In 2011 the research was performed by the Olexander Yaremenko Ukrainian Institute for Social Research (UISR) in cooperation with the Ukrainian AIDS Center (MoH) on request of the International HIV/AIDS Alliance in Ukraine.

This report contains the results of the biobehavioral survey on the level of awareness, behavior and prevalence of HIV among injecting drug users as a component of the second generation sentinel surveillance.

The report will be useful for researchers who study HIV/AIDS-related issues, behavioral risk factors for various target populations, all who work with at-risk populations and are in charge of decision-making on, and implementation of, prevention programs, i.e. public authorities, governmental and non-governmental organizations. The monitoring results can be used directly by service providers to improve the organization and planning of their work, increase the knowledge base on populations at higher risk of HIV and their social environment.

As of today, the following biobehavioral surveys have been conducted in Ukraine among IDUs:

[6] The RDS methodology was developed in the early 1990s by Professor Douglas Heckathorn. The RDS methodology was designed to reduce the limitations of other forms of a sampled population and cover a much wider range of respondents. Selection of respondents is conducted using the social relationships of members involved in implementing the RDS methodology.

Table 1

List of Sociological Studies Conducted among IDUs

Studies among IDUs		Contractors	Year	Locations of surveys	Respondent's age, *years*	Total number of respondents, *persons*
Young Injecting Drug Users: Knowledge, Awareness of Risk of HIV, Behavior		CFM, SCSSFCY, UNICEF, UNAIDS	2001	7 cities: Mykolayiv, Kharkiv, Chernihiv, Chervonograd, Sevastopol, Melitopol, Donetsk	14-53	**638** 449 men 189 women
HIV/AIDS Prevention among Young Injecting Drug Users	Survey of injecting drug users, *including*	UISR, SIFYP, SSSFCY, UNICEF, UNAIDS	2002	14 cities: Sevastopol, Novovolynsk, Makiyivka, Melitopol, Chervonograd, Mykolayiv, Bilyayivka, Kharkiv, Chernihiv, Yalta, Dnipropetrovsk, Nikopol, Kryvyi Rig, Dniprodzerzhynsk	14-55	**1,997** 1,521 men 476 women
	Clients of "trust" counseling points			9 cities: Sevastopol, Novovolynsk, Makiyivka, Melitopol, Chervonograd, Mykolayiv, Bilyayivka, Kharkiv, Chernihiv	14-52	**623** 472 men 151 women
Developing a Control, Monitoring and Evaluation System for the National Program on HIV/AIDS Prevention in Ukraine Relying on the Second Generation Sentinel Surveillance, *surveys of IDUs*		SIFYP, CFM, UISR, UNICEF	2002	7 cities: Donetsk, Odesa, Mykolayiv, Poltava, Simferopol, Lutsk, Kharkiv	14-56	**1,407** 1,014 men 393 women
Evaluating the Effectiveness of Harm Reduction Projects in Ukraine		UISR, International Renaissance Foundation	2002	11 cities: Donetsk, Zhytomyr, Kremenchuk, Lviv, Sumy, Uzhhorod, Cherkasy, Ivano-Frankivsk, Kyiv, Chernihiv, Chernivtsi	14-45	**943** 714 men 229 women
Assessment of Opportunities for the Development of HIV Prevention Programs among Injecting Drug Users in Ukraine. Analysis of Possible Coverage of 60% of IDUs by Prevention Work		CFM, UNICEF, UNAIDS International Renaissance Foundation	2002	20 cities: Simferopol, Yalta (the AR of Crimea); Vinnytsya; Novovolynsk (Volyn oblast); Kryvyi Rig (Dnipropetrovsk oblast); Donetsk, Makiyivka, Mariupol (Donetsk oblast); Zaporizhzhia; Luhansk, Alchevsk (Luhansk oblast); Mykolayiv; Odesa; Poltava; Pervomaiskyi and Kupyansk (Kharkiv oblast), Khmelnytskyi; Sevastopol	13-50	**1,908** 1,382 men 526 women
Monitoring Injecting Drug Users' Behavior as a Component of the Second-Generation HIV/AIDS		SIFYP, Alliance, MoH	2004	14 regions: Volyn, Dnipropetrovsk, Donetsk, Mykolayiv, Odesa, Poltava, Rivne, Sumy, Ternopil,	12-60	**3,542** 2434 men

Studies among IDUs		Contractors	Year	Locations of surveys	Respondent's age, *years*	Total number of respondents, *persons*
Sentinel Surveillance				Kharkiv, Kherson, Cherkasy oblasts, the city of Kyiv and the AR of Crimea		1,108 women
Preventing Involvement in Injecting Drug Use among Vulnerable Populations of Adolescents and Young People (RDS Methodology)		UISR, UNICEF	2004	4 cities: Kyiv, Odesa, Pavlograd, Poltava	12-24	**808** 634 men 174 women
HIV and Hepatitis C Virus Infections among Injection Drug Users in Central Ukraine[7]		University of Alabama University in Birmingham and Vinnytsya National Health University (ICOHRTA)	2005	1 city: the city of Vinnytsya	18-55	**380** 311 men 69 women
Monitoring the Behavior of Injecting Drug Users		UISR after O. Yaremenko, ALLIANCE	2006	12 regions: the AR of Crimea, Odesa, Mykolayiv, Donetsk, Kherson, Cherkasy, Dnipropetrovsk, Poltava, Sumy, Volyn and Kharkiv oblasts, the city of Kyiv	13-58	**1,820** 1289 men 531 women
Harm Reduction in the Context of HIV/AIDS Prevalence among Injecting Drug Users in Ukraine (survey of IDUs in Zaporizhzhia)		O. Yaremenko UISR, Red Cross Society of Ukraine	2006	1 city: the city of Zaporizhzhia	15-49	**301** 196 men 105 women
Monitoring the Behavior of Injecting Drug Users (RDS Methodology)		O. Yaremenko UISR, USAID Health Policy Initiative	2007	14 regions: the AR of Crimea, the city of Kyiv, Volyn, Dnipropetrovsk, Donetsk, Kirovohrad, Luhansk, Mykolayiv, Odesa, Poltava, Sumy, Kharkiv, Kherson, Cherkasy	13-65	**4,143** 3,048 men 1,095 women
Monitoring the Behavior of Injecting Drug Users as a Component of the Second-Generation HIV/AIDS Sentinel Surveillance (RDS Methodology)		"SOCIS-CSPS" LLC, AIDS Center, Alliance	2008	16 cities: Dnipropetrovsk, Donetsk, Kyiv, Kirovohrad, Luhansk, Lutsk, Lviv, Mykolayiv, Odesa, Poltava, Simferopol, Sumy, Kharkiv, Kherson, Khmelnytskyi, Cherkasy	16-65	**3,711** 2,768 men 943 women
Monitoring Behaviors and the HIV prevalence among IDUs and their Sexual Partners as a Component of the Second-Generation HIV Sentinel	Injecting drug uses	O. Yaremenko UISR, AIDS Center, Alliance	2009	17 cities: Simferopol, Vinnytsya, Dnipropetrovsk, Kryvyi Rig, Zhytomyr, Uzhhorod (Zakarpattya oblast), Zaporizhzhia, Ivano-Frankivsk, Kyiv, Severodonetsk (Luhansk oblast), Chervonograd (Lviv oblast), Mykolayiv, Rivne, Ternopil, Cherkasy, Chernivtsi, Chernihiv	14-79	**3,962** 2,982 men
						980 women
	Sexual partners of injecting drug users				16-63	**609** 144 men 465 women

[7]HIV and Hepatitis C Virus Infections among Injection Drug Users in Central Ukraine

Studies among IDUs		Contractors	Year	Locations of surveys	Respondent's age, *years*	Total number of respondents, *persons*
Surveillance (RDS Methodology)						

Thus, the study whose results are presented in this publication is based on the long-term experience in monitoring the behaviors of, and HIV prevalence among, IDUs in Ukraine.

Conceptual Framework

Biobehavioral research - sociological behavioral and biological studies related in time and place with the same respondent.

Survey sampling - a part of the general population whose subjects serve as main subjects under observation. This part of the general population is selected by special rules so that its characteristics reflect the properties of the whole general population and allow a full overview of the totality as a whole.

Types of injecting drugs: opioids (major: extract of opium, heroin, tramadol/tramal), stimulants (major: cocaine, amphetamine, powdered methamphetamine, soluble methamphetamine, methcathinone, cathinone, methylenedioxymethamphetamine), other (major: LSD, mushrooms).

VCT - voluntary counseling and testing - medical and psychological counseling on HIV/AIDS provided to a person, and counseling-related voluntary medical testing for HIV antibodies by such person.

SMT - substitution maintenance therapy.

Key informants - representatives of organizations or individuals who possess expert knowledge of the population being studied.

Recruiting chain - a set of recruitment waves in their chronological order.

Medical research personnel - medical staff of AIDS centers who carry out the rapid testing of respondents.

NGO - non-governmental organization (the report also uses the term "community-based organization (CBO)").

Seeds (in RDS) - survey participants recruited by NGOs working with the target population, rather than by respondents themselves.

Behavioral study - a study of the behavior of the IDU population implemented via "face-to-face" interviews, i.e. by the interviewer's direct contact with respondents.

Fieldwork - gathering data through interviews with respondents.

Recruit (in RDS) - a person recruited by the research team in the city or by a recruiter, but not yet included in the study (hasn't became a participant).

Recruiter (in RDS) - a person who, having passed the interview, got coupons with which he/she could recruit other respondents.

IDUs - injecting drug users, the target research population.

Wave (in RDS) - a set of respondents selected by one level of recruiters. For example, a person who is directly recruited by seeds is a first wave participant. Persons recruited by first wave participants constitute the second wave. The sequence of waves forms a recruiting chain.

Equilibrium or balanced state - a condition reached at a certain number of waves at which the characteristics of the sample do not change irrespective of the number of additional people it includes. Sometimes equilibrium is called convergence or stabilization.

RDS (respondent driven sample) - a sample selected by respondents.

Research Methodology

The aim of the study was to investigate behavioral practices related to injecting drug use, condom use, HIV testing and knowledge of HIV transmission, and to determine HIV and hepatitis C prevalence rates among IDUs.

Study Design

To collect behavioral and epidemiological data, a cross-sectional study design was selected that allows data to be obtained for a specific period of time.

To recruit respondents, the RDS **(Respondent Driven Sample)** methodology was applied, i.e. the sample is selected by the respondents.

Sampling and Geographical Coverage

The study was conducted in 26 cities of Ukraine. The study sample included 9,069 IDUs. The size of the sample in each city covered by the study is presented in Table 2. Calculation of the sampled population for each city covered by the survey was based on HIV data in different regions of Ukraine: for cities with high HIV prevalence the sample was 500 respondents; for cities with average levels of the epidemic - 300-350 respondents; and for cities with low levels - 200-250 respondents.

Table2

Sampled Population

Polled city	Number of IDUs polled	Number of seeds	
		Target	Actual
Simferopol (AR of Crimea)	500	4	4
Dnipropetrovsk	499	4	5
Donetsk	500	4	4
Kyiv	508	4	5
Mykolayiv	500	4	6
Odesa	500	4	4
Vinnytsya	350	3	3
Zhytomyr	350	3	3
Kirovohrad	350	3	5
Lutsk	352	3	3
Poltava	350	3	3
Rivne	350	3	3
Sumy	350	3	3
Kharkiv	353	3	3
Kherson	351	3	5
Khmelnytskyi	350	3	4
Cherkasy	356	3	3
Chernihiv	349	3	3
Bila Tserkva (Kyiv oblast)	300	3	3
Ivano-Frankivsk	250	2	3
Luhansk	251	2	2
Lviv	250	2	2
Zaporizhzhia	200	2	2
Ternopil	200	2	3
Uzhhorod (Zakarpattya oblast)	200	2	2
Chernivtsi	200	2	2
Total	**9,069**	**77**	**88**

Criteria for respondents:

- age (not younger than 14);
- drug injecting experience over the last 30 days;
- residence or long-term stay in the city covered by the survey.

To confirm that the recruited person is indeed an injecting drug user, the interviewers used a specially designed and approved screening form before the interview.

The RDS methodology involves participation of two categories of respondents:

1. Seed respondents - injecting drug users recruited according to certain characteristics (non-randomly).

2. Secondary respondents - survey participants recruited by respondents who inject drugs.

The selection of seeds took place in close cooperation with regional NGOs that provide services to IDUs and the International HIV/AIDS Alliance in Ukraine.

Criteria for seed respondents:

- under 25 years old;
- living in different districts of the cities covered by the study;
- HIV-negative (self-reported).

According to the specified criteria, seeds[8] having the following characteristics were selected in each city:

– female IDUs;
– aged 14-19 (inclusive);
– at least two years of drug injecting experience;
– using only stimulants.

The selected seeds acted as recruiters. If the recruited seeds refused to act as a "recruiter", s/he was not considered "efficient" and was replaced by another IDU having the same characteristics. All respondents, except for the seeds, are secondary.

The recruiting process is presented in Figure 1.

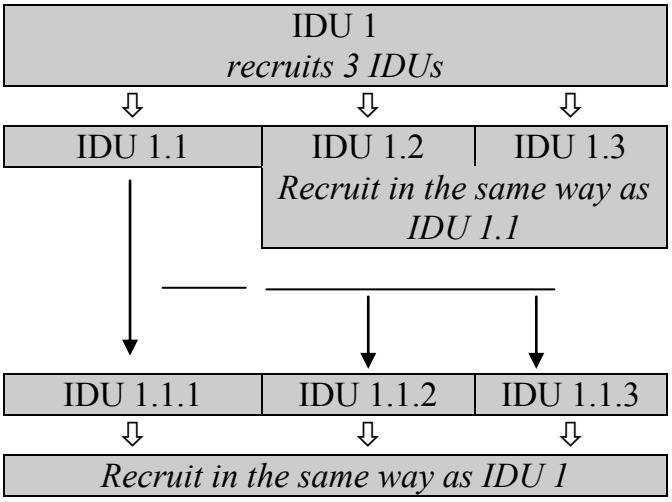


Figure 1. Respondent Recruiting Process

Research Tools

[8]Seeds can meet several parameters, for example, it can be a woman aged 14 to 18 years or a woman who uses stimulants..

Sociological Component of the Research

All respondents were individually polled by interviewers from the O. Yaremenko UISR permanent network that are experienced in behavioral studies of hard-to-reach populations.

The research tools for injecting drug users were developed on the basis of the tools used in the studies on monitoring the behavior of IDUs in 2007, 2008 and 2009, and include a set of questions for the calculation of national indicators according to the Guidelines on Researches to Monitor the National Response to the HIV Epidemic,[9] and the Guidelines on Construction of Core Indicators (UNGASS)[10].

Epidemiological Component of the Survey

IDU counseling and rapid testing for HIV and hepatitis C was carried out by qualified medical staff of AIDS centers following the interview with an IDU.

For blood testing, the study used the NEWVISIONDIAGNOSTICS "PROFITEST"[11] rapid test for antibodies to HIV ½, and the NEWVISIONDIAGNOSTICS "PROFITEST"[12] rapid test for hepatitis C. Pre- and post-testing counseling was provided by medical staff of AIDS centers and representatives of community-based organizations that are certified to conduct VCT.

Ethical Principles of the Study

The protocol and the study tools were examined by experts of the Professional Ethics Committee of the Sociological Association of Ukraine (SAU). The ethical principles of the study were developed on the basis of the Code of Professional Ethics for SAU Sociologists and the WMA Declaration of Helsinki - Ethical Principles for Medical Research Involving Human Subjects.

The epidemiological component was examined by experts of the Medical Ethics Committee of the L.V. Gromashevskyi Institute of Epidemiology and Infectious Diseases of the Academy of Medical Sciences (AMS) of Ukraine.

[9]Guidelines on Researches to Monitor the National Response to the HIV Epidemic / [Balakiryeva O.M., Varban M.Yu., Dovbakh G.V. et al.], ICF "International HIV/AIDS Alliance in Ukraine. – Kyiv, 2008. 96 p.
[10]Guidelines on Construction of Core Indicators.2010 Reporting / Monitoring the Declaration of Commitment on HIV/AIDS / United Nations General Assembly Special Session on HIV/AIDS. – Geneva, Switzerland, March 2009.
[11]Certificate of state registration no. 8918/2009 dated October 5, 2009, catalogue reference no. ITP02002 TC40
[12]Certificate of state registration no. 8919/2009 dated October 5, 2009, catalogue reference no. ITP01102 TC40

The main ethical principles of the study were: *confidentiality, voluntary participation and informed consent.* After a detailed explanation of the research topic, procedures and conditions for participation, all respondents signed an informed consent form.

Working hypotheses of the project:

1. The main factor in HIV and hepatitis C infection among IDUs is dangerous practices of drug injecting and unprotected sex (35 y.o. and above).
2. HIV prevalence is higher among women than among men due to more frequent involvement of women in unprotected sex (35 y.o. and above) and sharing injecting equipment.
3. The probability of HIV and hepatitis C infection is higher among adult IDUs with long-term injecting drug use.
4. Coverage by prevention programs and use of services provided by NGOs act as a barrier to HIV and hepatitis C.

Data Analysis

Data processing using the RDSAT package envisages work with local network communities internally linked by being acquainted for whose characteristics confidence intervals using the BOOT STRAP method have been calculated together with the statistical parameters. Therefore, the regional distribution of data presented in the report is based on its analysis using the RDSAT package. The results of this assessment are much more accurate than conventional sample averages, as calculations in the RDSAT package take into account the size of the network and recruiting of respondents. The calculation of "weights" in the RDSAT package takes into account the size of an IDU's network friends; coefficients are higher for IDUs with a small number of IDU friends, and lower for those who have many friends.

To calculate the data at the national level, weights calculated for each individual city in the RDSAT package were imported to the SPSS.PC statistical package. The analysis based on the weighted array revealed that female IDUs in comparison with men have smaller social networks, and, therefore, their share in the data array after weighting was increased. Thus, at the national level the data was analyzed using the SPSS.PC statistical package on the data array based on weighted coefficients calculated in the RDSAT package depending on the age of the respondents.

Descriptive statistics - one-dimensional and two-dimensional distribution of data – was used predominantly for the data analysis. Significance of all differences in percentages between the different groups was tested for statistical significance criterion xi-square (x^2). Thus, to demonstrate the importance of the relationship between variables, most of the tables show the level of significance p-value calculated using the x^2 (presence of significant differences: $p < 0.1$; $p < 0.05$; $p < 0.001$).

Regression analysis was used to determine the factors for HIV and hepatitis C (presented in sub-section 5.3). To check an individual's risk of acquiring HIV and hepatitis C, logistic regression models were built. The dependent variables for this analysis are the results of testing for HIV and hepatitis C that were received within the linked study. Variables that explain variations in HIV status and hepatitis C infection are demographic characteristics (respondent's gender), length of drug injecting, and unsafe injecting and sexual practices.

For the purpose of modeling the factors associated with HIV/hepatitis C infection, multivariate linear regressions were built, which allows to evaluate the relationship between different factors at the micro (individual level) and macro (structural factors) levels. At the macro level, relationships were identified with such factors as demographic characteristics (respondent's gender), the presence of parenteral risk through unsafe drug injecting, the presence of sexual risk, the experience of drug use, the presence of IDU partner, previous experience in places of confinement. At the population level (macro level), there was an evaluation of the relationships with structural factors that describe the characteristics of the region where the survey was held: the average level of knowledge on ways of transmission among IDU populations in the region; the number of non-governmental organizations (NGOs) working with IDUs; the average coverage of IDUs by NGO prevention programs; the dynamics of HIV/hepatitis C incidence rates in recent years.

Analysis of Dynamics

To analyze the socio-demographic changes in the IDU population, behavior, level of HIV, etc., the report used data from previous biobehavioral surveys for 2008 and 2009. In 2011 the study was conducted in 26 cities of Ukraine, in 2008 - in 16 cities and in 2009 - in 17 cities. Therefore, in order to correctly compare and ensure conformity with the number of cities, the data arrays for 2009 and 2008 were combined. If the same cities were used in 2008

and 2009, the data analysis for these cities was based on the study conducted in 2009. The table shows the distribution of cities studied in 2008 and 2009 that were selected for comparison with 2011.

Table 3

Cities Selected to Assess the Dynamics of Behavior Changes among IDUs in 2011 as Compared to 2008-2009

	City covered by the survey
Geography of the 2011 study	Simferopol, Dnipropetrovsk, Donetsk, Kyiv, Mykolayiv, Odesa, Vinnytsya, Zhytomyr, Kirovohrad, Lutsk, Poltava, Rivne, Sumy, Kharkiv, Kherson, Khmelnytskyi, Cherkasy, Chernihiv, Bila Tserkva (Kyiv oblast), Ivano-Frankivsk, Luhansk, Lviv, Zaporizhzhia, Ternopil, Uzhhorod, Chernivtsi
Cities selected for comparison with the 2009 study	Simferopol, Dnipropetrovsk, Kyiv, Mykolayiv, Vinnytsya, Zhytomyr, Rivne, Cherkasy, Chernihiv, Ivano-Frankivsk, Zaporizhzhia, Ternopil, Uzhhorod, Chernivtsi
Cities selected for comparison with the 2008 study	Donetsk, Mykolayiv, Odesa, Kirovohrad, Lutsk, Poltava, Sumy, Kharkiv, Kherson, Khmelnytskyi, Luhansk, Lviv

The tool set used in different years varied in terms of the number and content of questions; therefore, study data was compared only when questions were formulated identically.

Study Limitations

The cross-sectional design of the study allows tracing major behavioral indicators among IDUs in a specific period of time, yet restricts researchers in identifying factors and causality. All data on the presence of risky or safe HIV-related behavior were obtained through self-reporting by IDUs during the survey, which can result in socially expected answers from respondents. Therefore, data on the use of sterile equipment and condoms may be somewhat inflated. Preventive work carried out among IDUs, their participation in various prevention programs, being an NGO client, and previous participation in similar studies could also raise awareness among IDUs on responses to questions on HIV safe practices.

The size of the samples taken in the cities that were covered by the survey is not sufficient to ensure the representativeness of the data at the regional level. There are also no reliable statistics on the socio-demographic characteristics of IDUs, the number of clients and

non-clients of NGOs, the level of coverage by prevention programs, etc., that could be used for weighing the data. Therefore, the representativeness of the results can be considered only with a link to the national level data. Regional data cannot be considered representative, but they can be interpreted as descriptive and characterizing behavior patterns and other indicators for a share of IDUs in any city covered by the survey.

The developed research tools didn't include any questions on desomorphine use over the previous 30 days or 12 months. Given that this practice is gaining in momentum among IDUs in Ukraine, a separate question on the use of desomorphine was added to the questionnaire during the field phase of the study. This is the reason why the data analysis on desomorphine use is not calculated for the entire array, and includes answers from only 6,980 respondents.

Data Validation

The research team from the O. Yaremenko UISR, representatives from the International HIV/AIDS Alliance in Ukraine, and consultants conducted monitoring visits to survey sites to reveal violations of the research methodology, eliminate them and prevent recurrence of similar violations in other cities covered by the study. In case of gross violations of the research methodology that could affect the results of the study, questionnaires were rejected and new respondents were interviewed along with additional instruction.

To prevent errors at the data entry stage, 10% of questionnaires were entered again. A comparison of the first and the second data entry sets confirmed that data entry quality was adequate. Logical control was carried out by an independent consultant at the stage of data processing.

These phases of validation of the data collection and processing allowed to minimize errors made by individuals performing the study at the fieldwork and data processing phases.

Processing of Missing Data

The report presents percentages calculated based on the number of respondents who gave substantive answers to the questions. Each section shows the number of IDUs excluded from the analysis due to their failure to answer the question. If the question was not put to all

respondents based on the given research tool criterion (question filter), the analysis was performed from among persons who were supposed to answer the question posed.

Section 1. Social Portrait of Injecting Drug Users

The section presents the analysis of data on the socio-demographic characteristics of IDUs, such as gender, age, marital status, education and occupation. Analysis of data is presented at the national and regional levels. Also, there are structural changes presented in the populations of IDUs as compared to 2008/2009.

1.1. Socio-demographic Characteristics of IDUs

The study methodology included a survey among IDUs who are residents of the cities covered by the survey. Therefore, almost all respondents interviewed indicated that they reside in the city covered by the survey, and only 1.2% are not residents of the cities, but come from neighboring towns and spend most of their time in that city.

Data on gender and age were obtained from all 9,069 respondents. When asked about the educational level, 21 respondents gave no answer. Marital status was not disclosed by 16 IDUs. Employment was not reported by 26 respondents. 29 persons said it was "difficult to answer" how long they had been living in the city covered by the survey, which in this analysis is considered lost information. The socio-demographic composition of IDUs is presented in Table 1.1.1.

Table 1.1.1

Distribution of IDUs by Gender, Age, Education, Marital Status, Place of Residence and Occupation, *absolute numbers and percentage distribution*

		Number in the sample	**Share in the data array, %**
Gender	Male	6,578	72.5
	Female	2,491	27.5
Age	**14-19 y.o.**	246	2.7
	20-24 y.o.	1,262	13.9
	25-34 y.o.	4,029	44.4
	35 y.o. and above	3,532	38.9
Education	Primary	234	2.6
	Basic (incomplete) general secondary	1,175	13.0
	Complete general secondary	5,181	57.3
	Basic higher	1,604	17.7
	Complete higher	855	9.5

		Number in the sample	Share in the data array, %
Marital Status	Married or live with a woman/man	1,135	12.5
	Married, yet have another sexual partner/partners	110	1.2
	Not married officially, yet live with a sexual partner	2,993	33.1
	Married, live neither with a woman/man nor another sexual partner	214	2.4
	Not married, don't live with a sexual partner	4,600	50.8
Place of Residence	Born in the city of residence	7,550	83.5
	Don't live permanently, come from time to time	108	1.2
	Reside for less than a year	58	0.6
	Reside for more than a year	1,324	14.7
Occupation	Student	281	3.1
	Worker	5,587	61.8
	Neither student nor worker	3,175	35.1
Total IDUs		**9,069**	

Distribution by gender shows that the population of IDUs is predominantly male, while a little more than a quarter (27.5%) being female. The largest age group among IDUs is over 25 - 83.3%, which may reflect this feature of the IDU population, and that young IDUs are reluctant to participate in the study and remain a hard-to-reach population. More than half of IDUs have general secondary education (57.3%), another 17.7% and 9.5% have basic higher and complete higher education, respectively. The percentage of working IDUs is 61.8%, including 40.6% having odd jobs only. Almost half of respondents (45.6%) have been officially married and 64% have been in an informal marriage (lived at some point with a sexual partner). But at the time of the study only 16.1% IDUs were officially married, one-third (33.1%) were in an informal marriage, and 50.8% were not in a registered marriage and did not live with a sexual partner, which may indicate that more than half of IDUs are not inclined to permanent marital relations.

Weighting the data array mainly affected gender and age distribution, which is why special attention is given to the analysis of the breakdown by gender and age, and the analysis of the gap between sampled and estimated data for each region covered by the survey, as presented in Tables 1.1.2 and 1.1.3.

Table 1.1.2

IDUs Broken Down by Gender in 26 Cities Polled,

absolute numbers, percentage distribution and confidence intervals

City	Gender	Number in	Share in the	RDS-estimated	RDS-based

		the sample	sample	share	confidence intervals
Simferopol	Male	319	63.8	66.8	62.8-70
	Female	181	36.2	33.2	30.0-37.2
Vinnytsya	Male	261	74.6	69.9	64.7-74.5
	Female	89	25.4	30.1	25.5-35.3
Lutsk	Male	288	81.8	81.5	76.9-86.1
	Female	64	18.2	18.5	13.9-23.1
Dnipropetrovsk	Male	348	69.7	72.6	67.1-77.6
	Female	151	30.3	27.4	22.4-32.9
Donetsk	Male	333	66.5	70.1	64.9-74.3
	Female	168	33.5	29.9	25.7-35.1
Zhytomyr	Male	269	76.9	75.3	70.3-79.6
	Female	81	23.1	24.7	20.4-29.7
Uzhhorod	Male	158	79.0	72.6	61.9-83.2
	Female	42	21.0	27.4	16.8-38.1
Zaporizhzhia	Male	156	78.0	81.2	74.3-87.6
	Female	44	22.0	18.8	12.4-25.7
Ivano-Frankivsk	Male	189	75.6	73.1	66.7-79.2
	Female	61	24.4	26.9	20.8-33.3
Bila Tserkva	Male	245	81.9	77.7	67.4-86.4
	Female	54	18.1	22.3	13.6-32.7
Kyiv	Male	410	80.7	70.2	64.0-79.5
	Female	98	19.3	29.8	20.5-36
Kirovohrad	Male	303	86.6	84.1	77.9-90.4
	Female	47	13.4	15.9	9.6-22.2
Luhansk	Male	182	72.5	62.9	53.2-72.4
	Female	69	27.5	37.1	27.6-46.8
Lviv	Male	189	75.6	71.7	65.0-78.4
	Female	61	24.4	29.3	21.6-35.1
Mykolayiv	Male	361	72.2	75.7	71.6-79.9
	Female	139	27.8	24.3	20.1-28.4
Odesa	Male	383	76.6	76.7	73.1-79.7
	Female	117	23.4	23.3	20.3-26.9
Poltava	Male	220	62.9	62.7	56.5-69.6
	Female	130	37.1	37.3	30.4-43.5
Rivne	Male	324	92.6	90.8	87.2-93.6
	Female	26	7.4	9.2	6.4-12.8
Sumy	Male	255	72.9	65.3	60.5-70.1
	Female	95	27.1	34.7	30.0-39.6
Ternopil	Male	156	78.0	78.3	70.0-85.6
	Female	44	22.0	21.7	14.4-30
Kharkiv	Male	261	73.9	73.8	67.5-79.9
	Female	92	26.1	26.2	20.1-32.5
Kherson	Male	276	78.6	77.8	73.3-82.5
	Female	75	21.4	22.2	17.5-26.7
Khmelnytskyi	Male	272	77.7	75.4	70.4-80.3
	Female	78	22.3	24.6	19.7-29.6
Cherkasy	Male	198	55.6	51.9	47.5-55.5
	Female	158	44.4	48.1	44.5-52.5
Chernivtsi	Male	137	68.5	62.1	55.5-68.6
	Female	63	31.5	37.9	31.4-44.5
Chernihiv	Male	259	74.2	72.9	68.3-77.3
	Female	90	25.8	27.1	22.7-31.7

The share of women in the sample in most cities does not exceed the RDSAT-calculated confidence intervals, except for the cities of Luhansk, Vinnytsya, Donetsk, Kyiv and Sumy. The

difference between the share of women in the sample and the RDSAT-estimated share ranges within 0.3-10.5%. There is a significant difference between the representation of women among IDUs in different cities of Ukraine. According to the RDSAT-based estimates, women constitute from 9.2% (the city of Rivne) to 48.1% (the city of Cherkasy) of the IDU population.

Table 1.1.3

IDUs Broken Down by Age Groups in 26 Cities Polled,

absolute numbers, percentage distribution and confidence intervals

City	Respondent's age	Number in the sample	Share in the sample	RDS-estimated share	RDS-based confidence intervals
Simferopol	14-19 y.o.	10	2.0	1.3	0.5-2.3
	20-24 y.o.	73	14.6	12.5	9.9-14.9
	25-34 y.o.	193	38.6	36.5	32.8-41.1
	35 y.o. and above	224	44.8	49.7	44.8-54.4
Vinnytsya	14-19 y.o.	10	2.9	5.9	3.0-9.5
	20-24 y.o.	36	10.3	12.2	8.8-16.6
	25-34 y.o.	164	46.9	44.1	38.4-49.1
	35 y.o. and above	140	40.0	37.8	32.6-42.5
Lutsk	14-19 y.o.	1	0.3	-*	-
	20-24 y.o.	34	9.7	11.6	7.7-15.6
	25-34 y.o.	148	42	45.8	39.8-51.6
	35 y.o. and above	169	48	42.6	36.8-48.9
Dnipropetrovsk	14-19 y.o.	11	2.2	1.7	0.8-2.9
	20-24 y.o.	28	5.6	4.5	2.9-6.6
	25-34 y.o.	152	30.5	25.1	20.6-29.8
	35 y.o. and above	308	61.7	68.7	63.3-73.7
Donetsk	14-19 y.o.	17	3.4	4.1	2.3-6.2
	20-24 y.o.	50	10	12.7	9.0-16.6
	25-34 y.o.	250	49.9	48.2	42.9-54.1
	35 y.o. and above	184	36.7	35	29.1-40.7
Zhytomyr	14-19 y.o.	20	5.7	4.7	2.7-7.2
	20-24 y.o.	95	27.1	25.9	21.6-30.6
	25-34 y.o.	188	53.7	57.1	51.5-61.8
	35 y.o. and above	47	13.4	12.4	8.7-16.7
Uzhhorod	14-19 y.o.	5	2.5	2.6	0.8-4.9
	20-24 y.o.	51	25.5	32.2	20.3-45.9
	25-34 y.o.	68	34.0	30.1	21.9-38.1
	35 y.o. and above	76	38.0	35.1	25.0-45.5
Zaporizhzhia	14-19 y.o.	2	1.0	0.5	0.4-1.5
	20-24 y.o.	14	7.0	7.0	2.7-12.1
	25-34 y.o.	116	58.0	59.5	50.8-67.8
	35 y.o. and above	68	34.0	33.1	25.2-41.2
Ivano-Frankivsk	14-19 y.o.	2	0.8	-	-
	20-24 y.o.	45	18.0	18.3	14.1-24.2
	25-34 y.o.	131	52.4	46.6	38.7-54.4
	35 y.o. and above	72	28.8	35.2	25.6-44.1
Bila Tserkva	14-19 y.o.	13	4.3	5.2	1.1-10.5
	20-24 y.o.	27	9.0	7.6	4.1-11.1
	25-34 y.o.	139	46.5	47.9	37.5-58.8

City	Respondent's age	Number in the sample	Share in the sample	RDS-estimated share	RDS-based confidence intervals
	35 y.o. and above	120	40.1	39.3	29.9-50.8
Kyiv	14-19 y.o.	8	1.6	1.4	0.5-2.6
	20-24 y.o.	95	18.7	17.1	13.1-22
	25-34 y.o.	307	60.4	64.2	57.8-69.9
	35 y.o. and above	98	19.3	17.3	12.6-22.2
Kirovohrad	14-19 y.o.	10	2.9	2.7	0.9-5.8
	20-24 y.o.	64	18.3	12.4	8.1-16.8
	25-34 y.o.	144	41.1	31.1	25.2-37.1
	35 y.o. and above	132	37.7	53.8	45.4-61.6
Luhansk	14-19 y.o.	9	3.6	4.5	0.7-4
	20-24 y.o.	51	20.3	25.8	16.2-38
	25-34 y.o.	121	48.2	41.6	32.8-51.6
	35 y.o. and above	70	27.9	28.1	18.1-36.7
Lviv	14-19 y.o.	13	5.2	4.3	1.8-6.9
	20-24 y.o.	31	12.4	13.5	7.8-19.3
	25-34 y.o.	93	37.2	33.6	26.7-40.2
	35 y.o. and above	113	45.2	48.6	41.5-56.9
Mykolayiv	14-19 y.o.	3	0.6	0.3	0.1-0.7
	20-24 y.o.	31	6.2	4.1	2.6-6.2
	25-34 y.o.	190	38	37.7	32.5-43
	35 y.o. and above	276	55.2	58.0	52.1-63
Odesa	14-19 y.o.	15	3.0	3.3	1.6-4.9
	20-24 y.o.	76	15.2	14.3	11.1-17.4
	25-34 y.o.	192	38.4	37.5	33.3-41.9
	35 y.o. and above	217	43.4	44.9	40.1-49.9
Poltava	14-19 y.o.	5	1.4	1.9	0.5-4.5
	20-24 y.o.	50	14.3	16	10.6-21.8
	25-34 y.o.	125	35.7	38.5	32.3-45.3
	35 y.o. and above	170	48.6	43.6	36.2-50.5
Rivne	14-19 y.o.	6	1.7	2.2	0.8-3.8
	20-24 y.o.	46	13.1	11.8	8.6-15.7
	25-34 y.o.	154	44.0	41.8	35.5-48.1
	35 y.o. and above	144	41.1	44.2	37.2-50.9
Sumy	14-19 y.o.	10	2.9	3.5	1.4-5.7
	20-24 y.o.	64	18.3	20.8	16.5-25.3
	25-34 y.o.	198	56.6	56.7	51.1-62.4
	35 y.o. and above	78	22.3	18.9	14.9-22.9
Ternopil	14-19 y.o.	15	7.5	4	0.8-8.6
	20-24 y.o.	30	15.0	11.7	7.8-18.6
	25-34 y.o.	93	46.5	56.8	44.4-65.6
	35 y.o. and above	62	31.0	27.5	19.2-37.7
Kharkiv	14-19 y.o.	8	2.3	4.1	0.7-9.4
	20-24 y.o.	29	8.2	7.8	4.8-11.3
	25-34 y.o.	168	47.6	40.6	34.4-46.8
	35 y.o. and above	148	41.9	47.4	40.8-54.2
Kherson	14-19 y.o.	5	1.4	0.8	0.1-1.6
	20-24 y.o.	37	10.5	10	6.3-13.5
	25-34 y.o.	168	47.9	45.3	40-50.9

City	Respondent's age	Number in the sample	Share in the sample	RDS-estimated share	RDS-based confidence intervals
	35 y.o. and above	141	40.2	43.9	38.4-50.1
Khmelnytskyi	14-19 y.o.	5	1.4	1.6	0.2-3.5
	20-24 y.o.	34	9.7	7.6	5-10.7
	25-34 y.o.	161	46.0	44.2	38.5-50.2
	35 y.o. and above	150	42.9	46.6	40.4-52.6
Cherkasy	14-19 y.o.	26	7.3	7.7	5.2-10.4
	20-24 y.o.	70	19.7	21.4	17.4-25.9
	25-34 y.o.	178	50.0	49.2	44-54.8
	35 y.o. and above	82	23.0	21.7	16.9-25.9
Chernivtsi	14-19 y.o.	2	1.0	0.5	0.4-1.6
	20-24 y.o.	44	22.0	31.2	22.6-42.3
	25-34 y.o.	118	59.0	56.1	45-64.4
	35 y.o. and above	36	18.0	12.2	7.8-16.6
Chernihiv	14-19 y.o.	12	3.4	4.1	2.2-6.2
	20-24 y.o.	52	14.9	16.2	11.8-20.5
	25-34 y.o.	187	53.6	52.2	46.5-57.9
	35 y.o. and above	98	28.1	27.6	22.8-32.8

* *The figure can't be estimated in view of the small number of those recruited.*

The share in the sample of different age groups in most cities is not beyond the confidence intervals, except for the cities of Vinnytsya (age group of 14-19), Dnipropetrovsk (age group of 25-34), Kirovohrad (age groups of 20-24, 25-34 and 35 and older) and Kharkiv (age group of 25-34). The largest difference between the share of these age groups in the sample and the RDSAT-estimated share is observed in the cities of Kirovohrad (+16.1% for the group of those 35 y.o. and above), Chernivtsi (+9.2% for the group of those aged 20-24), Ternopil (+10.3% for the group of those aged 25-34), Luhansk (+5.5% for the group of those aged 20-24), Simferopol (+5.5% for the group of those aged 20-24), Kherson and Khmelnytskyi (+3.7% for the group of those 35 y.o. and above).

The analysis results are indicative of a significant age difference among IDU populations in different cities of Ukraine. The largest population of adolescent IDUs is in the city of Cherkasy, where it constitutes 7.7%. The population of IDUs 20-24 y.o. ranges within 4.1-32.2% (in the cities of Mykolayiv and Uzhhorod, respectively), those 25-34 y.o.- 25.1-64.2% (in the cities of Dnipropetrovsk and Kyiv, respectively), those aged 35 and above - 12.2-68.7% (in the cities of Chernivtsi and Dnipropetrovsk, respectively).

The average age of IDUs is 33 years. Comparison of the average age in different cities covered by the study using the Fisher's test showed significance of the difference. The

youngest average age among IDUs is in the city of Zhytomyr (27.8), the oldest in the city of Dnipropetrovsk (39.7) (see Figure 1.1.1).

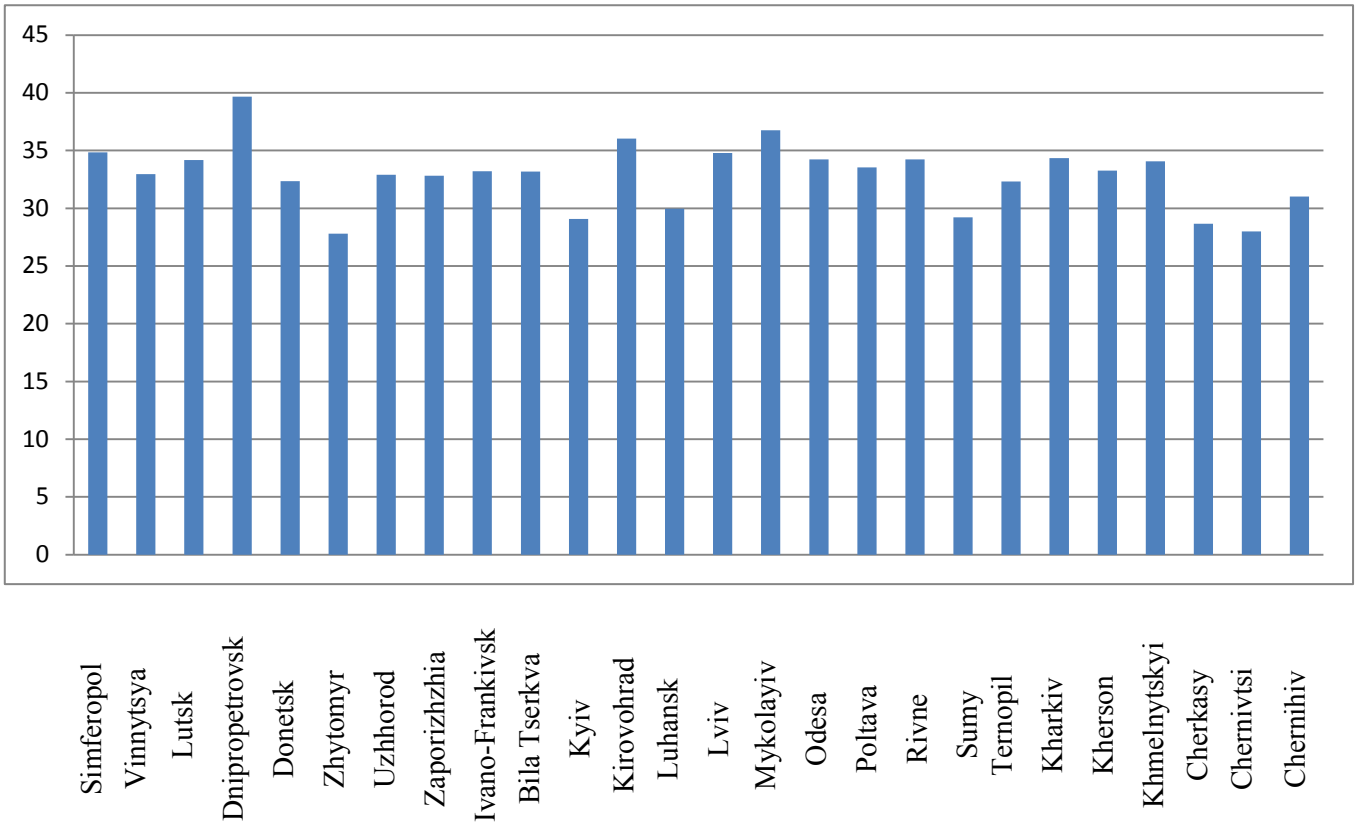


Figure 1.1.1. Average Age of IDUs, Depending on the City Covered by the Survey, *years*
(the difference is significant: p<0.001 (Fisher's test))

Experiences in Places of Confinement

Every third IDU polled has spent time in places of confinement, usually for a period of one to five years (81.5%) (see Table 1.1.4).

Table 1.1.4

Experience and Frequency of Stay in Places of Confinement, *percentage distribution*

Those who stayed in places of confinement	**31.6**
including	
less than a year	*9.0*
1-2 years	*37.7*
3-5 years	*43.8*
at least 6 years (26 years max)	*9.5*
Those who didn't stay in places of confinement	**68.4**

The percentage of men who reported having spent time in places of confinement is larger than among women (37.1 versus 17.1%, the difference is significant p<0.001). Most IDUs (84.3%) who served prison sentences were confined more than a year ago (see Table 1.1.5).

Table 1.1.5

Distribution of Answers to the Question: "When Were You Last Released from a Place of Confinement?" *(N=2822)*, *percentage distribution*

Less than a month ago	1.6
1-6 months ago	7.1
6-12 months ago	7.0
1-3 years ago	20.8
3-5 years ago	26.2
5-10 years ago	23.8
More than 10 years ago	13.5

Size of the Social Network of IDUs

Data obtained on the number of friends show that communication with other injecting drug users is characteristic of this population. More than half (57.8%) of respondents reported that they know more than 6 other injecting drug users (see Table 1.1.6).

Table 1.1.6

Number of IDU Friends (who Know Each Other's Name) among Those who Injected Drugs During the Last 30 Days*, *percentage distribution*

	Men	**Women**	**Among all**
1-5 persons	17.3	19.9	**18.0**
6-10 persons	28.4	31.3	**29.1**
11-20 persons	26.2	26.5	**26.3**
21 persons and more	28.2	22.2	**26.7**

**The difference by gender is significant p<0.01.*

Men have fewer friends who inject drugs than women. Particularly noticeable is the difference between the share of men and women having 21 and more friends who inject drugs (28.2 versus 22.2%). Older IDUs (aged 25 and older) have a larger network of friends as compared with young IDUs (aged 14-24); the difference is statistically significant (*p<0.001*).

Being a Client of CBO Working with IDUs

Use of NGO services is typical of almost one-third of respondents - 29.4% of IDUs stated that they were clients of an organization. The share of clients among women and older IDUs is somewhat higher than among men and young IDUs (see Table 1.1.7).

Table 1.1.7

Share of Clients of CBO Working with IDUs, Depending on Respondent's Gender and Age, *percentage distribution*

	Share of IDUs
Respondent's gender:	
Male	28.1
Female	32.8
Respondent's age:	
14-19 y.o.	15.0
20-24 y.o.	21.7
25-34 y.o.	33.4
35 y.o. and above	28.6

By regions, clients of HIV service organizations are represented non-uniformly, and in some cities coverage exceeds 60% (Lutsk, Sumy, Cherkasy, Chernivtsi), which may create some restrictions for distribution of obtained data on all the populations of IDUs in these cities (Table 1.1.8).

Table 1.1.8

Share of IDUs who are Clients of Community-based Organizations Working with IDUs, *percentage distribution and confidence intervals*

City	**%**	**Confidence intervals**
Simferopol	**45.8**	38.3-52.2
Vinnytsya	**8.0**	5.2-12.2
Lutsk	**65.3**	60.0-71.3
Dnipropetrovsk	**4.7**	2.2-7.4
Donetsk	**27.1**	22.6-31.9
Zhytomyr	**34.9**	29.1-40.9
Uzhhorod	**5.3**	2.4-9.0
Zaporizhzhia	**30.5**	22.0-38.6
Ivano-Frankivsk	**34.8**	28.6-41.9
Bila Tserkva	**30.3**	20.9-39.3
Kyiv	**29.9**	22.7-37.3
Kirovohrad	**12.8**	9.3-16.6

Luhansk	**11.0**	5.1-17.5
Lviv	**4.4**	1.7-7.0
Mykolayiv	**17.9**	14.0-21.9
Odesa	**18.6**	14.4-23.2
Poltava	**25.9**	20.5-31.4
Rivne	**5.3**	3.2-7.5
Sumy	**69.9**	63.2-75.9
Ternopil	**28.9**	20.2-37.9
Kharkiv	**6.9**	4.6-9.7
Kherson	**33.3**	27.4-38.4
Khmelnytskyi	**18.9**	13.8-24.2
Cherkasy	**72.4**	66.6-75.7
Chernivtsi	**62.1**	44.9-71.4
Chernihiv	**26.3**	21.0-31.8

1.2. Structural Changes in the Populations of IDUs

As compared to 2008 and 2009, there were some structural changes in the socio-demographic characteristics of the IDU population in 2011. During the specified period the share of female IDUs in the population has increased slightly from 25.8% to 27.5%. Regional features of changes in the share of women in the IDU population are presented in Table 1.2.1.

Table 1.2.1

Changes in the Shares of Women among IDUs, 2008/2009-2011, *percentage distribution and confidence intervals*

City	2008/2009		2011	
	%	Confidence intervals	%	Confidence intervals
Simferopol (AR of Crimea)	21.6	15.7-28.0	33.2	30.0-37.2
Vinnytsya	25.3	17.8-32.2	30.1	25.5-35.3
Lutsk	30.7	23.5-38.6	18.5	13.9-23.1
Dnipropetrovsk	30.7	22.5-38.8	27.4	22.4-32.9
Donetsk	44.4	37.0-51.6	29.9	25.7-35.1
Zhytomyr	29.9	22.2-36.7	24.7	20.4-29.7
Uzhhorod	23.6	11.6-38.8	27.4	16.8-38.1
Zaporizhzhia	31.1	21.9-41.0	18.8	12.4-25.7
Ivano-Frankivsk	24.3	17.1-31.7	26.9	20.8-33.3
Kyiv	24.1	18.9-31.5	22.3	13.6-32.7
Kirovohrad	11.9	7.4-17.1	29.8	20.5-36.0
Luhansk	30.7	23.5-38.6	15.9	9.6-22.2
Lviv	11.8	7.8-17.0	37.1	27.6-46.8
Mykolayiv	12.5	7.4-18.0	29.3	21.6-35.1
Odesa	29.0	24.6-35.6	24.3	20.1-28.4
Poltava	26.8	18.2-36.2	23.3	20.3-26.9
Rivne	22.3	16.6-28.6	37.3	30.4-43.5
Sumy	21.0	13.8-28.9	9.2	6.4-12.8
Ternopil	29.7	15.8-45.9	34.7	30.0-39.6
Kharkiv	42.9	34.6-50.5	21.7	14.4-30.0

Kherson	18.3	12.1-25.4	26.2	20.1-32.5
Khmelnytskyi	36.7	28.8-45.7	22.2	17.5-26.7
Cherkasy	36.6	28.3-44.9	24.6	19.7-29.6
Chernivtsi	27.4	18.0-37.8	37.9	31.4-44.5
Chernihiv	17.5	11.4-24.3	27.1	22.7-31.7

The following changes were confirmed by the analysis of the confidence intervals: a decrease in the share of women in the cities of Lutsk (-12.2%), Donetsk (-14.5%), Luhansk (-14.8%), Sumy (-11.8%), Kharkiv (-21.2%), Khmelnytskyi (-14.5%) and Cherkasy (-12%); an increase in the share of women in the cities of Kirovohrad (+17.9%), Lviv (+25.3%), Mykolayiv (+16.8%) and Rivne (+15.0%) (see Figure 1.2.1).

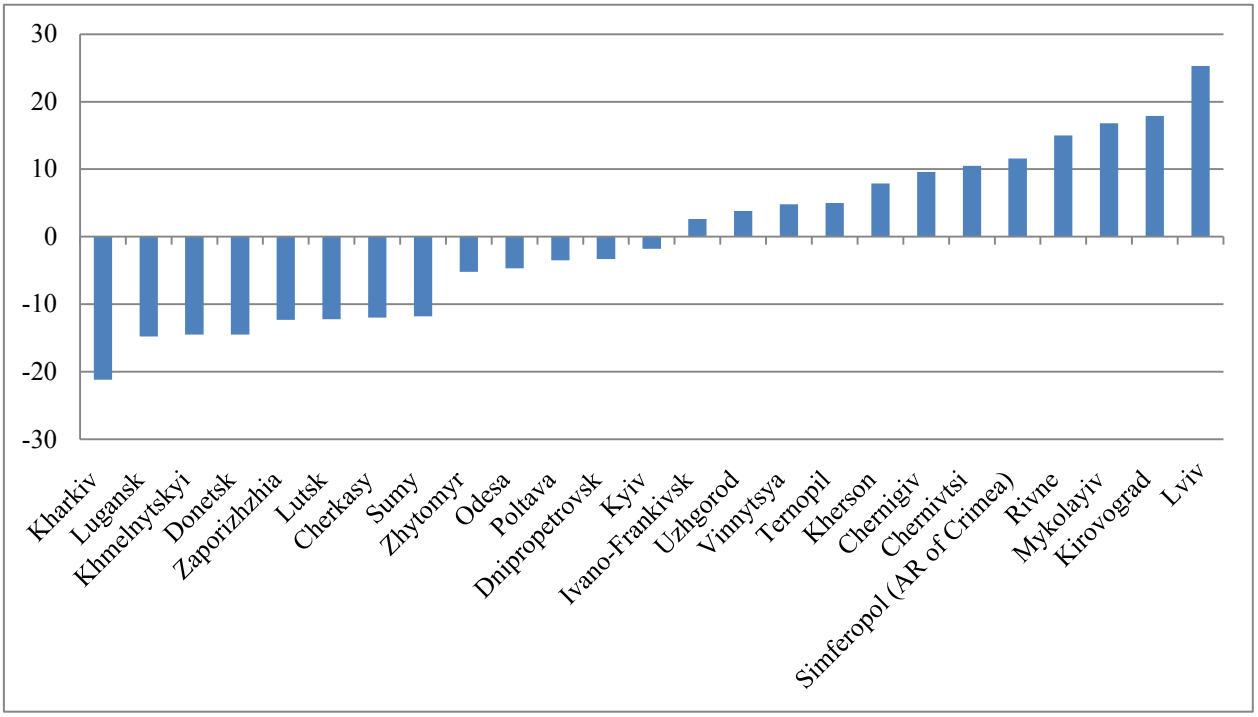


Figure 1.2.1 Changes in the Share of Women in IDU Populations in 2011 as Compared to the Data for 2008/2009, *percentage distribution*

The age breakdown of IDUs also underwent some changes as compared to 2008/2009. The average age of IDUs in 2008/2009 was 30, in 2011 it was 33.1. This is primarily due to a decrease in the share of adolescent IDUs (IDUs 14-19 y.o.) in the populations of IDUs; their share fell from 8.9% to 2.7%. The share of other age groups also changed as compared to 2008/2009: the share of those 20-24 y.o. fell from 28.4% to 16.6%; the share of those 25-34

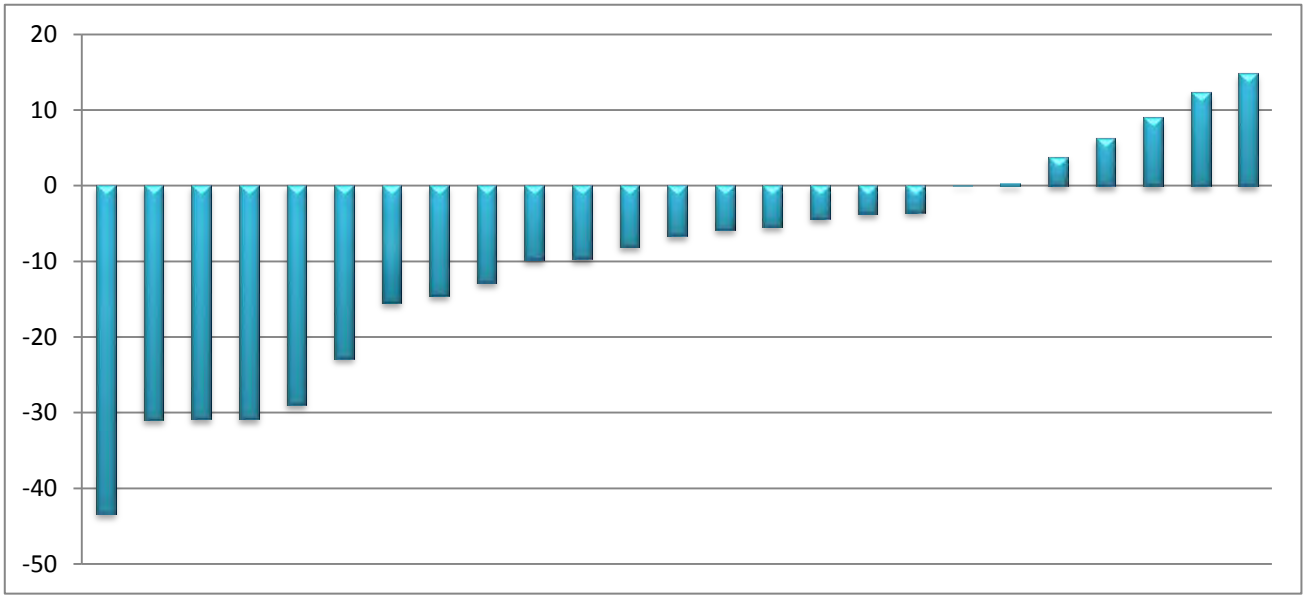
y.o. increased somewhat from 42.3% to 44.4%; and the share of those aged 35 and over also surged from 29.3% to 38.9%.

Table 1.2.2

Changes in the Age Characteristics of IDU Populations, 2008/2009-2011,

percentage distribution

City	2008/2009		2011	
	Aged 14-24	Aged 25 and older	Aged 14-24	Aged 25 and older
Simferopol	4.8	95.2	13.8	86.2
Vinnytsya	61.4	38.6	18.1	81.9
Lutsk	27.1	72.9	11.6	88.4
Dnipropetrovsk	11.6	88.4	6.2	93.8
Donetsk	45.7	54.3	16.8	83.2
Zhytomyr	34.1	65.9	30.6	69.5
Uzhhorod	65.6	34.4	34.8	65.2
Zaporizhzhia	11.8	88.2	7.5	92.6
Ivano-Frankivsk	27.9	72.1	18.3	81.8
Kyiv	25.1	74.9	18.5	81.5
Kirovohrad	37.9	62.1	15.1	84.9
Luhansk	43.1	56.9	30.3	69.7
Lviv	3.0	97.0	17.8	82.2
Mykolayiv	12.4	87.6	4.4	95.7
Odesa	11.3	88.7	17.6	82.4
Poltava	21.6	78.4	17.9	82.1
Rivne	44.9	55.1	14.0	86.0
Sumy	20.5	79.5	24.3	75.6
Ternopil	30.2	69.8	15.7	84.3
Kharkiv	42.7	57.3	11.9	88.0
Kherson	10.5	89.5	10.8	89.2
Khmelnytskyi	15.0	85.0	9.2	90.8
Cherkasy	38.9	61.1	29.1	70.9
Chernivtsi	19.3	80.7	31.7	68.3
Chernihiv	20.2	79.8	20.3	79.8



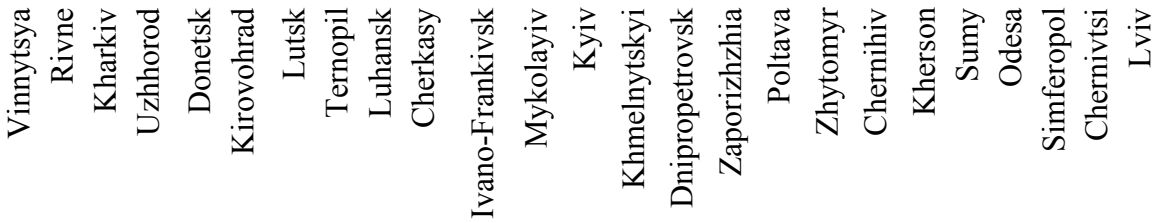


Figure 1.2.2. Changes in Share of Young People (under 25) in IDU Populations in 2011 as Compared to 2008/2009, *percentage distribution*

Analysis of data on age distribution of IDUs for 2008/2009 and 2011 shows that the share of young IDUs is falling in all the cities except Simferopol (+9%), Lviv (+14.8%), Odesa (6.4%), Sumy (+3.8%) and Chernivtsi (12.4%) (see Figure 1.2.2).

Analysis of other socio-demographic characteristics shows small changes in the marital status of respondents. The share of IDUs who are officially married has decreased from 19.9% (2008/2009) to 16.1% (2011), and the share of IDUs who are not married but live together with a sexual partner has increased somewhat - from 28% to 33.1%. The breakdown of IDUs by occupation has remained virtually unchanged. but the share of those who study has decreased somewhat - from 6.2% to 3.1%, which may stem from the fact that the 2011 survey attracted a much smaller number of adolescent IDUs.

Summary

Gender distribution of respondents who inject drugs indicates a significant advantage of men over women: 72.5% versus 27.5%. This distribution of IDUs by gender is also confirmed by previous studies for 2008-2009. The share of adolescent IDUs among respondents polled is falling, which may be indicative of an aging population. The average age of IDUs is 33. The largest share of older IDUs resides in the city of Dnipropetrovsk; the average age of IDUs in this city is 39.7. The youngest IDUs are in the city of Zhytomyr; their average age is 27.8.

Section 2. Drug Injecting Practices

The section presents an analysis of drug use among IDUs in Ukraine, major changes in the drug scene and dangerous injecting behavior that have occurred as compared to 2008 and 2009. The analysis is based on data on the initiation of drug use, kinds of drugs and frequency of their injecting, the use of shared injecting equipment, the number of partners with whom drug injecting equipment was shared, and other dangerous injecting practices. Analysis of data on the use of sterile equipment concerns the last drug injection and frequency of use of sterile equipment over the previous 30 days. Also, to identify the share of IDUs who could be exposed to HIV due to unsafe injecting behavior, the aggregate indicator was established to combine such types of risk as non-sterile equipment used over the previous 30 days, injecting from a pre-filled syringe (respondents did not see how it had been filled), withdrawal of drug solution from shared utensils or use of shared utensils for the preparation of drugs.

2.1. Duration of Drug Use

Of the 9,069 respondents, 8,835 IDUs responded to the question about age when they first attempted to use non-injected drugs, of which 9% had never used any non-injected drugs. Responses to the question about the initiation of drug injecting were given by 9,013 respondents. The results of the survey show that non-injecting drug use is not always a predecessor of injecting use. For instance, 4% of IDUs reported that their first injecting experiences preceded non-injecting drug use.

On the average, the first non-injecting experiences occur at 17.6 years, and the average age of initiation of injecting drug use is slightly higher - 20.6 years. The most common age of initiation of non-injecting drug use is 16-17 years; 20% first tried to use non-injected drugs at this age. As for injecting, the most common age of involvement is 20-24 years; initiation of drug injecting at this age was reported by 28% of IDUs. 5% of IDUs had injecting experiences at a very young age - under 15; almost a third (31%) of IDUs reported that they first attempted to inject drugs before reaching legal age (17 years inclusive). Analysis of the cumulative age of the first non-injecting experiences shows that before reaching 25 years practically all IDUs already have acquired experience of drug injecting (see Figure 2.1.1).

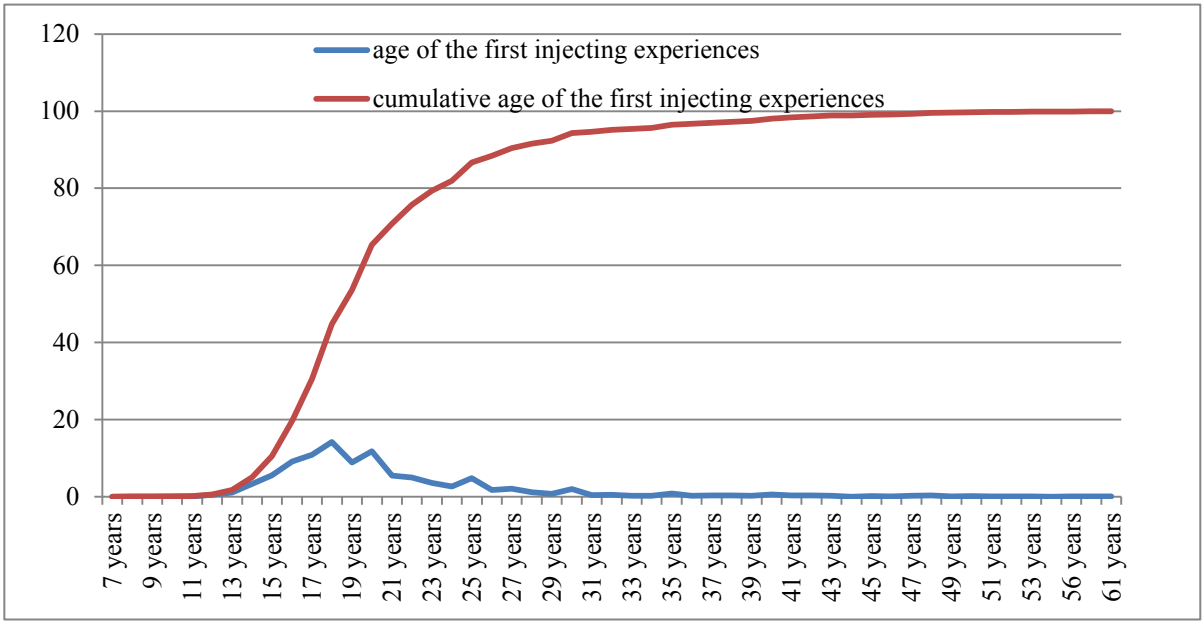


Figure 2.1.1. Age of Initiation of Drug Injecting, *percentage distribution*

The average age of the first attempt to inject drugs among men and women is about the same - 20.6 years for men and 20.8 years for women, thus, a statistically significant difference depending on gender has not been found.

As compared to 2008/2009, the average age of initiation of drug use has remained practically unchanged (see Table 2.1.1).

Table 2.1.1

Average Age of the First Attempt to Inject Drugs in Different Age Groups, 2008/2009-2011

Respondent's age	2008/2009	2011
14-19 y.o.	16.0 years	16.2 years
20-24 y.o.	18.0 years	18.5 years
25-34 y.o.	19.6 years	19.8 years
35 y.o. and above	22.2 years	22.7 years

The average duration of drug injecting is 12.5 years. More than half of IDU respondents have a fairly long drug injecting experience, with 53% using drugs for 11 years or more. Calculation of the cumulative duration of drug injecting shows that the vast majority of respondents (80%) have at least 4 years of drug injecting experience (see Figure 2.1.2).

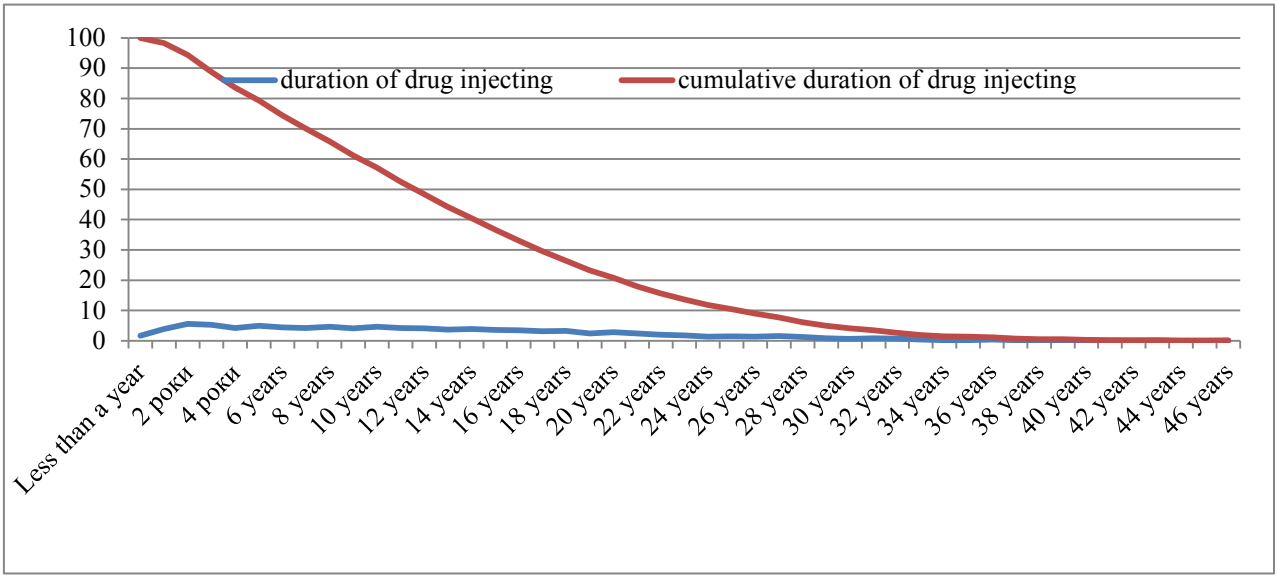


Figure 2.1.2. Duration of Drug Injecting, *percentage distribution*

Gender distribution shows that the share of women having injecting experiences of 0-2 years and 3-5 years is somewhat higher than among men. There is a statistically significant relationship between age of respondents and their duration of drug use, which shows that the duration of use increases with age of IDUs. The vast majority (84%) of respondents of the older age group (35 years and older) have 11 years or more of drug use experience. Among the surveyed IDUs who reported mixed use (opioids and stimulants), the total duration of use is longer, i.e. more than half have duration of more than 11 years. Among users of stimulants the total duration of use is significantly lower: 23% have used drugs 2 years or less, only a third (35%) have used drugs more than 11 years (see Table 2.1.2).

Table 2.1.2

Distribution of Duration of Drug Injecting, Depending on IDUs' Gender, Age and Types of Drugs that Have Been Used During the Previous 30 Days,

percentage distribution

	Use duration			
	0-2 years	3-5 years	6-10 years	11 years and more
Respondent's gender *(p<0.001)*				
Male	9.3	13.2	21.9	55.6
Female	16.0	17.5	22.0	44.5
Respondent's age*				
14-19 y.o.	70.4	27.9	0.9	0.7
20-24 y.o.	33.5	42.8	23.5	0.3
25-34 y.o.	7.1	13.8	35.0	44.2
35 y.o. and above	3.7	3.9	7.9	84.4
Kinds of drugs used over the last 30 days*(p<0.001)*				
Opioids	8.4	13.4	20.2	58.0
Stimulants	23.5	18.6	23.3	34.7
Mixed use	9.5	13.9	25.7	50.8

* Pearson correlation coefficient: 0.760*** (calculation of the correlation coefficient was conducted between quantitative scales of age variables and duration of drug injecting).

It should be noted that as compared to the survey results for 2008/2009, the share of IDUs using drugs during a long period of time increased in 2011. Thus, the share of IDUs who had been using injecting drugs for 11 years or more was 42% in 2008-2009, and in 2011 this indicator was already about 53%, which may also be related to the aging of IDU populations (see Section 1).

2.2. Frequency of Drug Use

Technical reports on the survey process show that the question about the number of injections over the previous months was difficult for respondents to answer, but almost all IDUs (N=9,067) could specify at least the approximate number of injections.

Based on results of the data analysis, statistically significant differences were found, depending on the duration of drug use, in the number of injections over the previous 30 days, previous week and previous day: the longer duration of drug injecting, the greater the number of drug injections over the previous 30 days (*p<0.001*), previous week (*p<0.001*) and previous 24 hours (*p<0.001*). Below are the results on the number of injections that IDUs did in the previous 30 days, week and 24 hours, and the relationship between the frequency of

injections and gender, age of respondents, kinds of drugs and the number of types of drugs, but the interpretation of the results must consider the link between the experience and the specified characteristics of IDUs: experiences increase with age of respondents, men have longer experience of drug injecting, IDUs with longer experience take more different kinds of drugs.

The results show that over the previous 30 days, more than half of IDUs injected drugs 11 times or more (see Figure 2.2.1).

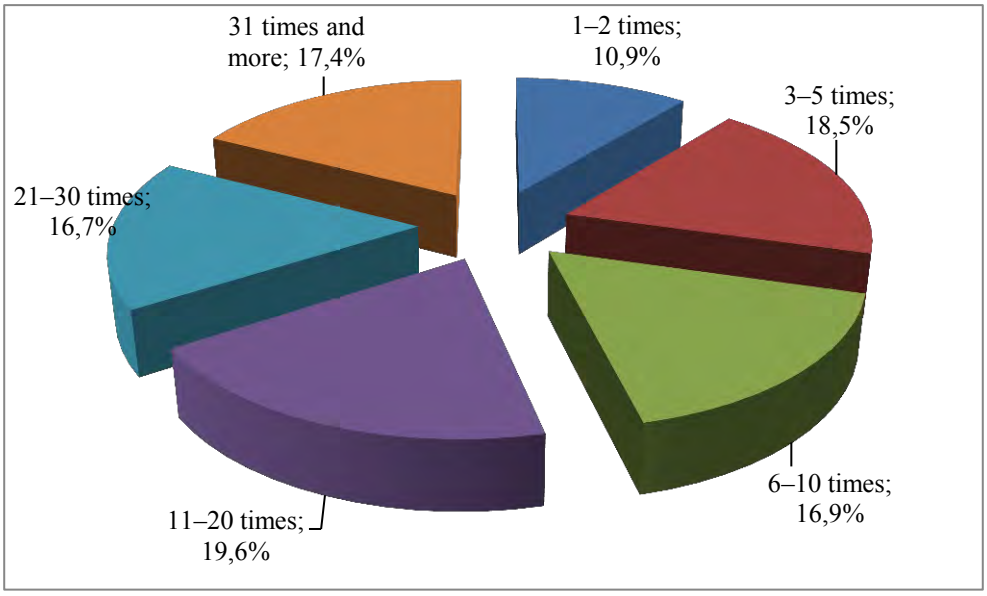


Figure 2.2.1. Frequency of Drug Injecting over the Previous 30 Days, *percentage distribution*

Table 2.2.1

Frequency of Drug Injecting, Depending on IDUs' Gender, Age, Types and the Number of Kinds of Drugs that Were Used In the Previous Month, *percentage distribution*

	1-2 times	**3-5 times**	**6-10 times**	**11-20 times**	**21-30 times**	**31 times & more**
Respondent's gender *(p<0.01)*						
Male	10.1	18.4	17.1	20.0	17.1	17.3
Female	13.2	18.8	16.5	18.4	15.5	17.6
Respondent's age *(p<0.001)*						
14-19 y.o.	13.6	29.0	18.3	15.3	11.9	12.0
20-24 y.o.	12.5	21.9	19.2	22.4	10.5	13.6
25-34 y.o.	10.5	16.9	17.0	21.7	17.2	16.8
35 y.o. and above	10.7	18.4	15.9	16.5	18.6	19.9
Types of drugs*(p<0.001)*						
Opioids	11.5	19.4	17.3	18.9	16.4	16.5

Stimulants	17.3	24.0	18.9	19.9	12.8	7.1
Mixed use	4.0	11.6	14.2	21.3	20.6	28.3
Number of kinds of drugs *(p<0.001)*						
One kind of drugs	13.4	20.9	18.2	18.7	14.9	13.9
At least two kinds of drugs	4.3	11.9	13.4	22.1	21.5	26.9

Table 2.2.1 shows that there are statistically significant differences in the number of injections over the previous 30 days depending on the specified characteristics of IDUs. IDUs using several kinds of drugs are characterized by more frequent use of drugs as compared to those who use only one kind. The same trend is preserved after the separation of the populations of IDUs which combine the use of not only different kinds of drugs, but different types (opioids and stimulants). Analysis of the frequency of drug use depending on age also shows a statistically significant relationship between these variables and indicates the increasing frequency of drug use among older group of IDUs.

Among IDUs who have been using only one kind of drug, frequency of use over the previous week is less than among those who use several kinds of drugs (see Figure 2.2.2).

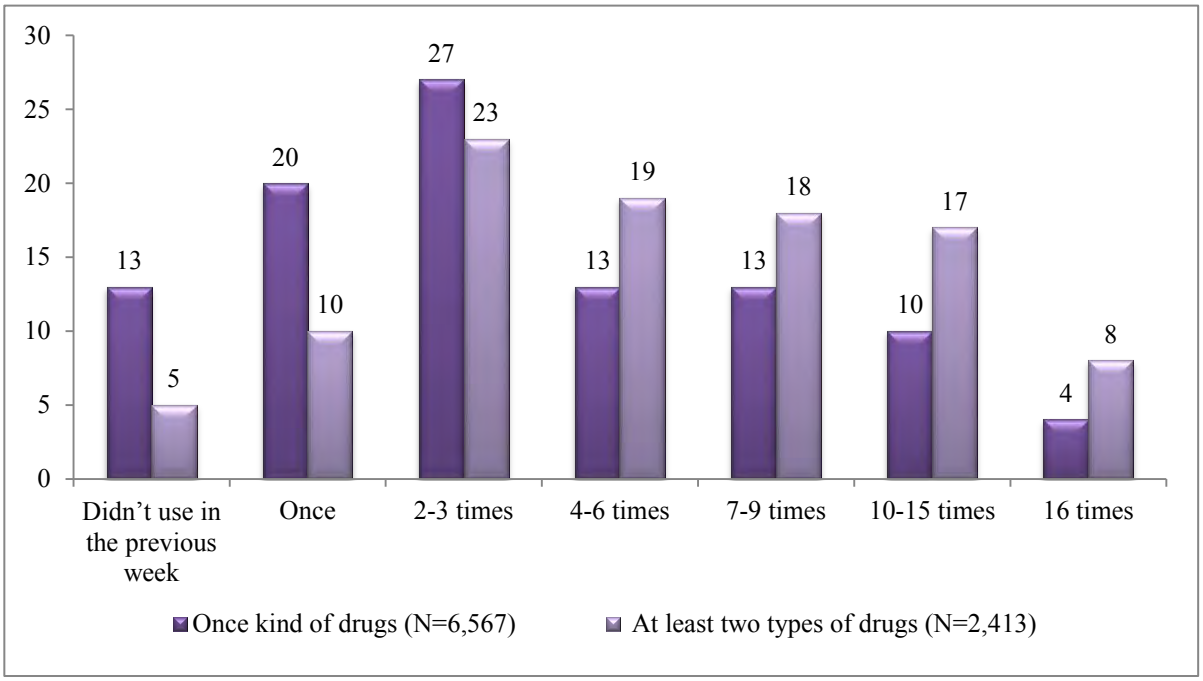


Figure 2.2.2. Frequency of Drug Use during the Previous Week among IDUs Using only One Kind of Drug, and those Using Several Kinds of Drugs, *percentage distribution*

During the previous week nearly 11% of IDUs did not inject drugs (see Figure 2.2.3).

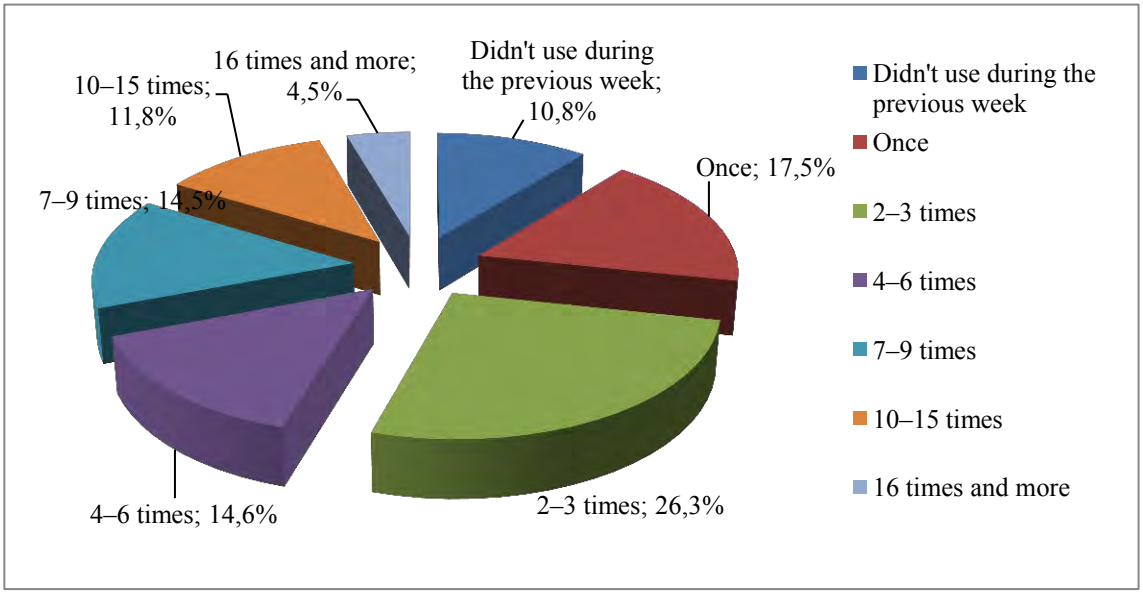


Figure 2.2.3.Frequency of Drug Injecting over the Previous Week, *percentage distribution*

For IDUs aged 14-19 and 20-24, the most characteristic frequency of drug injecting during a week is 1-3 times. This was reported by more than half of IDUs (54.3% of those aged 14-19 and 51.2% of those aged 20-24). Among older IDUs, the largest population is represented by individuals who have been using drugs 2-3 times a week (26.7% among 25-34-year-old IDUs and 25.1% among 35-year-old and older IDUs).

Women are more likely than men to have used drugs less frequently during the previous week: one use was reported by 19.1% of women versus 16.9% of men. The share of those who have used drugs 2-3 times a week is about the same among women and men (26.1% of men and 26.6% of women).

More than half of surveyed IDUs (51.1%) did not use injecting drugs during the previous 24 hours, almost a third (31.8%) used 1 time per day, almost 12% did it 2 times, and just over 5% of respondents used drugs 3 or more times over the previous 24 hours.

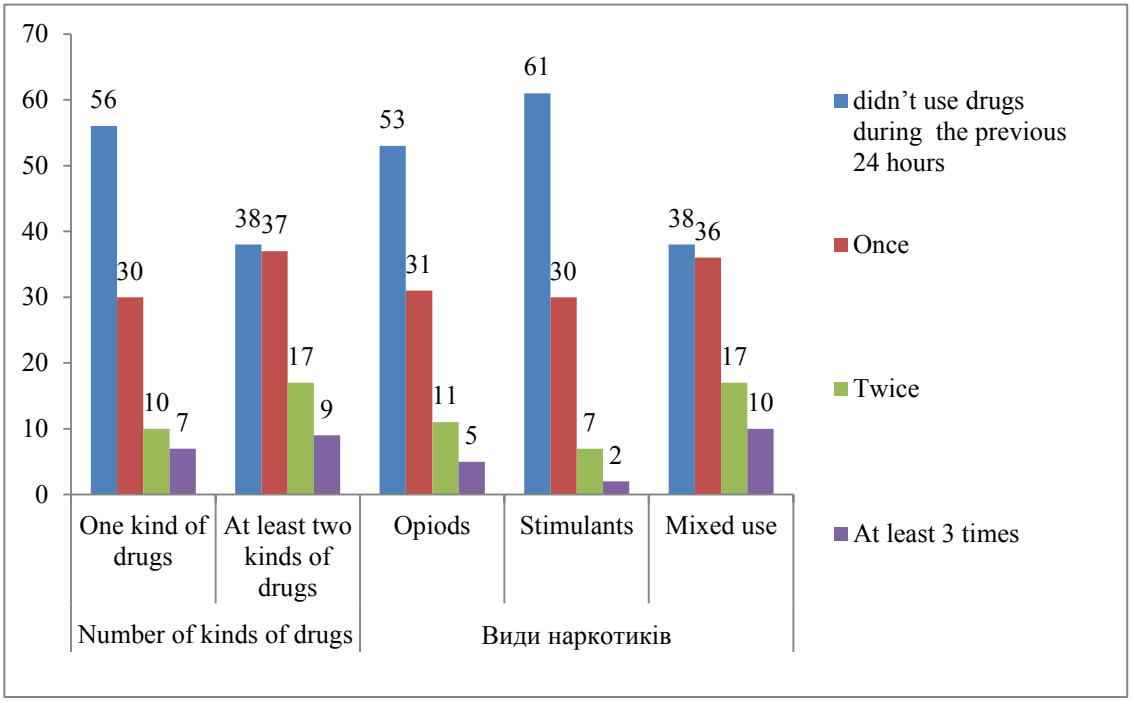


Figure 2.2.4.Frequency of Drug Injecting during the Previous 24 Hours, Depending on Age, *percentage distribution*

The frequency distribution of drug use during the previous 24 hours depending on the types of drugs and the number of kinds (see Figure 2.2.4) shows that among IDUs using one kind of drug there are many more people who did not practice drug injecting during the previous 24 hours. A similar trend characterizes both users of stimulants and opioids as compared to those IDUs who practice mixed use.

The average frequency of drug use over the previous 30 days is 21.7 times, over a week - 5.1 times and over 24 hours - 0.7 times.

There is no statistically significant difference found in the average frequency of drug use depending on gender (over the previous 24 hours: men - 0.8 times, women - 0.7 times, over the previous week: men - 5.2 times, women - 4.8 times, over the previous month: men - 21.8 times, women - 21.7 times).

2.3. Prevalence of Use of Different Kinds of Drugs

Drug injecting is often combined with non-injecting practices. Among IDU respondents, almost half (44.5%) had such practices in the previous 30 days (46.6% of men and 38.9% of women). Non-injecting practices are typical of young IDUs (61.6% of those aged 14-19 and 54.6% of those aged 20-24). The analysis shows that among the older age categories of IDUs this figure gradually decreases with age from 44.6% to 39.6%. The most

common non-injecting drugs used by IDUs are cannabinoid drugs, with 24.6% IDUs reporting having used them in the previous 30 days. Another 3.6% reported that they used tramadol. Drugs such as powered and soluble methamphetamine and ecstasy were used by slightly more than 1% of IDUs. The prevalence of use of other non-injecting drugs does not exceed 1%.

The most common injecting drug in Ukraine is an extract of opium. Almost 80% of respondents reported using it in the previous 30 days. Among the drugs classified as stimulants, soluble methamphetamine is the most popular, with almost a third of IDUs having used this drug in the previous 30 days (see Table 2.3.1).

Table 2.3.1

Types of Drugs Injected by IDUs in the Previous 30 Days, and Frequency of their Use, *percentage distribution*

Kinds of drugs	**Used a Drug**	**Frequency of Use of Drugs***(among those who used the specified drug)*							
		Once a month	2-3 times a month	On average once a week	2-3 times a week	4-6 times a week	On average once a day	2-3 times a day	At least four times a day
Opioids									
desomorphine (N*=198)	2.2	16.9	18.2	8.2	19.9	19.0	8.2	9.0	0.6
tramadol/tramal (N*=278)	3.1	20.0	29.3	17.9	25.2	4.2	1.8	1.7	0.0
heroin (N*=358)	3.9	22.4	28.0	21.2	14.2	5.5	7.6	0.9	0.1
opium extract (N*=7214)	79.6	5.2	14.2	11.9	26.7	12.0	15.1	13.4	1.4
Others (N*=150)	1.7								
Stimulants									
Cocaine (N*=33)	0.4								
Amphetamine (N*=462)	5.1	18.2	29.0	17.0	23.3	6.6	5.8	0.1	0.0
Powdered methamphetamine (N*=56)	0.6								
Soluble methamphetamine (N*=2706)	29.8	14.3	21.7	13.8	26.0	11.1	8.4	4.3	0.4
Methcathinone (N*=384)	4.2	36.1	20.8	6.8	21.9	10.0	2.3	1.8	0.3
Cathinone (N*=371)	4.1	29.0	25.0	10.4	24.5	5.6	3.7	1.7	0.0
Methylenedioxymethamphetamine (N*=25)	0.3								
Other kinds of drugs									
LSD, mushrooms (N*=12)	0.1								
Others (N*=266)	2.9								

** Number of IDUs who used the specified kinds of drugs*

Use of stimulants is more prevalent among women and young IDUs than among men and IDUs older than 24 years (see Table 2.3.2).

Table 2.3.2

Types of Drugs Used by IDUs in the Recent 30 Days, Depending on Gender, Age and Duration of Drug Use, *percentage distribution*

	Used opioids only	Used stimulants only	Used both opioids and stimulants	Used other drugs
Respondent's gender *(p<0.001)*				
Male	63.7	15.6	20.0	0.7
Female	58.5	20.2	20.6	0.7
Respondent's age *(p<0.001)*				
14-19 y.o.	38.8	36.0	24.4	0.8
20-24 y.o.	42.8	30.1	25.6	1.5
25-34 y.o.	61.4	16.8	20.8	1.0
35 y.o. and above	71.8	10.8	17.1	0.3
Duration of drug use *(p<0.001)*				
0-2 years	52.1	29.9	16.0	2.0
3-5 years	56.9	20.8	21.6	0.7
6-10 years	58.1	16.7	24.0	1.2
11 years and more	69.5	9.9	20.4	0.3
All IDUs	**62.3**	**16.9**	**20.2**	**0.6**

The data presented show that one-fifth of respondents use mixed drugs (opioids and stimulants), IDUs using opioid drugs only constitute 62.3%, and stimulants - 16.9%.

Compared to 2008/2009, the share of stimulant users remained virtually unchanged - 35.2% and 36.0%, respectively. The share of opioid users also remained virtually unchanged - 79.7% and 81.1%, respectively[13].

The 2011 study tools included additional questions about use of desomorphine. The data analysis shows that 2.2% of IDUs injected this drug in the previous 30 days, and almost 7% of IDUs used it in the previous 12 months. The use of this drug was reported in several cities of Ukraine, which is also evidenced by the presence of statistically significant differences in use of this drug in different cities covered by the study ($p<0.001$): it is prevalent in the cities of Simferopol (26.9%), Donetsk (12.6%), Uzhhorod (35.6%), Kyiv (21.7%) and Chernivtsi (15.5%).

To determine which drug IDUs use because they prefer it over others, and which ones they use due to no availability of a certain kind of drug, the respondents were asked what

[13] The average value was calculated for the data obtained in the cities covered by the study using Excel because the combined 2008/2009 array did not contain variables for the analysis due to different wording of questions in the studies.

drugs they like. The results show that the vast majority of IDUs prefer opium extract (73.8%), which is typical of female IDUs and men of different age groups (see Table 2.3.3).

Table 2.3.3

Main Kinds of Drugs Injected, by Gender and Age, *percentage distribution*

	Respondent's gender (p<0.001)		**Respondent's age (p<0.001)**				**Among all**
	Male	**Female**	**14-19 y.o.**	**20-24 y.o.**	**25-34 y.o.**	**35 y.o. and above**	
Opium extract	75.1	70.6	49.0	53.7	73.2	83.6	**73.8**
Soluble methamphetamine	17.5	22.2	40.6	35.0	18.9	11.3	**18.8**
Amphetamine	1.8	1.3	4.1	2.7	2.2	0.6	**1.7**
Heroin	1.4	0.6	0.0	0.8	1.4	1.1	**1.2**
Cathinone	1.0	1.7	2.8	0.8	0.7	1.7	**1.1**
Desomorphine	0.7	1.1	1.4	2.7	0.7	0.3	**0.8**
Methcathinone	0.4	0.3	0.0	0.5	0.4	0.3	**0.4**
Tramadol/tramal	0.4	0.2	1.3	0.2	0.3	0.3	**0.3**
Methadone	0.3	0.2	0.0	0.0	0.6	0.1	**0.3**
Other drugs	1.5	1.8	0.8	3.7	1.8	0.6	**1.6**

The data (Table 2.3.3) show that the most popular stimulant among IDUs is soluble methamphetamine - this kind of drug is preferable for almost 19% of respondents. Statistically significant differences depending on the age of respondents were observed - soluble methamphetamine was often defined as the preferred drug by adolescent IDUs - 40.6%.

2.4. Risky Injecting Behaviors

The vast majority (95.5%[14]) of IDU respondents reported using sterile syringes/ needles during the previous injecting drug use. There was a very high rate of sharing syringes/needles also observed during the previous 30 days: 7.9% indicated that such cases occur, 91.3% of IDUs reported that they did not use a syringe/needle that was previously used by another person, 0.8% failed to answer this question.

.

Table 2.4.1

[14] It is impossible to compare this indicator with the similar indicator for 2008/2009 because of different wording of questions used in the studies for 2008 and 2009.

Use of Shared Injecting Equipment in the Previous 30 Days, Depending on Age, Gender, Status of CBO Client, *percentage distribution*

	Did not use sterile equipment during the most recent injecting	Used sterile equipment during the recent 30 days
Respondent's gender	(p=0.88)	(p<0.01)
Male	3.0	7.4
Female	2.3	9.0
Respondent's age	(p<0.05)	(p<0.001)
14-19 y.o.	6.5	16.4
20-24 y.o.	2.7	6.8
25-34 y.o.	2.3	7.3
35 y.o. and above	3.2	8.2
CBO client status	(p<0.001)	(p<0.001)
Clients	1.8	10.6
Non-clients	3.2	6.7

Clients of community-based organizations working with IDUs more often practice HIV safe behavior. Analysis of respondents depending on age shows that the share of those sharing equipment is the largest in the adolescent age group (see Table 2.4.1).

The data analysis also shows that the greater the length of injecting drug use, the riskier IDU behavior becomes. For example, in the IDU group using drugs 6 or more years this indicator varies in the range of 8.8-8.2%.

Statistically significant differences between the HIV incidence rate (results of the linked study) among those who used a sterile syringe/needle during the last injection, and those who did not, were not detected (p=0.316). This may be indicative of the presence of other HIV risky behavior among IDU respondents. Also, there may be some error in the data, given the desire of IDUs to give a socially favorable answer to this question.

Respondents who shared injecting equipment during the previous 30 days indicated that it was not a regular practice for them (see Figure 2.4.1).

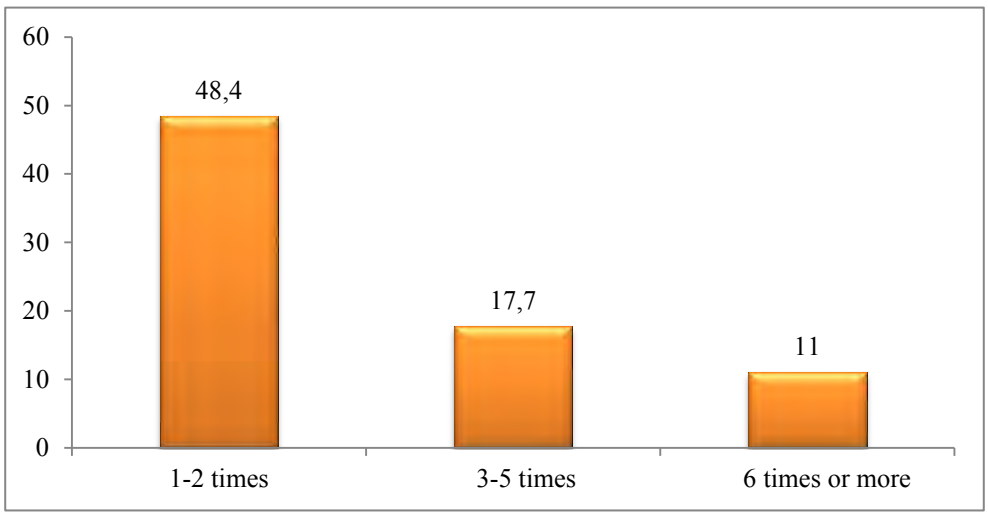


Figure 2.4.1. Frequency of Sharing Equipment during the Previous 30 Days (N=791)**,** *percentage distribution*

IDUs share equipment most often with friends/acquaintances and sexual partners, with the share of women who share a syringe with a sexual partner or husband much higher than among men (see Table 2.4.2).

Table 2.4.2

Partners who Used Shared Equipment in the Previous Month Depending on Gender of IDU (N=791), *percentage distribution*

	Men	Women
Regular sexual partner	25.4	50.8
Occasional sexual partner	5.1	7.9
Casual sexual partner	4.0	11.3
Unfamiliar person who was not a sexual partner	11.6	12.5
Friend, acquaintance	61.3	45.8
Dealer (drug dealer)	4.9	2.1
Spouse	6.5	10.4
Other person	0.5	1.7

The share of women who used a syringe/needle together with a regular sexual partner is 50.8%, and among men this indicator is much lower - 25.4%. The average number of partners with whom IDU respondents shared a syringe/needle in the previous 30 days is 4 persons (men - 3 persons, women - 5 persons).

The vast majority (86.6%) of IDUs are not inclined to give their used syringes to other persons. Adolescent IDUs gave their syringes to other users more often - 24.9% of

adolescents had these practices, while among other age groups this indicator varies from 10.8 to 13.5%, and the relationship is significant ($p<0.001$).

Analysis of IDUs' responses to the question about using sterile equipment during the last injection and in the previous 30 days showed that HIV safe practices dominate among IDUs. However, more than half of IDUs (57.5%) reported having been injected with a syringe they didn't see being filling. Compared to 2009, this indicator has not changed. Among the users of opioids, the majority have been injected with a pre-filled syringe: statistically significant difference was observed in getting drugs in a filled syringe among IDUs using different types of drugs ($p<0.001$)., Depending on age and gender, there were no statistically significant differences in terms of being injected with a pre-filled syringe ($p>0.05$).

Among the IDUs who reported that in the previous 30 days they never used a syringe/needle that was used by another person for injecting, 56.2% received an injection with a pre-filled syringe. Thus, IDUs tend to believe that they use sterile equipment, even if they did not see how the syringe was filled.

Another 24% of IDUs reported that they used a syringe filled by someone using is/her own used syringe. Among them, the share of individuals who earlier declared that they have never used shared equipment in the previous 30 days constitutes 21.2%.

Utensils for the distribution of drugs were shared by 63% and for the preparation of drugs by 59% of IDUs. Thus, despite a high level of use of sterile equipment, other injecting practices are risky.

To assess the cumulative risk indicator of injecting behavior among IDUs in the previous 30 days, an aggregate indicator was developed that combines a number of possible risky practices (syringe/needle sharing, being injected with a pre-filled syringe, being injected with a syringe that someone filled with his/her used syringe, and sharing utensils for the preparation and distribution of drugs). The results of this analysis show that 81.5% of IDUs practiced unsafe injecting behavior in the previous 30 days (see Table 2.4.3).

Table 2.4.3

Cumulative Percentage of IDUs who Practiced Various Types of Risky Injecting Behavior in the Previous 30 Days, *percentage distribution*

Shared…	
… a syringe/needle	**7.9**
… a syringe/needle and/or did not see how a syringe was filled	**59.6**

… a syringe/needle and/or did not see how a syringe was filled, and/or filled a syringe from other already used syringe	**62.0**
… a syringe/needle and/ or did not see how a syringe was filled, and/or filled a syringe from other already used syringe, and/ or used shared utensils for the distribution of drugs	**80.8**
… a syringe/needle and/or did not see how a syringe was filled, and/or filled a syringe from other already used syringe, and/or shared flasks for the distribution of drugs, and/or shared utensils for the preparation of drugs	**81.5**

These risky injecting practices have a statistically significant relationship with HIV. Thus, among IDUs having the specified injecting practices in the previous 30 days, the share of HIV-positive individuals is larger than among those who reportedly had no risky injecting practices (22.8% versus 16.4%, $p<0.001$). Depending on other characteristics of IDUs, including socio-demographic characteristics, there were no statistically significant differences found.

Summary

Data on the safe injecting practices based on key indicators show that almost all IDUs used sterile equipment. But the characteristic of safe injecting behavior, despite use of sterile equipment during the last injection and in the previous 30 days, is not always indicative, because IDUs are inclined to state that they use a sterile syringe even when being injected with a pre-filled syringe, or with a syringe filled by someone from his/her used syringe.

2.5. Regional Differences and Dynamics

Use of opioid drugs is common in all cities of Ukraine. The city of Chernivtsi (54.2%) had the smallest number of IDUs who used opioids in the previous 30 days. In such cities as Kherson, Khmelnytskyi, Rivne, Mykolayiv, Lutsk, Bila Tserkva and Kharkiv, the share of opioid users exceeds 90% (see Table 2.5.1).

Table 2.5.1

Use of Opiates in the Previous 30 Days, 2008/2009 and 2011, *percentage distribution*

City	2008/2009		2011	
	%	Confidence intervals	%	Confidence intervals

Simferopol (AR of Crimea)	95.2	92.0-98.5	81.4	77.4-84.5
Vinnytsya	45.1	36.9-54.6	76.9	72.0-80.8
Lutsk	84.9	79.3-90.4	93.7	90.4-96.8
Dnipropetrovsk	88.0	83.6-92.4	63.4	56.9-69.8
Donetsk	56.8	50.1-63.6	67.1	61.8-72.5
Zhytomyr	99.6	99.2-99.9	89.9	87.8-94.4
Uzhhorod	84.1	74.4-92.9	73.2	59.9-84.9
Zaporizhzhia	74.5	67.8-82.9	82.0	75.8-87.9
Ivano-Frankivsk	82.2	77.9-87.2	84.6	79.4-89.5
Kyiv	66.8	64.8-68.8	63.0	56.2-69.5
Bila Tserkva (Kyiv oblast)*			91.9	87.1-96.0
Kirovohrad	69.5	63.0-75.7	74.0	66.4-81.7
Luhansk	91.2	86.1-96.0	84.0	76.8-90.1
Lviv	95.2	91.6-99.4	90.7	85.5-95.9
Mykolayiv	96.4	94.2-98.6	97.3	94.6-99.4
Odesa	75.0	69.7-79.7	89.4	86.4-92.4
Poltava	72.4	63.8-82.5	68.7	61.3-76.3
Rivne	90.1	86.0-93.6	91.4	86.8-95.3
Sumy	70.4	60.8-77.9	64.6	58.8-70.3
Ternopil	88.7	73.1-97.2	93.2	89.1-96.6
Kharkiv	37.4	30.2-45.0	87.2	83.2-90.9
Kherson	94.7	91.7-97.1	98.7	97.4-99.8
Khmelnytskyi	74.6	63.7-82.1	88.7	84.2-92.9
Cherkasy	98.0	97.4-100	98.0	96.6-99.2
Chernivtsi	87.8	77.7-95.3	54.2	41.2-60.7
Chernihiv	73.2	64.8-80.8	71.6	66.3-76.7

* The study was not conducted in Bila Tserkva (Kyiv oblast) in 2008 and 2009.

- the study was conducted in 2008
- the study was conducted in 2009

The most noticeable increases in the share of IDUs who use opioid drugs were in the cities of Vinnytsya (+32%) and Kharkiv (+50%) (see Figure 2.5.1).

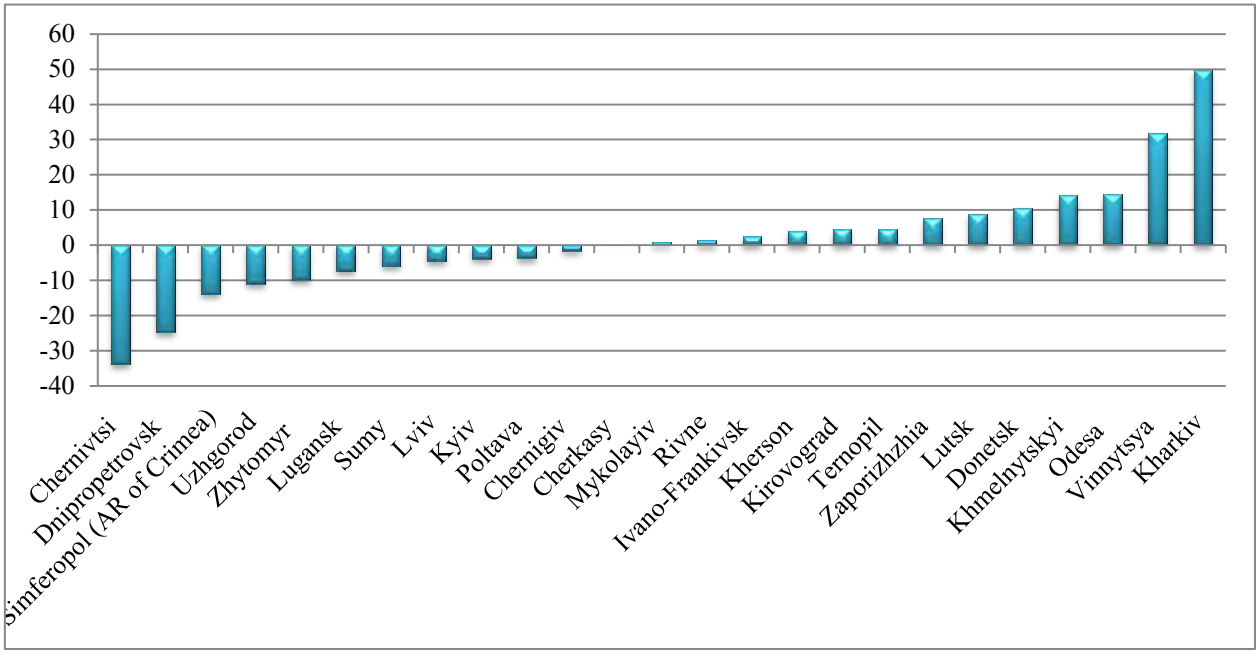


Figure 2.5.1. 2011 Change in the Share of IDUs who Use Opiates as Compared to 2008-2009, *percentage distribution*

Despite opioids ranking high on the drug scene in Ukraine, the share of users of stimulants is increasing. The largest share of stimulant users is in the cities of Chernivtsi, Kyiv and Kirovohrad. IDUs in Simferopol practice mixed drug use, resulting in a high percentage of users of both stimulants and opioids in the previous 30 days (see Table 2.5.2).

Table 2.5.2

Use of Stimulants in the Previous 30 Days, 2008/2009 and 2011, *percentage distribution*

City	2008/2009		2011	
	%	Confidence intervals	%	Confidence intervals
Simferopol (AR of Crimea)	48.8	44.0-53.6	75.9	71.9-80.2
Vinnytsya	64.3	56.5-72.3	37.3	31.6-43.2
Lutsk	43.1	35.5-51.0	41.3	35.4-46.8
Dnipropetrovsk	47.8	41.8-53.8	42.7	37.0-49.3
Donetsk	50.8	44.2-58.1	37.9	32.0-43.8
Zhytomyr	29.4	23.4-35.8	47.6	42.4-53.1
Uzhhorod	51.2	38.0-64.8	46.3	35.5-55.5
Zaporizhzhia	27.2	20.4-33.9	26.2	19.9-34.6
Ivano-Frankivsk	19.7	15.6-24.7	4.4	2.2-7.2
Kyiv	60.9	56.7-65.1	50.0	42.8-58.0
Bila Tserkva (Kyiv oblast)*			22.8	13.7-33.9
Kirovohrad	20.8	14.8-25.8	50.9	43.0-58.4
Luhansk	17.5	10.8-23.9	19.7	13.1-27.1
Lviv	2.9	0.5-7.9	8.1	3.8-12.5
Mykolayiv	11.2	7.2-15.2	12.5	8.9-16.4

Odesa	31.4	27.0-36.4	23.2	19.2-27.5
Poltava	21.7	16.0-29.0	46.8	38.4-53.2
Rivne	44.6	37.4-51.5	14.9	10.1-20.0
Sumy	40.3	32.0-50.1	40.9	35.1-47.0
Ternopil	10.5	6.8-19.7	10.8	5.3-16.6
Kharkiv	45.9	37.8-54.9	32.3	26.6-38.6
Kherson	12.0	8.4-15.9	13.4	10.0-16.9
Khmelnytskyi	29.8	21.9-38.4	32.1	26.3-38.4
Cherkasy	54.2	51.1-57.3	74.2	68.7-80.7
Chernivtsi	45.8	33.2-59.3	66.8	57.6-75.1
Chernihiv	48.3	39.2-58.1	43.9	38.7-49.6

* The study was not conducted in Bila Tserkva (Kyiv oblast) in 2008 and 2009,

- the study was conducted in 2008
- the study was conducted in 2009

The most noticeable increases in the share of IDUs who use stimulants were in the cities of Simferopol (+27%), Zhytomyr (+18%), Kirovohrad (+30%), Poltava (+25%) and Chernivtsi (+21%) (see Figure 2.5.2).

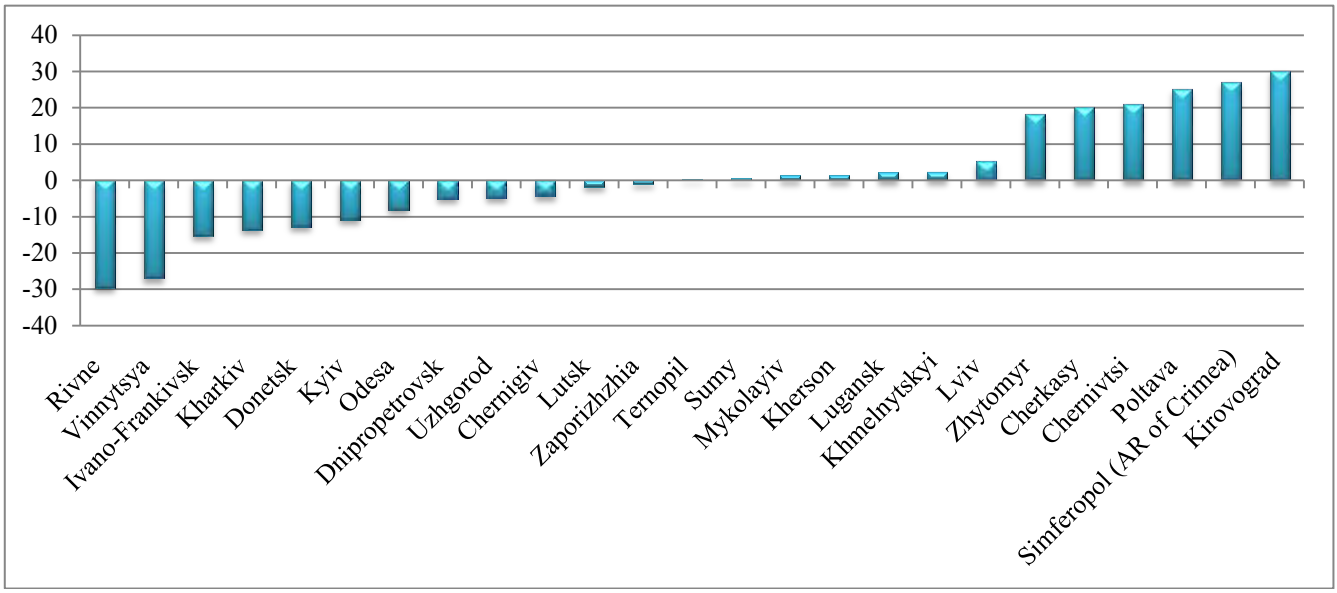


Figure 2.5.2. 2011 Changes in the Share of IDUs who Use Stimulants, Compared to 2008-2009, *percentage distribution*

The 2008 study tools did not contain questions about the kind of drug that IDUs prefer. Therefore, calculation of data on the combined 2008/2009 array is impossible. Below is the distribution of types of drugs that IDUs prefer depending on the city covered by the 2011 survey (see Table 2.5.3).

Table 2.5.3

Types of Drugs that IDUs Prefer, Depending on the City Covered by the Survey,
percentage distribution and confidence intervals

City	Opioids		Stimulants	
	%	Confidence intervals	%	Confidence intervals
Simferopol (AR of Crimea)	65.4	60.1-69.8	34.6	30.2-39.9
Vinnytsya	67.7	61.6-72.5	32.3	27.5-38.5
Lutsk	88.7	84.2-93.4	11.3	6.6-15.8
Dnipropetrovsk	61.0	54.5-67.3	38.8	32.5-45.2
Donetsk	67.6	62.1-73.3	32.4	26.7-37.9
Zhytomyr	84.0	79.5-88.7	16.0	11.3-20.5
Uzhhorod	84.3	77.5-90.0	15.7	10.0-22.5
Zaporizhzhia	78.0	71.4-84.5	20.2	13.6-26.2
Ivano-Frankivsk	83.4	78.4-88.7	16.6	11.3-21.6
Kyiv	85.1	78.1-91.3	14.9	8.7-2.2
Bila Tserkva (Kyiv oblast)	59.4	52.3-66.3	40.6	33.7-47.8
Kirovohrad	65.1	57.1-73.4	34.9	26.6-42.9
Luhansk	77.7	67.1-86.1	15.5	9.7-21.4
Lviv	89.1	83.5-93.8	4.3	0.7-9.0
Mykolayiv	97.1	94.5-99.2	2.9	0.8-5.5
Odesa	85.4	81.6-88.8	14.0	10.5-17.8
Poltava	65.2	57.3-71.9	33.9	26.6-41.1
Rivne	89.2	84.4-93.4	10.8	6.6-15.6
Sumy	61.4	55.3-67.4	38.6	32.6-44.7
Ternopil	91.5	86.6-95.4	2.1	0.3-4.9
Kharkiv	81.7	76.7-86.1	18.1	13.6-22.9
Kherson	98.3	96.7-99.6	1.7	0.4-3.3
Khmelnytskyi	85.9	80.6-90.4	13.9	9.4-19.1
Cherkasy	86.4	82.7-89.4	13.6	10.6-17.3
Chernivtsi	45.0	34.7-54.3	52.0	41.9-63.0
Chernihiv	64.4	58.9-69.6	35.6	30.4-41.2

The data show that almost in all cities the share of users of opioids exceeds the share of users of stimulants, except for the city of Chernivtsi (45% of users of opioids and 52% of users of stimulants). Identifying opioids as the drug of choice is typical for the vast majority (more than 80%) of IDUs in the cities of Lutsk, Zhytomyr, Uzhhorod, Ivano-Frankivsk, Kyiv, Lviv, Mykolayiv, Odesa, Rivne, Kharkiv, Kherson, Ternopil, Khmelnytskyi and Cherkasy.

Calculation of the indicator of using sterile equipment during the last injection showed high levels of these practices for IDUs in different cities covered by the study (see Table 2.5.4).

Table 2.5.4

Use of Sterile Injecting Equipment during the Last Injection, Depending on the City Covered by the Survey, 2008/2009-2011, *percentage distribution and confidence intervals*

City	2008/2009		2011	
	%	Confidence intervals	%	Confidence intervals
Simferopol (AR of Crimea)	92.0	87.7-95.9	95.9	94.3-97.2
Vinnytsya	97.2	94.7-99.1	97.4	95.5-99.0
Lutsk	88.8	81.3-97.1	97.7	95.6-99.4
Dnipropetrovsk	88.5	81.3-93.1	95.2	93.0-96.9
Donetsk	78.8	71.4-84.4	91.3	87.9-94.5
Zhytomyr	60.9	52.9-68.2	97.9	96.4-98.9
Uzhhorod	98.3	95.2-100	89.6	77.1-98.5
Zaporizhzhia	85.5	78.7-91.3	93.9	90.5-96.7
Ivano-Frankivsk	89.7	85.1-93.7	95.6	93.0-98.0
Kyiv	100.0	-	98.5	96.9-99.6
Bila Tserkva (Kyiv oblast)*			96.5	93.7-98.8
Kirovohrad	92.5	87.3-97.0	93.2	89.5-96.1
Luhansk	95.7	92.0-98.8	94.4	89.9-97.7
Lviv	83.0	74.4-90.3	92.4	89.2-95.3
Mykolayiv	95.4	91.8-98.5	95.8	93.3-97.8
Odesa	84.6	80.2-88.3	97.5	95.9-98.6
Poltava	75.9	67.3-83.8	99.1	98.2-99.7
Rivne	94.4	90.4-97.4	95.9	93.4-98.1
Sumy	72.2	62.3-78.4	97.3	95.0-98.9
Ternopil	89.4	78.0-94.7	99.3	98.3-99.8
Kharkiv	74.8	66.5-82.1	90.3	83.5-94.9
Kherson	89.8	78.8-96.5	92.4	89.6-95.2
Khmelnytskyi	84.5	78.0-93.0	94.6	90.6-97.6
Cherkasy	82.6	74.1-90.6	95.5	93.5-97.3
Chernivtsi	98.6	95.6-100	99.0	97.8-99.8
Chernihiv	91.8	86.4-96.3	96.9	95.1-98.7

* The study was not conducted in Bila Tserkva (Kyiv oblast) in 2008 and 2009.

- the study was conducted in 2008
- the study was conducted in 2009

The largest increases in the use of sterile injecting equipment as compared to 2008-2009 were in the cities of Zhytomyr, Poltava and Sumy (see Figure 2.5.3).

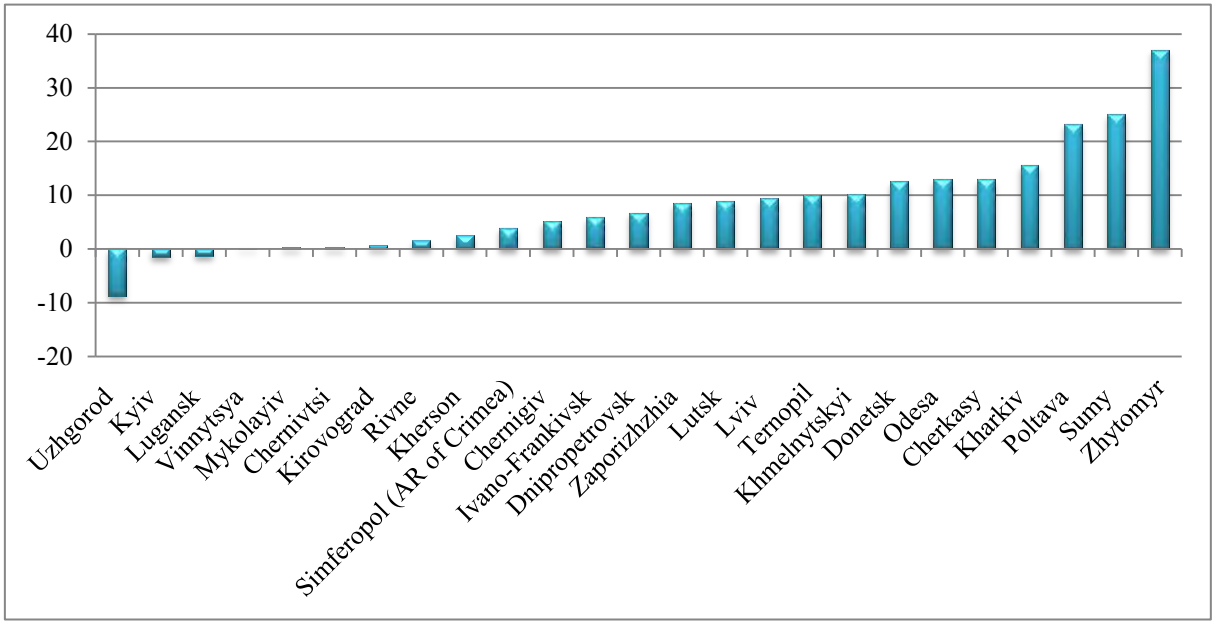


Figure 2.5.3. Changes in the Use of Sterile Equipment during the Last Injection in 2011 as Compared to 2008/2009, *percentage distribution*

Summary

Use of opioids is common in all cities covered by the survey. The largest share of IDUs who prefer stimulants is observed in the city of Chernivtsi (52.0%).

Compared to 2008/2009, the indicator of sterile equipment use during the last injection has increased somewhat. This trend is typical of all cities covered by the survey. In general, in 2011 the indicator of sterile equipment use in various cities ranged within 89.6-99.3%.

Section 3. Sexual Behavior and Compliance with Measures to Prevent HIV Sexual Transmission

With the steady increase of new cases of HIV sexual transmission, it is very important to understand how widespread among IDUs are sexual practices raising risk of HIV: early sexual debut, large number of partners, condom non-use, sale and purchase/exchange of sex, etc. In this section information on the sex life of IDUs is presented in terms of socio-demographic groups and characteristics of drug injecting practices. Some indicators are considered among clients and non-clients of CBOs. In the regional dimension and dynamics key indicators are presented of condom use during the most recent sexual contact in the previous thirty days.

3.1. Sexual Partners and Frequency of Sexual Contacts

Initiation of Sexual Life

Almost all respondents (99.2%) already had sexual experience by the time of the survey. This indicator is somewhat lower only among the younger age group under 19, where one in ten had not had sex (see Table 3.1.1).

Table 3.1.1

Sexual Experiences among IDUs, %

Socio-demographic characteristics	Had sexual contacts…		
	(1) throughout one's life	(2) over the recent 12 months*	(3) over the recent 12 days**
All IDUs	99.2	89.2	87.9
By age			
14-19 y.o.	90.1	96.7	86.8
20-24 y.o.	98.3	93.4	91.5
25-34 y.o.	99.7	94.3	89.1
35 years and more	99.5	81.5	84.9
p	*<0.001*	*<0.001*	*<0.001*
By gender			
Men	99.2	88.3	86.4
Women	99.0	91.6	91.6
p	*0.039*	*<0.001*	*<0.001*
By duration of drug injecting			
Up to 2 years	97.2	93.9	88.5
3-5 years	97.9	95.3	89.6
6-10 years	99.9	94.3	90.6

11 years and more	99.6	84.4	85.9
p	*<0.001*	*<0.001*	*<0.001*

* Among those who had sexual experience in their lives (N=8,993).
** Among those who had sexual experience in the previous 12 months (N=8,023).

89.2% of total respondents or 88.5% of those who had sex in the course of their lifetime, reported having sexual partners in the previous 12 months. 77.7% of all respondents (or 87.9% among sexually active individuals during the past 12 months) had sex in the previous month.

Almost one in five sexually active IDUs aged 35 and older (19%) had no sex in the previous year.

Women more often than men had sex in the previous year and previous month.

84% of IDUs had sexual relations for the first time before reaching adult age, on the average at the age of 16. A quarter of respondents (24%) had sexual experience before reaching 14 years (24%) (see Table 3.1.2).

The study results show the differences in age of initiation of sexual life among different age groups. If one considers these age groups as a single generation, it can be stated that IDUs of the older generation (aged above 35 years), on average, first had sex a year later compared to respondents of the younger generation (under 19 y.o.). The average age of sexual debut among women is 16.2 years and 15.6 years among men. Compared with women, men had their first sexual experience almost twice as often as women before reaching 15.

Table 3.1.2

Distribution of Answers to the Question: "At What Age Did you First Have Sex?", %

(among those who have experience of sexual contacts, N=8,993)

Socio-demographic characteristics	Age of the first sexual contact								
	UP to 13 years	14 years	15 years	16 years	17 years	18 years and more	*Difficult to answer*	*Don't remember*	***Average age, years***
All IDUs	**8.2**	**15.6**	**19.7**	**25.7**	**14.5**	**15.3**	*0.5*	*0.5*	***15.8***
By age (p<0.001)									
Below 19 y.o.	13.5	17.1	30.3	25.6	11.6	1.4	*0.0*	*0.5*	*15.01*
20-24 y.o.	7.3	18.9	24.5	24.3	13.2	11.4	*0.3*	*0.2*	*15.57*
25-34 y.o.	10.2	16.2	20.9	27.0	12.7	12.2	*0.4*	*0.4*	*15.58*
35 years and more	6.0	13.5	16.1	24.8	17.2	21.0	*0.6*	*0.7*	*16.19*
By gender (p=0.151)									
Men	9.3	17.3	21.1	25.4	12.9	12.8	*0.5*	*0.7*	*15.64*
Women	5.5	11.0	16.1	26.5	18.9	21.7	*0.2*	*0.1*	*16.21*
By duration of drug injecting (p=0.142)									

Up to 2 years	6.0	14.8	20.2	24.4	15.4	18.9	*0.1*	*0.2*	*16.05*
3-5 years	6.9	16.5	20.7	22.9	15.9	16.4	*0.5*	*0.1*	*15.84*
6-10 years	7.5	14.1	20.0	28.9	13.1	15.1	*0.4*	*0.7*	*15.85*
11 years and more	9.4	16.1	19.2	25.5	14.6	14.1	*0.5*	*0.6*	*15.71*

Types and Number of Sexual Partners

77% of IDUs had sex with regular partners in the previous 90 days (see Table 3.1.3). A third of respondents (33%) reported having sex with occasional partners in the same period. 6% of respondents were involved in commercial sex: half of them provided remuneration for sexual services and the other half received remuneration.

Key differences in the presence of certain sexual partners are observed by gender, age and type of injecting drug used. The link between difference in type of sexual partners and duration of injecting drug use reflects, rather, the age characteristics of these groups: higher age at longer experience.

Older IDUs are more likely to have a regular partner/partners and less likely to have occasional or commercial partners. 82% of respondents aged 35 had a regular partner in the previous 90 days, compared with 61% of respondents aged under 19. Meanwhile, almost twice as many IDUs in the youngest group reported having sex with occasional partners compared with the oldest group.

Table 3.1.3

Share of IDUs who Had Regular, Occasional Commercial Partners in the Previous 90 Days, %

(among the respondents who had sexual contacts in the previous 12 months, N=8,023)

Socio-demographic characteristics	**Sexual partners over the previous 90 days were…**			
	(1) permanent	**(2) occasional**	**(3) commercial, reimbursement was given to**	**(4) commercial, reimbursement was received from**
All IDUs	77.1	32.6	2.7	2.8
By age				
14-19 y.o.	61.3	44.7	0.5	7.6
20-24 y.o.	70.3	42.6	2.1	5.7
25-34 y.o.	76.6	34.1	3.6	2.7
35 years and more	81.8	25.6	2.0	1.5
p	*<0.001*	*<0.001*	*<0.001*	*<0.001*
By gender				
Men	73.2	38.7	3.5	0.2
Women	87.0	16.9	0.6	9.5
p	*<0.001*	*<0.001*	*<0.001*	*<0.001*
By type of drugs				
Opioids	78.9	28.7	2.8	1.7
Stimulants	75.2	33.5	1.4	2.7
Opioids and stimulants	73.8	42.9	3.6	6.0
p	*<0.001*	*<0.001*	*0.002*	*<0.001*

By duration of drug injecting				
Up to 2 years	76.6	33.0	1.1	2.9
3-5 years	75.0	35.0	2.0	3.8
6-10 years	72.4	38.8	3.7	3.5
11 years and more	80.0	28.9	2.8	2.2
p	*<0.001*	*<0.001*	*0.001*	*<0.007*

Significant differences by age and gender are observed among IDUs who were involved in commercial sex in the previous 90 days. 10% of women and less than 1% of men provided commercial sexual services. Commercial sex is rather typical for younger IDUs aged under 19. The population of IDUs providing commercial sex services is larger among respondents who used mixed drugs.

The survey results show that the vast majority of IDUs (61%) had only one regular partner in the previous three months (Figure 3.1.1). Having sex with one reliable uninfected partner cushions the risk of sexual transmission of HIV. Therefore, this population of respondents can be conventionally called a population at low risk of sexual transmission of HIV.

Another 5% had only one sexual partner in the previous 90 days, but it was either an occasional or commercial partner, which automatically increases the risk of sexual transmission of HIV.

Almost a third (29%) of respondents over the previous three months had sex with two or more partners, including regular and occasional, but neither provided commercial sexual services nor bought such services. Particularly high risk behavior is typical for 5% of IDUs who had several different partners, including commercial ones.

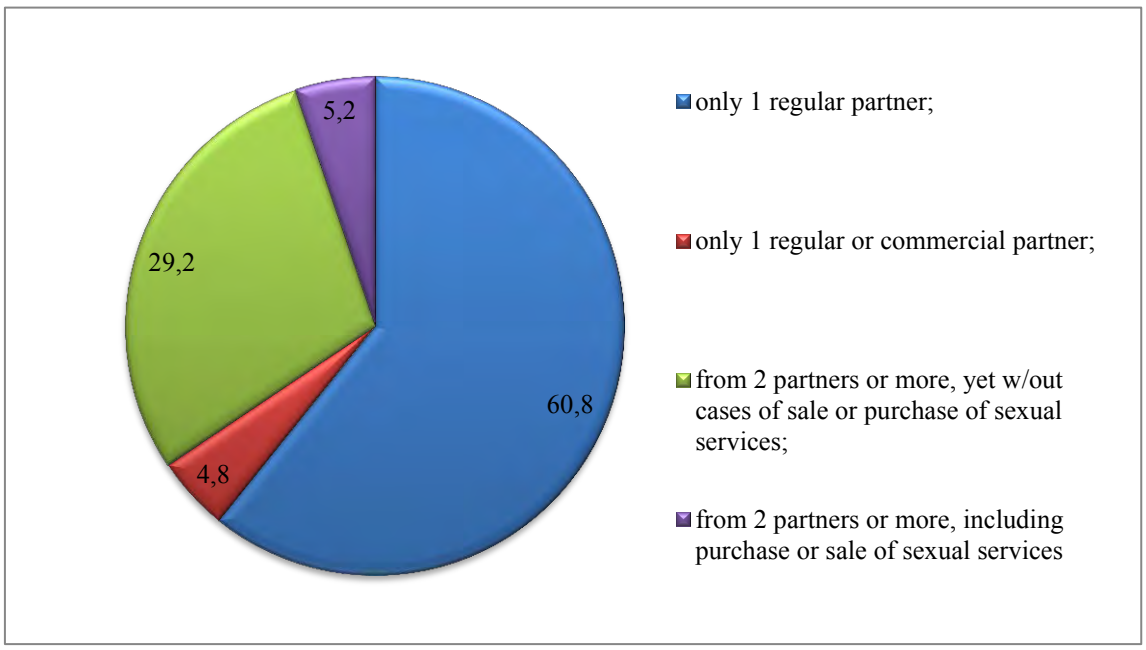


Figure 3.1.1. Classification of IDUs by Types of Sexual Partners, %

(among respondents who had sexual partners in the previous 90 days, N=7912)

In general, female IDUs are inclined to have more stable sexual relations: 73% of them had only one regular partner in the previous 90 days (see Table 3.1.4). Among men, 56% of respondents had only one regular sexual partner. Compared with women, twice as many men had two or more sexual partners in the previous three months, including occasional relationships. At that, women more often provide commercial sexual services.

Married couples (both in case of official and unofficial marriage) rarely have occasional or commercial partners, which in turn helps reduce the risk of HIV. Respondents who were married or lived with a sexual partner were twice as likely to have sexual relations only with their partner and three times less likely to practice occasional relations compared with unmarried individuals.

Table 3.1.4

IDUs' Sexual Partners Broken Down by Age, Gender and Marital Status, %

(among respondents who had sexual partners in the previous 90 days, N=7,912)

	One permanent partner only	One occasional or commercial partner only	At least two partners, yet no cases of purchase or sale of sexual services	At least two partners, yet including cases of purchase or sale of sexual services
All IDUs	60.7	4.8	29.2	5.2
By gender (p<0.001)				
Male	55.8	5.8	34.9	3.5
Female	73.4	2.4	14.8	9.4
By age (p<0.001)				
14-19 y.o.	47.9	7.6	36.5	8.1
20-24 y.o.	50.3	3.8	39.0	6.9
25-34 y.o.	58.6	4.8	30.6	6.0
35years and more	68.9	5.1	22.8	3.2
By marital status (p<0.001)				
Married/live with a sexual partner	81.3	0.5	14.2	4.1
Not married/don't live with a sexual partner	38.0	9.6	45.9	6.5

45% of IDUs reported having a regular partner who injects drugs (see Table 3.1.5)[15].

The survey results show that women live with a non-IDU sexual partner almost twice as rarely as men. Men probably prefer women who do not inject drugs, and female IDUs rarely face a choice of man depending on his status.

The share of couples where one partner is not IDU decreases with age. Among IDUs aged under 19, 83.5% of respondents lived with a non-IDU partner. However, 68% of respondents aged 35 and older had such a partner.

Depending on the duration of drug injecting, significant differences in this partnership have not been identified.

Table 3.1.5

Share of IDUs Having a Regular Sexual Partner who Injects Drugs, %

(among total IDUs based on the survey results in 10 cities, N=2,349)

All IDUs	45.0
By age (p=0.026)	
14-19 y.o.	31.7

[15] The question about partners who are not IDU was posed only to married respondents or those living with a sexual partner, and only in 10 cities (Simferopol, Kyiv, Mykolayiv, Odesa, Poltava, Sumy, Khmelnytskyi, Cherkasy, Lugansk and Chernivtsi) where IDU pairs were recruited. The recruiting was aimed to enroll such pairs into a prevention project for IDU sexual partners.

20-24 y.o.	39.3
25-34 y.o.	45.6
35 years and more	47.3
By gender (p<0.001)	
Men	66.1
Women	35.1
By duration of drug injecting (p=0.279)	
Up to 2 years	46.7
3-5 years	40.4
6-10 years	45.0
11 years and more	46.0

On average, IDUs had three sexual partners in the previous 90 days (see Table 3.1.6). The number of sexual partners increases with decreasing age and is higher among women and stimulant users who in turn are more concentrated within the younger age group of IDUs.

A large number of sexual partners characterizes respondents who provide commercial sexual services, who on average had 19-20 commercial partners in the previous 90 days. Respondents aged under 19, on average, provided commercial sexual services to more than 50 persons in the previous 90 days.

Table 3.1.6

Average Number of IDUs' Sexual Partners in the Previous 90 Days, *persons*
(among respondents who had such partners)

	Permanent. *N=6170*	**Occasional.** *N=2592*	**Commercial ones whom reimbursement was given to.** *N=217*	**Commercial ones whom reimbursement was received from.** *N=219*	**Total for partners.** *N=7912*
All IDUs	1.2	3.4	3.2	19.5	2.7
By age					
14-19 y.o.	1.3	4.6	1.0	51.1	6.8
20-24 y.o.	1.3	4.0	1.8	18.9	3.7
25-34 y.o.	1.3	3.3	3.5	13.6	2.6
35 years and more	1.1	3.4	3.1	21.9	2.2
p	*0.024*	*<0.001*	*<0.001*	*0.018*	*<0.001*
By gender					
Men	1.2	3.6	3.0	3.5	2.4
Women	1.2	3.0	6.1	20.3	3.5
p	*0.824*	*0.732*	*0.711*	*0.006*	*<0.001*
By type of drugs					
Opioids	1.1	3.3	3.3	20.3	2.3
Stimulants	1.1	3.1	2.8	7.7	2.2
Opioids and stimulants	1.5	4,1	3,1	24,6	4,4
p	*<0.001*	*<0.001*	*0.644*	*0.090*	*<0.001*

By duration of drug injecting					
Up to 2 years	1.1	3.9	1.8	25.6	3.0
3-5 years	1.3	3.8	2.1	25.2	3.3
6-10 years	1.3	3.4	2.9	16.6	3.0
11 years and more	1.2	3.4	3.7	16.6	2.4
p	*0.144*	*0.001*	*0.006*	*<0.001*	*<0.001*

Average values for the number of occasional and commercial partners who were granted remuneration for sexual services were close. In both cases, the average number of sexual partners was three.

By gender, key differences are observed in terms of the number of sexual partners from whom remuneration was received. Compared with male IDUs, for female IDUs the average number of commercial partners from whom they received remuneration is 7 times higher (20 partners).

In general, respondents from the younger age group reported having more sexual partners of all types, except for commercial partners to whom remuneration was given. In other words, compared with other age groups, adolescent IDUs are characterized by more risky behavior in terms of number of sexual partners. Older IDUs and middle-aged IDUs (aged from 25 to 34 years), on average, had a higher number of sexual partners who were given remuneration for their sexual services.

Homosexual Contacts

About 1% (57 persons) of male IDUs had sex with men (MSM) over the previous year. MSM-IDUs are concentrated mainly among the youngest group of respondents: in this subgroup their share is almost 5%. Distribution by type of drug shows that MSM-IDUs are characterized by combined use of opiates and stimulants.

It should be noted that the low number of people who fell into this subpopulation makes it impossible to have a detailed analysis of its sexual behavior (breakdown by partners, intensity of sexual life, etc.), in particular, by socio-demographic characteristics.

Table 3.1.7

Share of Male IDUs who Had Sex with Men in the Previous Year, %

(among male IDUs, N=6,578)

All IDUs	0.9
By age (p<0.001)	

14-19 y.o.	4.9
20-24 y.o.	0.6
25-34 y.o.	1.0
35 years and more	0.6
By type of drugs (p<0.001)	
Opioids	0.6
Stimulants	0.4
Opioids and stimulants	2.1
By duration of drug injecting (p=0.001)	
Up to 2 years	0.8
3-5 years	2.0
6-10 years	0.8
11 years and more	0.6

Frequency of Sexual Contacts

More than a third of respondents who inject drugs had 2-3 sexual contacts a week in the previous three months (Figure 3.1.2). 20% reported that they had sexual contacts, on average, once a month. Almost one in five (19%) had a more intense sexual life: 2-4 contacts per week and more often. 13% had 2-3 sexual contacts per month and as many had sex once a month or less often.

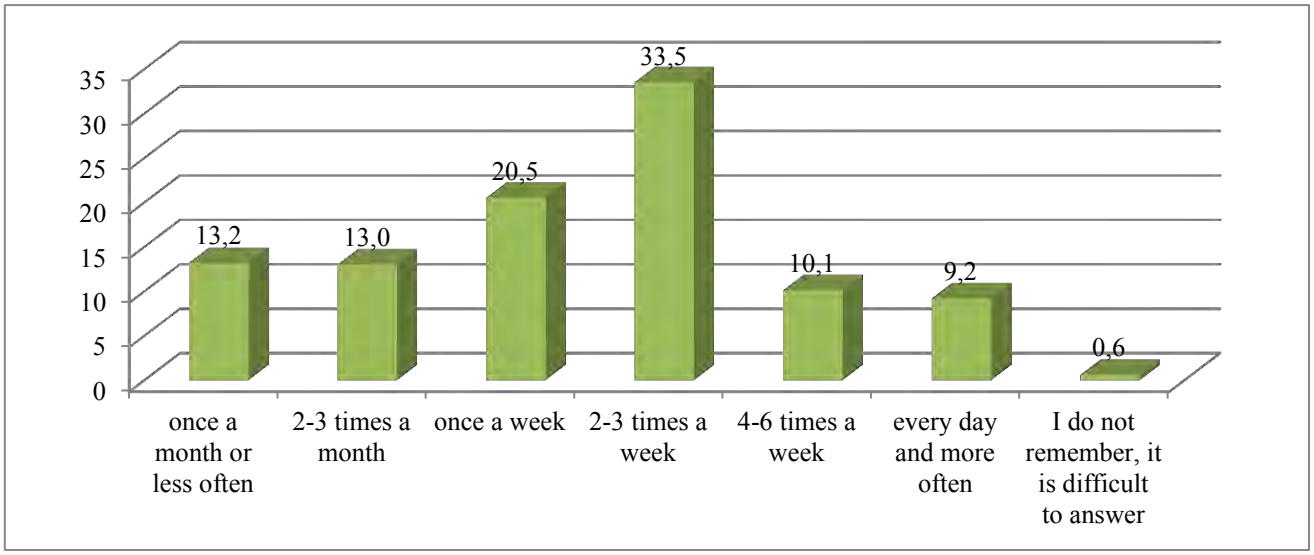


Figure 3.1.2.**Frequency of Sexual Contacts with Partners of All Types in the Previous 90 Days, %**

(among respondents who has sexual partners in the previous 90 days, N=7912)

Older IDUs (aged 35 or above) are distinguished by less intensive sexual life. Sexual contacts several times a month or less were reported by them more often. However, among

IDUs who had several sexual contacts per week or practiced sex every day, there is no clear trend depending on age. The share of IDUs who had sex every day and more often is the highest among IDUs aged 14-19 (14%) and 25-34 (12%), while among those aged 20-24 and 35 & above this population constitutes 7%.

Women, in general, are characterized by more intense sexual life compared with men. One of the driving factors is more widespread practices of commercial sex among women, which is associated with many partners and frequent sex.

Table 3.1.8

Frequency of Sexual Contacts with Partners of All Types in the Previous 90 Days, %

(among respondents who had sexual partners in the previous 90 days, N=7,912)

	Once a month or less often	**2-3 times a month**	**Once a week**	**2-3 times a week**	**4-6 times a week**	**Every day or more often**	*Don't remember, hard to answer*
All IDUs	13.2	13.0	20.5	33.5	10.1	9.2	*0.6*
By age (p<0.001)							
14-19 y.o.	10.4	8.9	22.3	32.1	11.7	14.3	*0.2*
20-24 y.o.	10.3	11.9	17.2	38.7	14.5	6.8	*0.5*
25-34 y.o.	12.2	12.1	19.7	32.7	11.1	11.7	*0.6*
35 years and more	15.9	14.9	22.8	32.6	6.8	6.6	*0.6*
By gender (p<0.001)							
Men	14.5	14.3	21.0	31.6	9.6	8.4	*0.7*
Women	9.9	9.5	19.1	38.4	11.3	11.4	*0.4*
By duration of drug injecting (p<0.001)							
Up to 2 years	11.5	11.7	17.6	36.0	14.2	8.4	*0.6*
3-5 years	10.2	10.4	20.7	36.5	11.3	10.7	*0.2*
6-10 years	13.8	13.8	18.5	32.6	11.0	9.7	*0.6*
11 years and more	14.1	13.8	21.9	32.4	8.3	8.8	*0.7*

Summary

The early onset of sexual activity is typical for IDUs. 84% of respondents started their sexual lives before reaching adult age, on average at 16 years. The vast majority of IDUs tend to have one regular partner only. Given that more than two-thirds of IDUs (69%) among those living with a regular partner have a non-injecting partner, it is important to implement specific interventions among IDUs' sexual partners who are bridge populations in the spread of HIV and hepatitis C among the general public. The population of FSWs who inject drugs and are at dual risk constitute 10%, and MSM who inject drugs and are at dual risk amount to approximately 1%. In both cases these populations are concentrated mostly among the youngest IDUs under 19. This is indicative of commercial sex being more a survival strategy than a profession.

3.2. Condom Use during Sexual Contacts

The Most Recent Sexual Contact

47.8%[16] of all IDUs who had sexual contacts during the previous 30 days used a condom during the most recent sexual contact. Key characteristics defining condom use or non-use are: age, marital status and coverage by prevention programs (see Table 3.2.1).

If among IDUs aged under 25 approximately 40% did not use a condom during the most recent sexual contact, in the older group of those aged 35 and above already a half of respondents practiced unsafe sex. It should be noted that the prevalence of condom non-use cases in the older age group mostly depends on stable relationship with one regular partner. 37% of married IDUs or those living in a "civil marriage" used a condom during the most recent sexual contact. Among IDUs having no regular partner, a condom was used by 53%.

Table 3.2.1

Share of IDUs who Used a Condom during the Most Recent Sexual Contact, %

(among respondents who had sexual contacts over the previous 30 days, N=7,049)

All IDUs	55.2
By age (p<0.001)	
14-29 years	71.5
20-24 y.o.	63.9
25-34 y.o.	55.6
35 years and more	50.0
By gender (p<0.001)	
Men	56.7
Women	51.5
By family status(p<0.001)	
Married/live with a sexual partner	44.3
Not married/don't live with a sexual partner	67.0
By duration of drug injecting(p=0.003)	
Up to 2 years	57.0
3-5 years	55.5
6-10 years	57.9
11 years and more	53.4
By type of drugs(p=0.005)	
Opioids	53.7
Stimulants	55.4
Opioids and stimulants	59.2
Coverage by prevention programs(p<0.001)	
Yes	65.9
No	47.1
A CBO client?(p<0.001)	
Yes	60.7
No	52.9

Participation in prevention programs promotes condom use. Participants of these programs are 1.4 times more likely to use condoms during the most recent sexual contact

[16] Data calculated for the population of MSM who reported having sexual contacts in the past 90 days.

compared with non-participants. Among clients of CBOs, 53% used a condom during the most recent sexual contact, and among all others - 45%. This suggests that regular work with IDU clients is more effective in terms of developing safe sexual behaviors, including distribution of condoms and motivation of their use. Having a client card of an HIV prevention CBO as such does not necessarily stimulate IDUs to apply for services. At the same time, it can't be excluded that knowledge of the "correct" answer and selection of the socially expected choice may play a role among the clients.

A statistically significant relationship between respondent's gender and condom use was not found. More important is the main type of drug injected. Users of opiates and stimulants rarely used condoms during the most recent sexual contact with those who use other drugs.

An important role in understanding the reasons for condom non-use is analysis of practices in terms of contacts with different types of partners. The unit of measurement being taken for this analysis is the period of 90 days. The highest rates of condom use during the most recent sexual contact characterize those who had commercial partners. 86.2% of IDUs receiving remuneration for sex during the most recent sexual contact used condoms. Those who bought sex used condoms somewhat less often - 80.5%. IDUs whose most recent sexual contact was with an occasional partner used condoms in 72.2% of cases. Much rarer condom use during the most recent sexual contact was reported by respondents who had such contact with a regular partner - for less than half of respondents from this population the most recent sexual contact was safe in terms of HIV transmission (22% during oral sex, 46% during vaginal contact and 49% during anal contact).

Polls show that the type of a sexual partner is more important in the motivation to use condom than the type of sexual contact. In the case of vaginal, oral and anal contacts, IDUs most often used condoms with commercial partners, to lesser degree with occasional partners and even more rarely with regular partners (see Figure 3.2.1). At that, oral contacts occurred significantly more often without condoms compared with vaginal and anal ones. Among respondents whose last oral sexual contact was with regular partners, condoms were used by 22%. During the most recent vaginal contact with regular partners, safe sex in terms of HIV transmission was practiced by 49.5% of respondents. 87% of total IDUs providing commercial sexual services used condoms during the most recent vaginal contact with clients; in the case of the last oral contact condoms were used by 65% of IDUs.

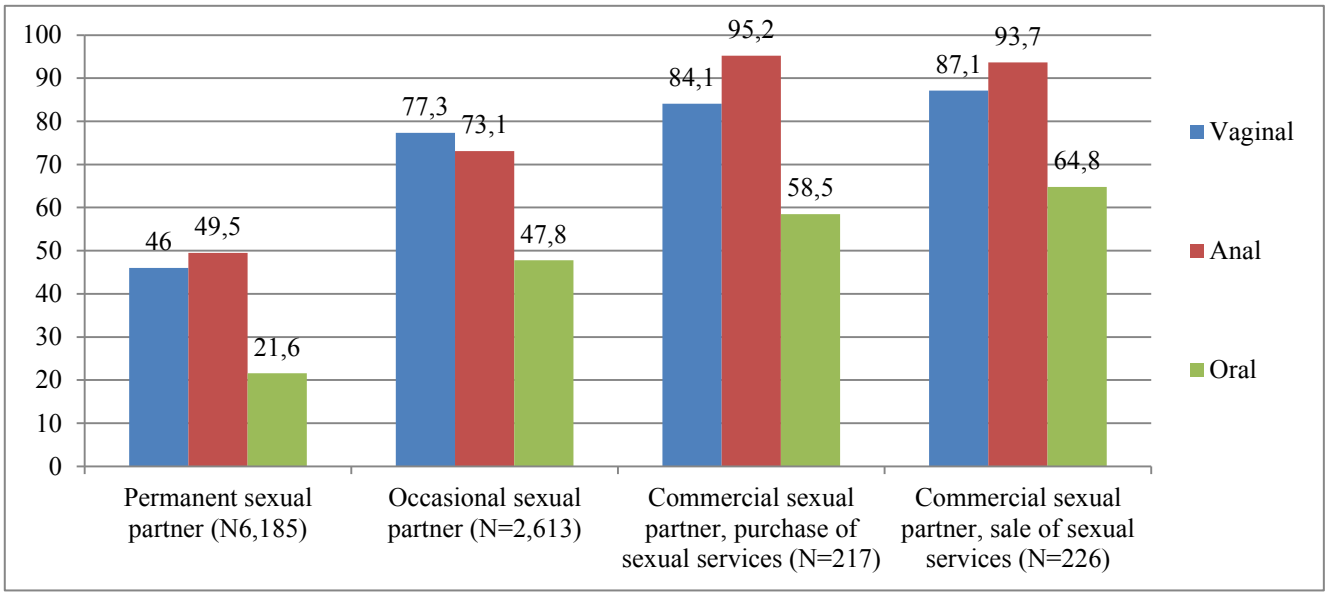


Figure 3.2.1. Share of IDUs Using a Condom during the Most Recent Sexual Contact, Depending on the Type of Sexual Contact and Type of Sexual Partner, %

(among those who had sexual contacts with the specified types of sexual partners in the previous 90 days)

Using a Condom in Homosexual Contacts

Among MSM-IDUs, slightly more than half of respondents (30 of 57 persons) used condoms during the most recent sexual contact with a man. It should be noted that another 7 persons did not remember whether they used condoms or refused to answer this question. Given that the latter is a potential risk population, it can be stated that 65% (or 37 persons out of 50) of MSM-IDUs were at risk of HIV through sexual contact.

Sustainability of Condom Use

As for safe sexual practices in terms of HIV transmission, more indicative are data on the frequency of condom use with regular, occasional and commercial partners in the previous 90 days. If condom use with a regular partner was reported by about 47% of respondents, a condom was always used during this period with such partners by less than a third of respondents (27%) (see Figure 3.2.2). 53% of IDUs who had occasional partners during the last three months always used condoms; and a condom was used by 77% during the most recent sexual contact with an occasional partner. A similar situation characterizes sexual relationships with commercial partners. 84% used condoms during the most recent sexual contact with commercial partners who received remuneration for sexual services, and

63% always used condoms with such partners in the previous 90 days. In the case of sexual services for remuneration 87% practiced protected sex in terms of HIV transmission during the most recent sexual contact with clients, and 58% of IDUs always used condoms with clients in the previous three months.

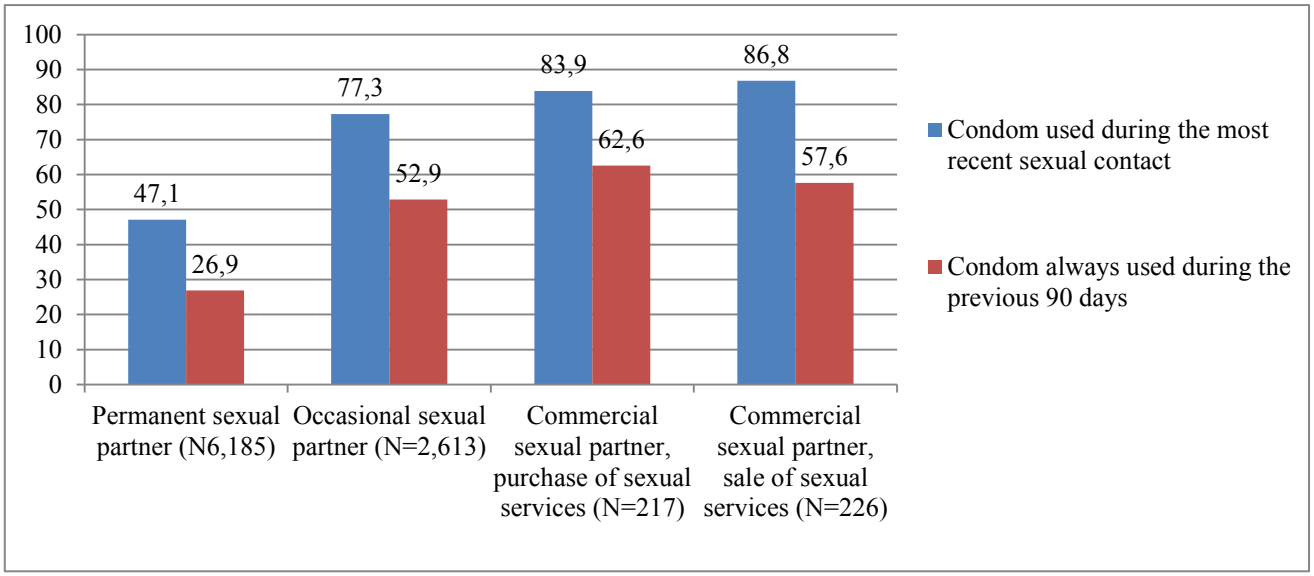


Figure 3.2.2. Share of IDUs who Used a Condom during the Most Recent Sexual Contact[17] and always Used a Condom during the Last 90 Days, Depending on the Type of Sexual Partner, %

(among respondents who had relevant partners in the previous 90 days)

Regarding socio-demographic characteristics, greater consistency in condom use with a regular partner is indicative of the youngest age group of IDUs, where 42% always used condoms in the previous 90 days (see Table 3.2.2). For comparison: in the age group of 35 and older, 41% never used a condom with a regular partner during this period of time. Also, it should be noted that in the younger age group, relationships with a regular partner are usually slightly shorter than among the older IDUs.

The share of female IDUs, with 22% always using condoms, is below the average sustainability indicator for condom use with a regular partner among IDUs.

Differences in sustainability of condom use with a regular partner by type of major drug and duration of drug use are not statistically significant.

[17]The questionnaire for the IDU survey did not contain a specific question about using a condom during the most recent sexual contact with a specific type of sexual partner. Instead, several questions were asked about condom use with each partner (regular, occasional and commercial) depending on the type of sexual contact (oral, vaginal or anal). Data on the most recent sexual contact, given for comparison, were calculated as a share of persons who had vaginal, anal or oral contacts with a specific type of partner and used a condom in at least one case (if there were several types of contacts) in relation to the number of persons having relevant partners.

Table 3.2.2

Regular Condom Use with Regular Partners in the Previous 90 Days, %

(among respondents having such partners, N=6,134)

	Always (100%)	Most often (75%)	In a half of cases (50%)	Sometimes (25%)	Rarely (less than 10%)	Never	Difficult to answer
All IDUs	26.9	13.9	6.8	6.4	8.7	35.8	1.4
By age (p<0.001)							
14-19 y.o.	42.1	18.1	7.7	5.4	10.2	12.7	3.9
20-24 y.o.	27.9	20.0	7.9	7.2	11.1	25.1	0.7
25-34 y.o.	24.7	15.2	7.5	7.0	8.6	35.7	1.3
35 years and more	28.4	10.0	5.5	5.4	8.0	40.9	1.8
By gender (p<0.001)							
Men	29.1	13.5	6.5	5.7	8.4	35.3	1.5
Women	22.2	14.9	7.3	7.9	9.5	36.8	1.4
By type of drugs (p=0.629)							
Opioids	28.1	13.3	6.4	6.2	7.8	36.6	1.6
Stimulants	28.7	11.8	6.8	6.4	8.5	37.0	0.8
Opioids and stimulants	21.5	17.4	8.2	7.1	12.1	32.4	1.4
By duration of drug injecting (p=0.129)							
Up to 2 years	27.9	14.8	8.0	5.6	10.0	31.7	1.9
3-5 years	24.4	16.0	9.0	9.1	9.0	31.8	0.7
6-10 years	23.8	17.3	6.1	7.0	10.8	33.7	1.3
11 years and more	28.5	11.7	6.3	5.5	7.6	38.8	1.6

The study shows that there are no statistically significant differences in terms of sustainable use of condoms with occasional partners by age, gender, type of drugs used, and the duration of use (see Table 3.2.3).

The share of IDU respondents who had contacts with commercial partners is not large enough to assess differences in sustainable use of condoms in the context of socio-demographic characteristics or practices of drug injecting.

Table 3.2.3

Regular Condom Use with Occasional Partners in the Previous 90 Days, %

(among respondents having such partners, N=2,883)

	Always (100%)	Most often (75%)	In a half of cases (50%)	Sometimes (25%)	Rarely (less than 10%)	Never	Difficult to answer
All IDUs	52.9	17.4	6.5	5.1	4.8	10.3	3.0
By age (p=0.266)							
14-19 y.o.	49.4	21.9	3.4	5.8	11.2	7.4	0.8
20-24 y.o.	47.8	23.5	8.3	4.6	6.2	6.1	3.5
25-34 y.o.	53.8	17.4	6.9	5.2	4.6	9.0	3.1
35 years and more	55.2	12.9	5.2	5.3	3.2	15.6	2.7
By gender (p=0.082)							
Men	52.8	17.0	6.4	5.1	4.7	11.0	2.9
Women	53.5	19.9	7.2	5.5	4.8	5.7	3.4
By type of drugs (p=0.225)							
Opioids	55.4	15.6	5.7	4.2	4.4	11.4	3.4
Stimulants	51.4	21.2	7.2	5.1	2.8	10.8	1.5
Opioids and stimulants	47.6	19.0	8.1	7.2	6.8	8.0	3.3
By duration of drug injecting (p=0.420)							
Up to 2 years	52.5	20.4	4.4	5.3	6.8	8.3	2.3
3-5 years	46.4	21.5	8.0	5.1	6.8	8.1	4.1
6-10 years	52.2	15.7	7.9	6.3	5.4	9.1	3.3
11 years and more	55.6	16.2	5.8	4.4	3.1	12.3	2.6

Table 3.2.4

Regular Condom Use with Commercial Partners in the Previous 90 Days, %

(among respondents having such partners)

	With a commercial partner (purchase of sexual services) (N=217)	**With a commercial partner (sale of sexual services)** (N=215)
Always (100%)	62.6	57.6
In most cases (75%)	21.2	25.4
In half of cases (50%)	4.1	4.3
Sometimes (25%)	0.5	2.9
Rarely (less than 10%)	2.8	2.4
Never	6.2	3.6
Difficult to answer	2.6	3.8

Reasons for Irregular Use of Condoms

Reasons for refusing to use condoms vary depending on the type of a sexual partner. In the case of sex with a regular partner the main cause for refusing to use a condom was a conscious decision on condom non-use (44%) (see Table 3.2.5). A possible pre-condition for this decision is disclosed through the second most common cause: “condom use reduces sensitivity” (40.5%). Almost one in five respondents (19%) saw no need to use a condom during sexual contacts with a regular partner.

Table 3.2.5

Reasons for Refusing to Use a Condom with Regular, Occasional and Commercial Sexual Partners During the Last Sexual Contact, %

(among respondents having sexual contacts with such partners during the previous 90 days)

	With a permanent partner (N=3,726)	With an occasional partner (N=917)	With a commercial partner (purchase of sexual services) (N=62)*	With a commercial partner (sale of sexual services) (N=75)*
There was no condom/no condom at hand	6.8	24.0	13 (8)	6 (4)
It use reduces sensitivity	40.5	33.9	48 (29)	13 (9)
Condom is too expensive	1.6	4.0	0	2 (1)
Fe/male partner insisted on not using it	5.9	6.2	3 (2)	36 (27)
Higher price of sex without a condom	-**	-	-	20 (15)
I didn't think this was necessary	18.8	17.3	19 (12)	7 (5)
I just didn't think about it	-	12.1	11 (7)	4 (3)
It was our conscious decision	44.4	-	-	-
I had alcohol intoxication	1.4	6.2	18 (11)	3 (2)
I was under the influence of drugs	2.1	9.6	13 (8)	9 (6)
I was a victim of sexual violence	-	0.2	0	0
Others	*3.5*	*1.9*	*0*	*0*
Difficult to answer	*0.2*	*0.0*	*2 (1)*	*3 (2)*

* Given the small samples of IDUs having commercial partners whose sexual services were bought and IDUs who provided commercial sexual services (each population accounted for fewer than 100 persons), the distribution of causes for refusing to use a condom is given in percentage and absolute numbers. The absolute numbers are indicated in parentheses.

** "-" means that this reason was not stated in the answers to the question.

Reduced sensitivity when using a condom was the cause for refusing safe sex in terms of HIV transmission in 34% of contacts with an occasional partner. About a quarter of respondents having occasional partners did not use a condom because it was not at hand. 17% never thought about using a condom.

About half of IDUs buying sexual services (29 of 62 persons) said the reason for refusing to use a condom was lower sensitivity. 12 of 62 persons did not think about its use while purchasing sexual services. Almost one in ten IDUs having commercial partners they paid for services did not use condoms because of alcohol or drug intoxication.

For IDUs who provided commercial sexual services the main reasons for refusing to use a condom was the partner's desire (27 of 75 persons) and higher payment for the provision of sexual services without a condom (15 of 75 persons). The third most popular reason was reduced sensitivity with condom use (9 of 75 persons).

The high price of condoms is very rarely a reason for not using them. For example, there was no person among IDUs buying sexual services who refused to use a condom with a commercial partner because of its high price. Among those who bought sexual services, only one person believed that condoms were very expensive. In the cases of sexual contacts with regular and occasional partners, the high price of condoms as the reason for non-use was reported by 2 and 4% of respondents, respectively.

Condom non-use due to violence was reported, but was likely an individual episode. However, it should be noted that this answer option does not provide evidence about the real prevalence of sexual violence because the question was asked only about the most recent sexual contact with a regular, occasional and commercial partner.

There were no significant differences in reasons for refusing to use a condom by age, gender, type of drug and duration of its use. Ratings of the reasons are similar. The only exception is that men more often than women reported lower sensitivity when using a condom.

Using a Condom in Homosexual Contacts

Among MSM-IDUs, a condom was used *during* the last sexual contact with a man by slightly more than half of respondents (30 of 57 persons). It should be noted another 7 more persons did not remember whether they used a condom or refused to answer this question. Whereas the latter are considered to be a potential at-risk population, it can be stated that 65% (or 37 persons of 50) of MSM-IDUs were at risk of HIV through sexual contact.

3.3. Regional Differences and Dynamics

As regards the dynamics of the indicator "Percentage of IDUs Using a Condom During the Most Recent Sexual Contact", it has somewhat decreased; it went from .5% in 2008/2009 to 47.8% in 2011. The regional distribution shows that the indicator of using a condom during the most recent sexual contact decreased in 14 cities, primarily in Ivano-Frankivsk, Uzhhorod, Kherson, Mykolayiv and Khmelnytskyi (see Figure 3.2.4 and Table

3.2.8). However, in the cities of Dnipropetrovsk, Cherkasy, Ternopil, Sumy and Kirovohrad more IDUs reported using a condom during the most recent sexual contact in 2011. There were no significant changes in Kharkiv, Lutsk, Chernihiv, Vinnytsya and Donetsk.

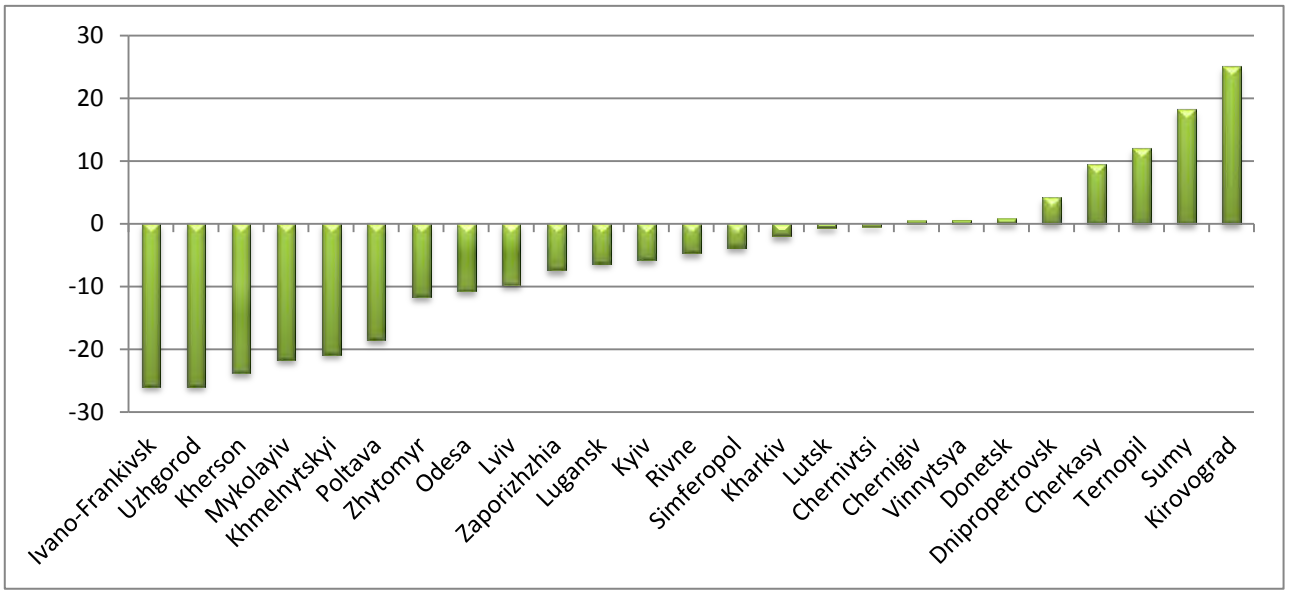


Figure 3.2.4.Dynamics of the Indicator "Percentage of IDUs Using a Condom During the Most Recent Sexual Contact" in 2008-2011, %

Table 3.2.9

Percentage of IDUs Using a Condom during the Most Recent Sexual Contact in 2008-2011, %

	2008/2009	Confidence interval	2011	Confidence interval
Simferopol	64.2	57.3-71.5	60.4	56.5-64.6
Vinnytsya	43.4	33.9-52.3	44.0	38.3-50.0
Lutsk	41.4	32.2-50.1	40.7	35.2-46.8
Dnipropetrovsk	24.2	16.5-32.3	28.4	23.5-33.8
Donetsk	39.9	24.3-55.6	40.7	35.6-46.3
Zhytomyr	36.8	27.0-44.8	25.1	19.7-30.5
Uzhhorod	46.8	31.5-61.0	20.9	14.9-27.8
Zaporizhzhia	38.3	29.8-47.1	30.9	23.3-38.7
Ivano-Frankivsk	71.4	64.8-77.4	45.5	37.5-52.7
Kyiv	41.6	35.5-48.1	35.9	29.2-42.5
Kirovohrad	29.1	19.7-43.5	54.2	47.0-60.6
Luhansk	54.1	44.9-63.3	47.8	35.6-56.7
Lviv	43.2	33.3-52.8	33.5	27.3-39.7
Mykolayiv	65.4	58.3-73.0	43.8	38.5-49.7
Odesa	53.7	47.6-60.3	43.0	38.7-47.6
Poltava	67.2	58.5-77.7	48.7	42.1-55.5
Rivne	46.3	38.4-53.7	41.6	35.1-47.8
Sumy	43.6	32.2-55.2	61.8	56.0-67.6
Ternopil	30.5	10.8-52.6	42.5	31.4-52.6
Kharkiv	41.5	27.5-51.8	39.5	33.6-46.1
Kherson	67.2	58.2-74.8	43.5	37.9-49.0
Khmelnytskyi	59.9	51.1-70.8	39.1	33.5-45.8
Cherkasy	61.7	54.0-71.1	71.1	66.2-75.7
Chernivtsi	59.4	53.6-78.8	59.0	50.5-70.6
Chernihiv	34.9	25.4-42.4	35.4	30.5-40.7

- the study was conducted in 2008
- the study was conducted in 2008

Summary

More than half of IDUs (51%) didn't use a condom during the most recent sexual contact. The percentage of IDUs who used a condom during the most recent sexual contact decreased in 14 cities, primarily in Ivano-Frankivsk, Uzhhorod, Kherson, Mykolayiv and Khmelnytskyi.

The type of a sexual partner is more important in the motivation to use condoms than the type of sexual contact, and affects the reason for refusing to use condoms. In the previous month condoms were always used with regular partners by 27%, with occasional partners by 53%, with commercial partners who were given remuneration for sexual services by 63%, and with commercial partners from whom remuneration was received for sexual services by 58% of respondents. Among MSM-IDUs, condoms were used by slightly more than half of respondents (30 of 57 persons) *during* the most recent sexual contact with a man.

Section 4. HIV Prevention Services

This section presents the analysis of respondents' answers regarding voluntary counseling and testing for HIV. The availability of such services for IDUs and the main reasons for not going to institutions/organizations for HIV testing are explored. Also, the share of IDUs who got tested and know their results was also determined. The results of the analysis of how awareness about one's HIV status affects sexual behavior of IDUs and drug injecting are presented. Particular attention is paid to coverage by prevention services and the level of awareness about HIV transmission ways.

4.1. Experience in VCT

With the introduction of amendments to the Law of Ukraine "On Prevention of Acquired Immune Deficiency Syndrome (AIDS) and Social Protection of the Population" № 2861-17 dated December 23, 2010, the testing of all persons who have turned 14 is carried out voluntarily after obtaining informed consent for testing. In other words, all respondents who participated in the study could make use of VCT (voluntary counseling and testing) services, yet only 94.5% believed that such testing was available to them (see Figure 4.1.1).

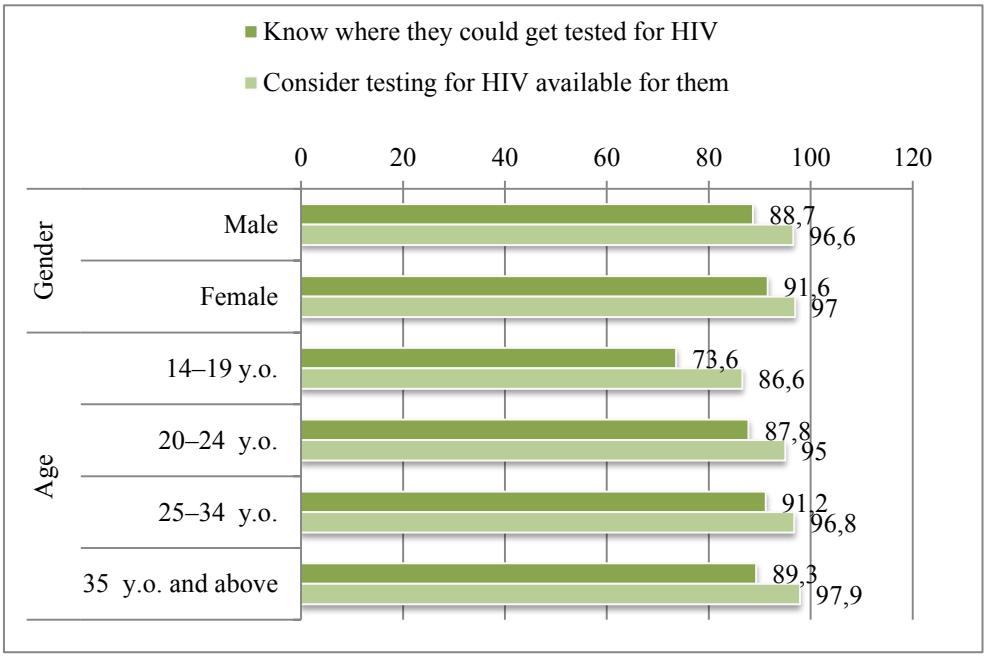


Figure 4.1.1. Share of IDUs who Know where One Can Get Tested for HIV and Consider such Testing Available to Them, Depending on Gender and Age, *percentage distribution*

The level of evaluation of HIV testing availability for IDUs is almost the same in all the cities covered by the survey and ranges within 91.1-100.0%. The lowest availability indicator is reported in the city of Zhytomyr; the highest indicators are in the cities of Ternopil and Chernivtsi.

The most significant reason for unavailability of HIV testing for IDUs (identified by 51.5%) is lack of information about whom one can contact on this issue. Other common reasons for unavailability of testing include: lack of information about the location of an institution where one can get tested (18.6%), belief that one has to pay for getting tested, lack of funds (12.4%) and fear of disclosure of the results (11.5%) (see Table 4.1.1).

Table 4.1.1

Main Reasons for Unavailability of HIV Testing, Depending on Age and Gender,
percentage distribution (among those who consider testing unavailable for themselves, N=499)

Reasons *(IDUs could select several options)*	**Respondent's age**				**Respondent's gender**		**All IDUs**
	14-19 y.o.	**20-24 y.o.**	**25-34 y.o.**	**35 years and above**	**Male**	**Female**	
I don't know whom to refer to	49.6	62.4	49.4	48.2	55.4	40.8	51.5
I don't know where an institution/site/testing center is located	20.8	21.4	16.5	19.1	16.7	23.9	18.6
Lack of funds for getting tested	0.0	13.4	15.6	10.9	12.8	11.3	12.4
I have a fear of disclosure of the results	35.8	8.3	11.1	6.3	10.7	13.5	11.5
There is no institution/site/center where one can get tested in our city	0.0	5.0	2.6	7.2	4.8	2.6	4.2
Inconvenient location of an institution/site/testing center	2.7	5.8	4.4	1.0	2.5	6.4	3.5
Inconvenient open hours of an institution/site/testing center	1.9	6.5	2.1	1.1	1.7	5.2	2.6
Treatment by personnel is unsatisfactory	0.0	0.8	1.4	0.4	0.8	1.1	0.9
Other	0.0	5.6	3.6	5.6	3.6	6.0	4.2

As it is seen from the table, refusal due to fear of disclosure of status is most characteristic of adolescent IDU populations (35.8%). Lack of information about where to get tested is most characteristic of IDUs aged 20-24 (62.4%). The same reason is more characteristic of men compared with women.

HIV Testing during Lifetime

The study results show that more than half (61.6%) of polled IDUs went to institutions/organizations to get tested for HIV and 65.9% of IDUs did a HIV test at least once in their lifetime. The fact that there were more IDUs who got tested for HIV compared with those who went to institutions/organizations is associated with the fact that a certain share of IDUs were participants in different surveys or projects under which they got tested for HIV or did so along with other medical procedures, i.e. did not apply for testing intentionally.

The share of female and older IDUs who got tested for HIV is larger than the share of male and young IDUs (see Figure 4.1.2). There are significant differences in HIV testing experiences depending on gender ($p<0.001$) and age of the respondents ($p<0.001$).

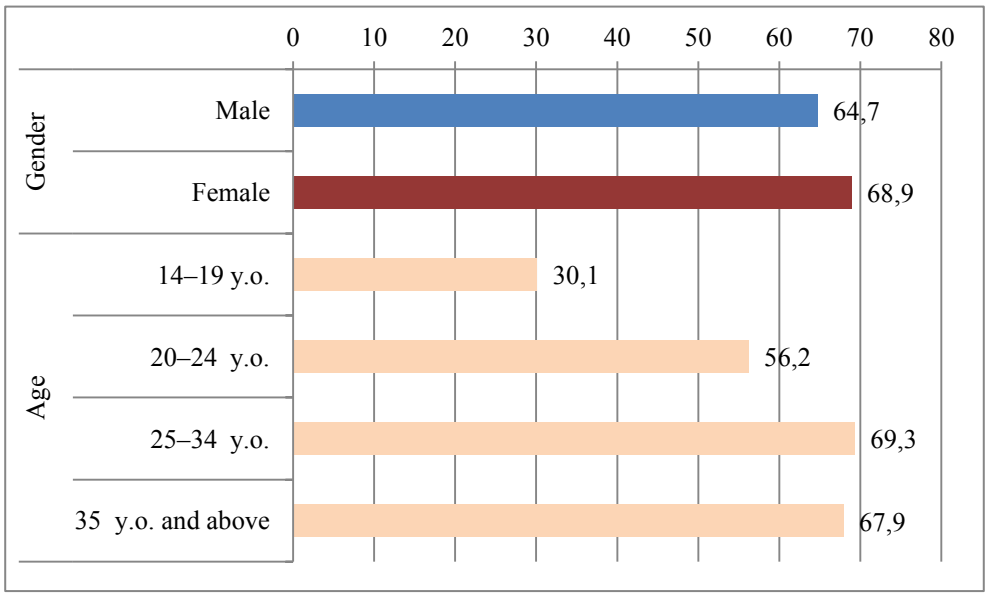


Figure 4.1.2. HIV Testing Experiences, Depending on Age and Gender,

percentage distribution

Respondents who had never been tested for HIV during their lifetimes were asked to indicate why they hadn't. Almost half (46.7%) of IDUs stated that they had no desire to get tested, almost one-third (28.8%) indicated that their sexual behavior was safe, and 21.7% cited safe injecting behavior (see Table 4.1.2).

Table 4.1.2

Main Reasons why IDUs Did not Get tested for HIV, Depending on Age and Gender, *percentage distribution (among those who did not do a HIV test, N=3,094)*

Reasons *(IDUs could select several options)*	**Respondent's age**				**Respondent's gender**		**All IDUs**
	14-19 y.o.	**20-24 y.o.**	**25-34 y.o.**	**35 years and above**	**Male**	**Female**	
I don't want to get tested	51.1	45.3	42.4	51.4	48.6	40.9	**46.7**
My sexual behavior was safe	27.9	36.2	26.6	27.6	28.1	30.8	**28.8**
I always injected drugs in a safe manner	26.3	25.9	22.5	18.7	21.5	23.1	**21.9**
I am afraid of learning my HIV status	8.6	7.3	13.9	10.0	10.7	12.0	**11.0**
I believe that testing must be paid for	5.8	11.3	5.8	5.5	5.6	9.8	**6.7**
Inconvenient location of places where one can get tested	5.5	5.6	4.7	4.0	3.9	7.1	**4.7**
Other	2.1	3.6	5.9	4.2	5.5	2.3	**4.7**

Testing for HIV in the Previous 12 Months

Among IDUs who got tested for HIV (N=5,970), more than half (55.8%) did so during the previous 12 months. 85.6% of them (N=3,327) received pre-test counseling, 96.7% received their results and 79.8% of IDUs were provided with post-test counseling. This fact suggests that testing for HIV is not always carried out in compliance with the Protocol[18] which provides for mandatory pre-test and post-test counseling.

The key indicator "Percentage of IDUs who Got Tested for HIV in the Previous 12 Months and Received Their Results" stands at 35.7% (34.1% of men and 40.1% of women, $p<0.001$). The distribution of the indicator depending on age of IDUs points at the significant relationship ($p<0.001$) and at the increased share of IDUs who got tested for HIV and received results with increasing age (20.7% of those aged 14-19, 37.7% of those aged 20-24, 39.6% of those aged 25-34 and 31.7% of those aged 35 and older). About 1% of respondents had been tested for HIV in the previous 12 months but failed to receive their results.

Compared to 2008/2009, the share of those who got tested for HIV in the previous 12 months and received their results increased significantly (from 27.9% to 35.7%). Regional changes in the indicator are presented in Table 4.1.3.

Table 4.1.3

Percentage of IDUs who Got Tested for HIV in the Previous 12 Months and Received their Results, 2008/2009-2011, *percentage distribution*

[18]Guidelines for Voluntary Counseling and Testing for HIV (Protocol), as approved by Order of the Ministry of Health of Ukraine no. 415 dated August 19, 2005.

	2008/2009		2011	
	%	Confidence intervals	%	Confidence intervals
Simferopol (AR of Crimea)	14.7	9.9-19.7	26.9	22.9-31.0
Vinnytsya	22.4	16.1-29.0	58.8	53.9-64.2
Lutsk	31.2	20.8-39.2	52.5	45.8-58.4
Dnipropetrovsk	37.7	29.0-46.5	16.5	12.5-20.9
Donetsk	46.8	39.3-54.6	36.3	31.9-42.4
Zhytomyr	1.9	0.6-3.7	26.3	19.9-32.3
Uzhhorod	13.1	3.9-24.2	11.6	7.2-16.8
Zaporizhzhia	21.5	14.1-28.1	26.6	18.3-34.7
Ivano-Frankivsk	55.9	47.8-65.2	66.1	57.4-75.9
Bila Tserkva (Kyiv oblast)*			29.4	20.1-38.5
Kyiv	29.4	23.6-35.9	32.5	26.7-39.3
Kirovohrad	20.2	13.8-26.8	24.0	18.8-30.8
Luhansk	18.3	9.6-27.3	62.3	52.9-70.1
Lviv	1.9	0.4-3.9	8.7	4.3-13.0
Mykolayiv	19.8	14.1-25.8	43.1	38.1-48.5
Odesa	16.5	12.3-22.1	26.4	22.1-31.4
Poltava	26.3	17.2-38.0	44.8	38.9-51.4
Rivne	62.2	54.7-70.9	10.8	7.7-14.1
Sumy	12.8	7.0-21.9	69.9	63.1-75.7
Ternopil	14.3	5.8-26.1	38.9	30.1-48.7
Kharkiv	5.8	2.1-10.7	16.0	12.0-20.8
Kherson	42.9	33.5-52.3	38.4	32.6-42.8
Khmelnytskyi	38.1	28.1-48.7	42.0	35.8-48.0
Cherkasy	40.0	30.4-51.5	86.6	82.4-90.2
Chernivtsi	84.5	73.4-93.4	67.5	53.0-73.7
Chernihiv	22.5	15.2-30.5	26.4	20.8-32.1

* The study was not conducted in Bila Tserkva (Kyiv oblast) in 2008 and 2009.

- the study was conducted in 2008
- the study was conducted in 2009

The positive dynamics of the indicator compared to 2008/2009 was observed in most cities covered by the study. Somewhat reduced rates were seen only in the cities of Dnipropetrovsk (-21.2%), Donetsk (-10.5%), Uzhhorod (-1.5%), Rivne (-51.5%) and Chernivtsi (-17%) (see Figure 4.1.3).

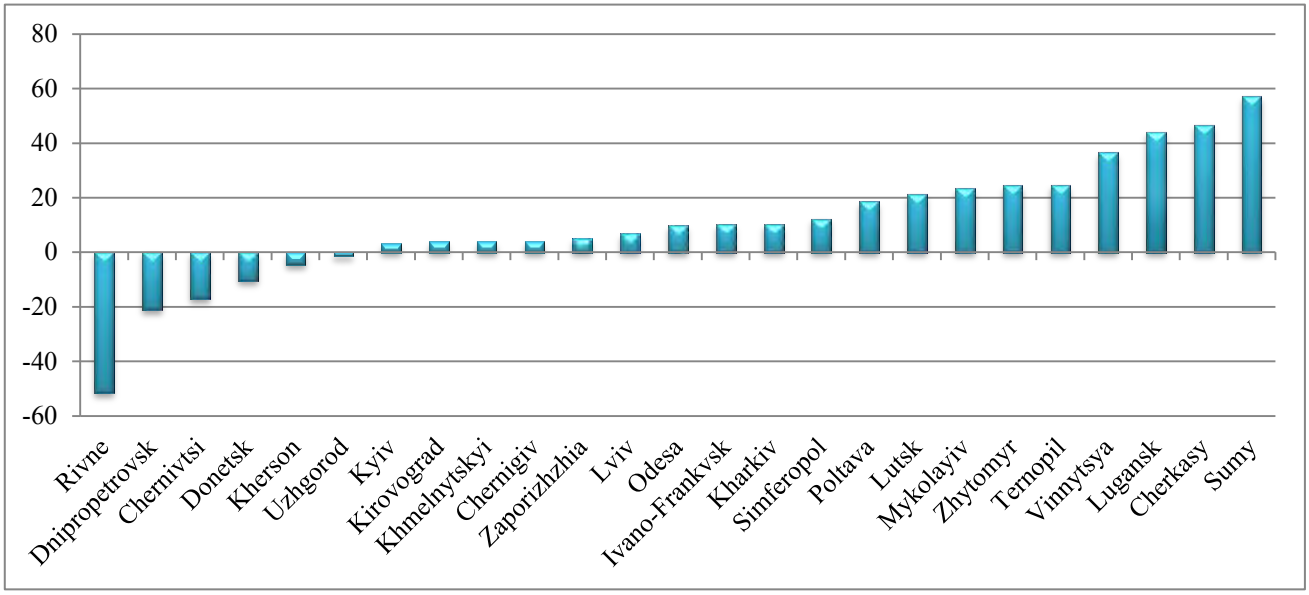


Figure 4.1.3. Changes in the Share of IDUs who Got Tested for HIV in the Previous 12 Months and Received their Results, the 2011 Study Compared to 2008/2009 Studies in Different Cities Covered, *percentage distribution*

In 2011 17.9% of respondents got CBO-based rapid testing. This indicator is somewhat higher among women than among men (21.2% versus 16.6%, $p<0.001$). The indicator is higher among IDUs aged 20-24 and 25-34 (20.6% and 19.7% versus 10.8% among those aged 14-19 and 15.4% among those aged 35 and older $p<0.001$). Among those who got tested in a CBO (N=1,576), the majority (71.3%) indicated that this was a one time practice in 2011, 24.1% got tested twice and 0.8% of IDUs did so at least three times.

Among IDUs who got tested for HIV (N=5,970), 85.3% agreed to report their test result. Self-reporting of positive HIV status is shown in Figure 4.1.4.

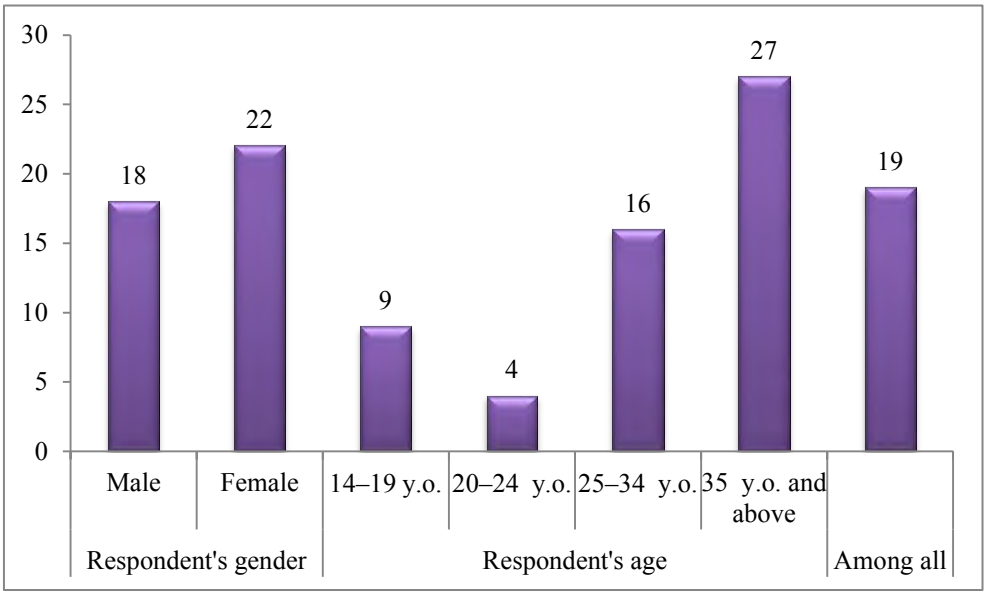


Figure 4.1.4. Self-reported HIV Status by IDUs who Got Tested and Agreed to Answer, Depending on Gender and Age (N=5,097), *percentage distribution*

Among those who reported their HIV-positive status, 81.1% were on record with AIDS Centers.

In general, most self-reported HIV-positive results were confirmed in the course of the linked study. The detailed comparison of IDUs' responses on their status and rapid testing results following the linked study are presented in subsection 5.1.

4.2. Safety of HIV-Positive IDUs' Behavior

Not all injecting drug users who are aware of their HIV-positive status are characterized by safe behavior, which puts other IDUs and sexual partners at risk (see Figures 4.2.1 and 4.2.2).

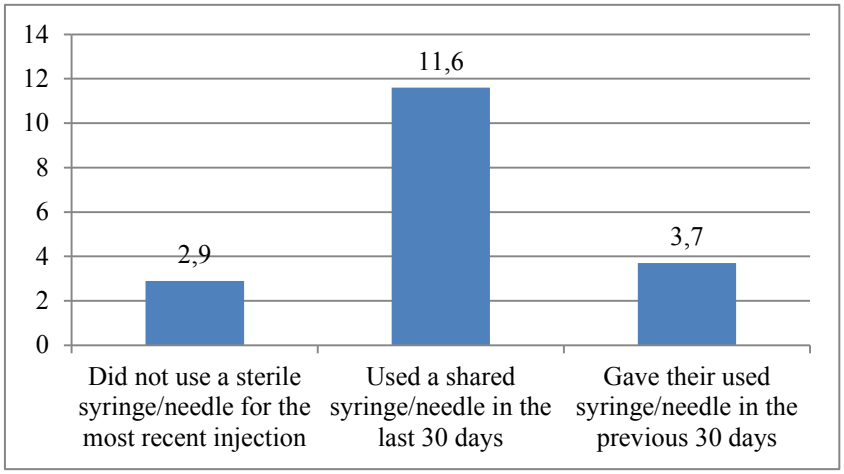


Figure 4.2.1. Prevalence of Risky Injecting Behavior among IDUs who are Aware of their HIV-Positive Status (N = 971),*percentage distribution*

No statistically significant relationship between unsafe injecting practices among IDUs who are aware of their HIV-positive status, depending on age and gender, was revealed.

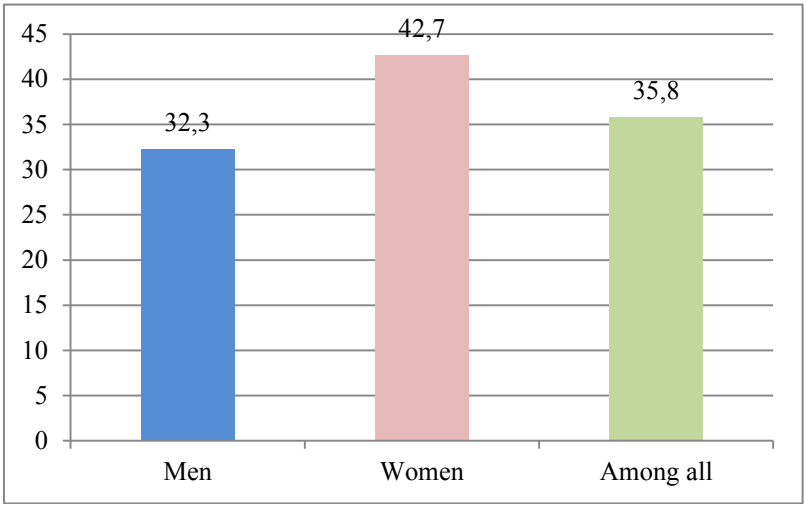


Figure 4.2.2. Failure to Use a Condom during the Most Recent Sexual Contact among IDUs who are Aware of their HIV-Positive Status (N = 971), *percentage distribution*

Women put their partners at risk of HIV more often than men by not using condoms during the most recent sexual contact. No statistically significant relationship between age and condom use during the most recent sexual contact was revealed.

Summary

More than one-third of IDUs (35.7%) were tested over the previous 12 months, which is due to the unwillingness to undergo such testing or lack of information on where to go to get tested. The activities of CBOs to ensure access to HIV testing was even excessive in some cases: about 1% of IDUs reported that they had been tested for HIV more than three times over 6-9 months of 2011 (depending on the time of the field phase held in the city).

IDUs who got tested for HIV indicated that post-test counseling was not always offered to them, which resulted in the lack of information on how to live with HIV, which behavior to follow and which organizations/agencies/institutions provide HIV treatment and care services.

4.3. Coverage by Prevention Services

Analysis of data on the main prevention measures is provided below, the coverage of IDUs by services providing for distribution of condoms and syringes is defined, and the

prevention services[19] coverage indicator and the share of IDUs who are clients of community-based organizations[20] is calculated.

Ways of Getting Condoms

47% of all IDUs received condoms over the previous year within the framework of awareness-raising programs at syringe exchange points, in counseling centers or other organizations.

Key differences in the ways condoms were obtained were observed when comparing age and gender, but not with type of drug or duration of drug use. The female IDUs interviewed reported receiving free condoms over the last year more often. In the youngest IDU group (under 19) 35% of respondents received free condoms over the previous 12 months, which is 12% less than the average.

Among clients of CBOs, 90% received free condoms from representatives of these organizations, and in the youngest age group (under 19) - 97%.

Table4.3.1

Share of IDUs who Received Free Condoms, %

Socio-demographic characteristics	**(1) Among CBO clients in the previous 6 months (N=2,661)**	**(2) Among all IDUs in the previous 12 months (N=9,069)**
All IDUs	90.3	46.6
By age		
14-19 y.o.	97.3	35.1
20-24 y.o.	90.9	41.7
25-34 y.o.	89.0	49.6
35 years and more	91.6	46.0
p	*0.028*	*<0.001*
By gender		
Men	90.6	45.0
Women	89.8	51.0
p	0.147	*<0.001*

Among all IDUs who had sexual contact in the previous month, less than a third (28%) bought condoms during this period, mainly IDUs under 25 (see Table 4.3.2). Almost half of

[19] This indicator was calculated using the National Indicators System – "Percentage of IDUs covered with prevention services."

[20] Have a client card or personal code for a CBO working with IDUs.

the respondents aged under 19 (44%) and over a third of those aged 20-24 (37%) reported buying condoms in the previous month.

Table 4.3.2

Share of IDUs who Bought Condoms in the Previous Month, %

(among those who had sexual contact in the previous month, N = 7,049)

All IDUs	27.8
By age (p<0.001)	
14-19 y.o.	43.5
20-24 y.o.	37.1
25-34 y.o.	28.0
35 years and more	22.4
By gender (p<0.001)	
Men	31.7
Women	18.6
A CBO client? (p<0.001)	
Yes	10.1
No	35.6

Women bought condoms less often: only one in five respondents (19%) did so in the previous month. Among men this indicator was 32%.

A significant difference is observed among clients and non-clients of CBOs focused on working with IDUs. Only 10% of the clients of such organizations who had sexual contact in the previous month bought condoms.

On average IDUs bought 11 condoms a month and spent 41 hryvnias on them.

According to the 2011 study, more than two-thirds of IDUs in the cities of Cherkasy (89%), Simferopol (87%), Sumy (75%) and Ivano-Frankivsk (68%) benefited from free condom distribution programs. The cities of Lviv (11%), Rivne (14%) and Uzhhorod (17%) have the lowest level of coverage of the target population by free condom distribution programs.

The indicator “percentage of IDUs who received condoms in the previous 12 months” decreased in 8 cities during 2008-2011: Rivne, Chernivtsi, Ivano-Frankivsk, Dnipropetrovsk, Kyiv, Uzhhorod, Kherson and Chernihiv (Figure 4.3.1 and Table 4.3.3). No significant changes occurred in Poltava and Kharkiv. A more than 60% increase in the share of IDUs who received condoms over the previous 12 months was observed in Sumy. In Luhansk this indicator increased by 57% and in Vinnytsya by 41%.

Table 4.3.3

Percentage of IDUs who Received Condoms over the Previous 12 Months

during 2008-2011,%

(For example, through awareness-raising programs or projects, syringe exchange points, counseling centers, centers of social services for families, children and youth, during special events, etc.)

City	2008/2009	Confidence interval	2011	Confidence interval
Simferopol	78.0	72.1-83.3	87.4	84.3-90.9
Vinnytsya	23.0	18.1-30.7	64.0	58.7-69.4
Lutsk	47.8	37.4-57.9	64.8	59-70.4
Dnipropetrovsk	45.6	37.4-53.7	20.9	16.4-25.6
Donetsk	31.6	25.5-37.9	40.2	34.7-45.9
Zhytomyr	1.9	1.0-3.4	26.6	20-32.8
Uzhhorod	31.5	22.8-42.7	17.4	11.9-23.9
Zaporizhzhia	18.6	12.5-25.1	28.9	20.3-37.9
Ivano-Frankivsk	94.1	90.0-96.4	67.8	58.9-77.9
Kyiv	56.1	48.6-62.9	41.2	34.8-48.1
Kirovohrad	19.0	14.2-24.2	31.0	24.7-39
Luhansk	9.2	4.1-13.9	66.0	58.4-74.5
Lviv	4.7	2.4-8.5	11.4	6.8-16.1
Mykolayiv	24.1	18.8-30.8	53.3	48.8-58.8
Odesa	9.8	5.3-14.1	36.4	31.3-41.4
Poltava	53.6	45.0-62.8	50.7	44.7-56.8
Rivne	62.7	56.5-69.6	13.6	9.9-17.5
Sumy	7.7	4.3-12.1	74.6	68.3-80.5
Ternopil	17.2	9.9-29.1	42.3	33-52.5
Kharkiv	20.3	14.9-26.6	20.4	15.5-25.3
Kherson	57.9	48.3-65.4	44.7	38.4-49.4
Khmelnytskyi	27.5	21.9-37.3	50.2	43.9-57.1
Cherkasy	56.9	49.2-67.2	88.6	85.2-91.5
Chernivtsi	94.8	91.1-98.1	64.7	50.5-73.3
Chernihiv	36.8	29.4-45.7	26.5	21-32.2

- the study was conducted in 2008
- the study was conducted in 2009

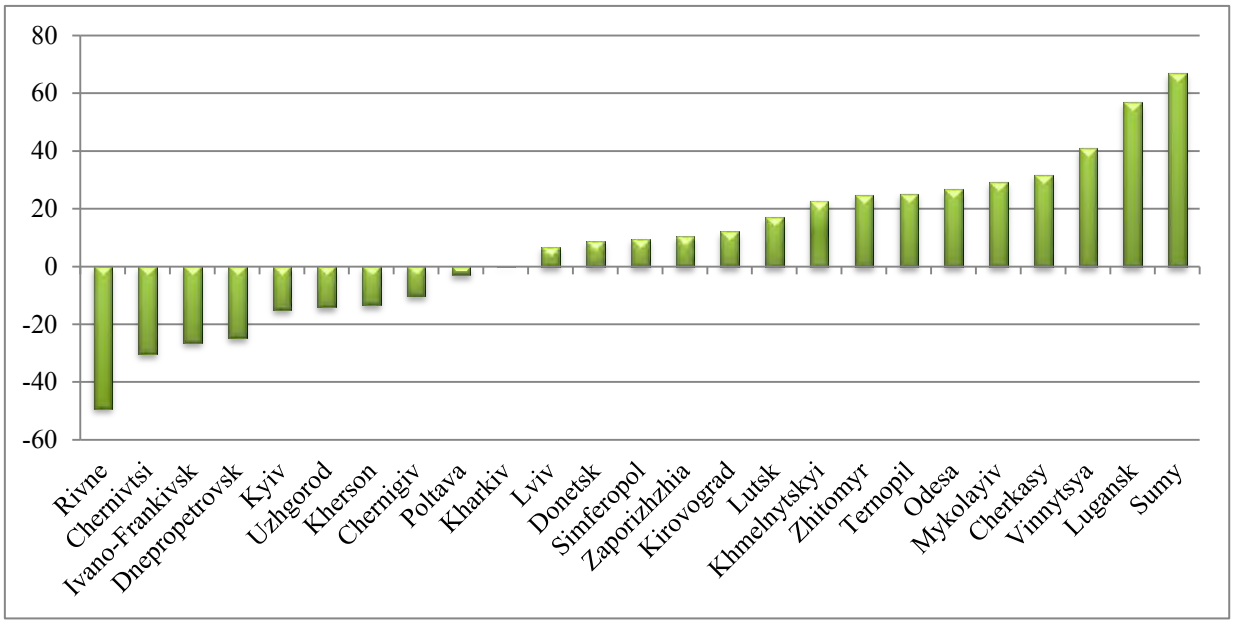


Figure 4.3.1. Dynamics of the Indicator "IDUs who Received Condoms in the Previous 12 Months", during 2008-2011, %

Condom use among IDUs is strongly dependent on the availability of prevention programs that distribute condoms in the region[21]. Most often the use of condoms during the most recent sexual contact was reported by respondents in the cities where the percentage of IDUs who received condoms in the previous 12 months (for example, through awareness-raising programs or projects, syringe exchange points, counseling centers, during special events, etc.) is significant (see Figure 4.3.2).

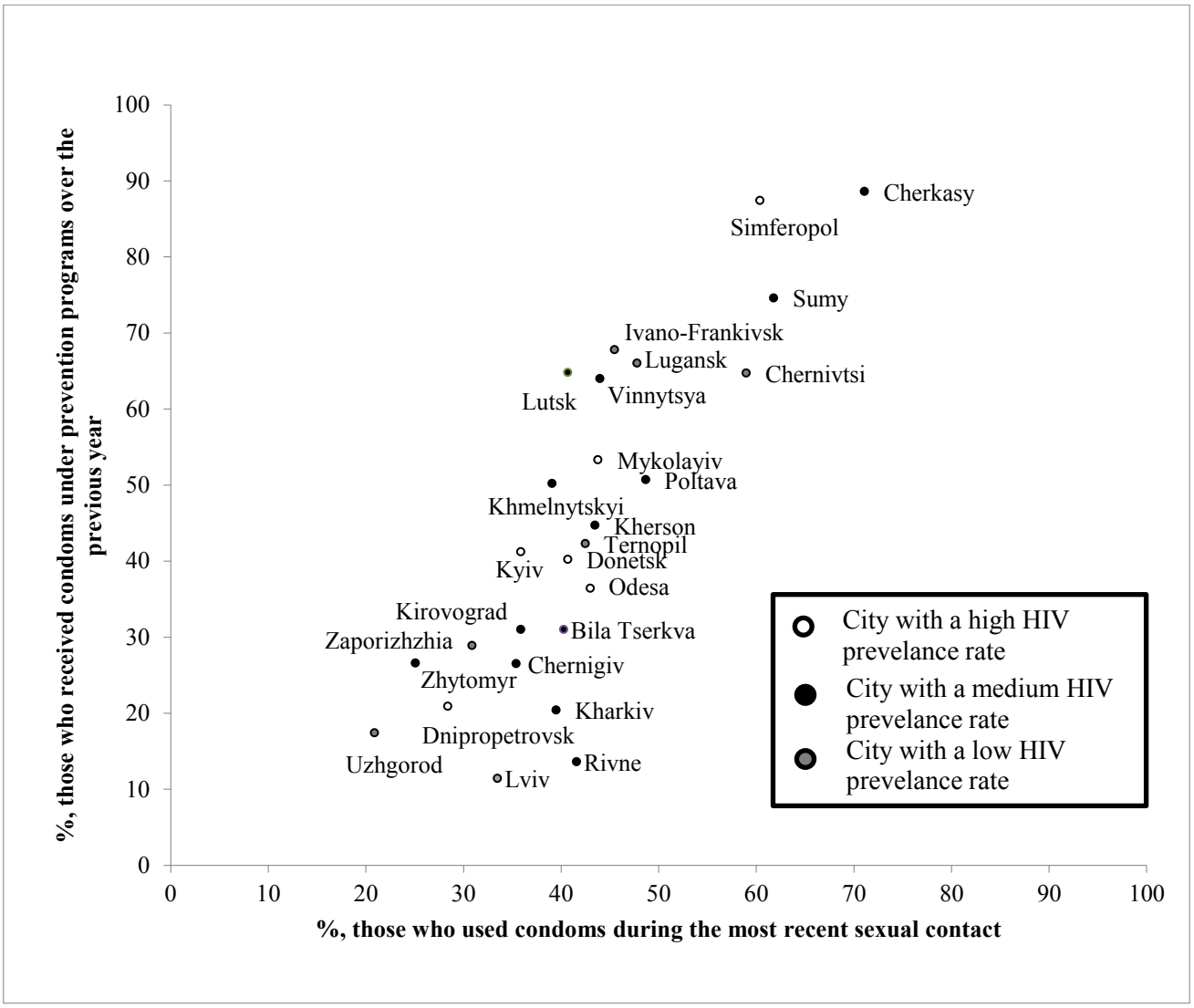


Figure 4.3.2. Share of IDUs who Received Condoms under Prevention Programs, and IDUs who Used Condoms during the Most Recent Sexual Contact, %

More than three-quarters of IDUs polled were covered by condom distribution programs in Cherkasy (87%), Simferopol (87%) and Sumy (75%). These cities also have the

[21] The Pearson correlation coefficient between the variables "use of a condom during the most recent sexual contact" and "receiving condoms within prevention programs," aggregated at the regional level as the average values, constitutes 0.761, indicating a very strong linear relationship.

highest indicators of condom use during the most recent sexual contact: 71% in Cherkasy, 60% in Simferopol and 62% in Sumy. In contrast, in Zhytomyr, Dnipropetrovsk and Uzhhorod, where less than 30% of respondents were covered by such programs, the indicators of condom use during the most recent sexual contact are 25, 28 and 21%, respectively. Not fitting this trend is the situation in Kirovohrad, Kharkiv, Rivne and Lviv, where the condom use indicators significantly exceed the share of IDUs covered by condom distribution programs: almost double in Kirovohrad and Kharkiv, and triple in Rivne and Lviv.

Ways of Getting Syringes/Needles

Among clients of community-based organizations (N=2,661), almost all (93%) received syringes from representatives of the organization over the last 6 months. Just over 95% reported receiving free syringes over the previous 12 months. Among all the respondents, the share of IDUs who received free syringes over the previous 12 months is less than half - 46.9% (men - 44.8%, women - 52.6%, $p < 0.001$).

There is also a statistically significant difference ($p<0.001$) depending on respondents' age: adolescent IDUs account for the lowest share of those who received syringes (32.1% among those aged 14-19, 41.4% among those aged 20-24, 48.7% among those aged 25-34 and 47.9% among those aged 35 and older).

68.8% of IDUs reported that they bought syringes/needles in the previous month. Men IDUs bought syringes more often than women (72.2 against 59.5%, $p < 0.001$). Distribution by age did not show any statistically significant differences.

CBO clients are provided with enough syringes and so the share of those who bought syringes in the previous month is little more than a third (38.9%): men - 41.1%, women - 33.9% ($p < 0.001$).

Indicator of Coverage by Prevention Programs

The results of the study show that 41.8%[22] of IDUs are covered by prevention programs. The number of women covered by prevention programs is larger compared to the number of men (47.2 against 39.8%, $p < 0.001$). Also, the percentage of IDUs covered by prevention programs increases with age ($p < 0.001$); among 14-19 y.o. the share of IDUs

[22]This indicator cannot be compared to the similar indicator for 2008/2009 due to different wording of questions in the 2008 and 2009 studies.

covered by prevention programs is 29.7%, among 20-24 y.o - 36.9%, among 25-34-y.o - 44.1%, and among IDUs of 35 years old and older - 41.8%.

The share of IDUs covered by prevention programs in different cities of the survey is presented in Table 4.3.4.

Table 4.3.4

Share of IDUs Covered by Prevention Programs[23] based on regional surveys, *percentage distribution and confidence intervals*

City	%	Confidence intervals
Simferopol	**84.5**	81.2-88.1
Vinnytsya	**58.8**	53.6-64.3
Lutsk	**63.5**	57.7-69.4
Dnipropetrovsk	**16.5**	12.4-21.2
Donetsk	**36.3**	31.9-42.3
Zhytomyr	**26.3**	19.7-32.4
Uzhhorod	**11.6**	7.3-16.7
Zaporizhzhia	**26.6**	18.8-35.0
Ivano-Frankivsk	**66.1**	57.4-76.4
Bila Tserkva	**29.4**	20.1-38.8
Kyiv	**32.5**	26.7-39.0
Kirovohrad	**24.0**	18.6-30.8
Luhansk	**62.3**	53.2-70.8
Lviv	**8.7**	4.3-12.7
Mykolayiv	**43.1**	38.1-48.4
Odesa	**26.4**	22.1-31.2
Poltava	**44.8**	38.3-51.0
Rivne	**10.8**	7.6-14.1
Sumy	**69.9**	63.4-75.9
Ternopil	**38.9**	30.4-49.0
Kharkiv	**16.0**	11.8-20.9
Kherson	**38.4**	32.8-43.1
Khmelnytskyi	**42.0**	35.9-48.0
Cherkasy	**86.6**	82.6-90.3
Chernivtsi	**67.5**	53.6-74.1
Chernihiv	**26.4**	21.0-32.0

CBO Client Status

[23]The indicator was calculated using the National Indicators System – "Percentage of IDUs which are covered with prevention services" (See Guidelines on Researches to Monitor the National Response to the HIV Epidemic / [Balakiryeva O.M., Varban M.Yu., Dovbakh G.V. et al.], ICF "International HIV/AIDS Alliance in Ukraine. – Kyiv, 2008. 96 p.)

Almost one-third of the IDUs interviewed (29.3%) are clients of CBOs working with IDUs. The socio-demographic composition of IDUs who are CBO clients is presented in subsection 1.1. Regional representation of such clients is presented in Table 4.3.5.

Table 4.3.5

Share of IDUs who are Clients of CBOs Working with IDUs, *percentage and confidence intervals*

City	%	Confidence intervals
Simferopol	**45.8**	38.3-52.2
Vinnytsya	**8.0**	5.2-12.2
Lutsk	**65.3**	60.0-71.3
Dnipropetrovsk	**4.7**	2.2-7.4
Donetsk	**27.1**	22.6-31.9
Zhytomyr	**34.9**	29.1-40.9
Uzhhorod	**5.3**	2.4-9.0
Zaporizhzhia	**30.5**	22.0-38.6
Ivano-Frankivsk	**34.8**	28.6-41.9
Bila Tserkva	**30.3**	20.9-39.3
Kyiv	**29.9**	22.7-37.3
Kirovohrad	**12.8**	9.3-16.6
Luhansk	**11.0**	5.1-17.5
Lviv	**4.4**	1.7-7.0
Mykolayiv	**17.9**	14.0-21.9
Odesa	**18.6**	14.4-23.2
Poltava	**25.9**	20.5-31.4
Rivne	**5.3**	3.2-7.5
Sumy	**69.9**	63.2-75.9
Ternopil	**28.9**	20.2-37.9
Kharkiv	**6.9**	4.6-9.7
Kherson	**33.3**	27.4-38.4
Khmelnytskyi	**18.9**	13.8-24.2
Cherkasy	**72.4**	66.6-75.7
Chernivtsi	**62.1**	44.9-71.4
Chernihiv	**26.3**	21.0-31.8

However, CBO client status does not necessarily provide evidence on the use of the organization's services. Thus, among IDUs who reported being CBO clients (N=2,661), 11% are not covered by prevention services.

The share of people living with HIV and hepatitis C among those covered by prevention programs and CBO clients is higher in comparison with those who do not use such services (see Table 4.3.6 and Table 4.3.7).

Table 4.3.6

Coverage by Prevention Programs of IDUs and CBO Clients, Depending on HIV Status, *percentage distribution*

HIV test results	**Covered by prevention programs** *(***p<0.001***)*		**Clients of community-based organizations** *(***p<0.001***)*	
	Yes	No	Clients	Non-clients
Positive	27.2	17.5	30.1	18.0
Negative	72.8	82.5	69.9	82.0

Table 4.3.7

Coverage by Prevention Programs of IDUs and CBO Clients, Depending on HIV and Hepatitis C Status, *percentage distribution*

Hepatitis C test results	**Covered by prevention programs** *(***p<0.001***)*		**Use of community-based organizations' services** *(***p<0.001***)*	
	Yes	No	Clients	Non-clients
Positive	43.7	29.9	48.2	30.5
Negative	56.3	70.1	51.8	69.5

The methodology and tools used in this study do not allow for identifying the time of HIV and hepatitis C infection and whether this occurred after IDUs started receiving prevention services. The analysis of relations between other variables shows that there are more CBO clients and IDUs who fall under the coverage of prevention services among older IDUs, IDUs with a long duration of drug use and female IDUs. Prevalence of HIV is higher among these IDU categories (see Section 5).

4.4. Level of Awareness about HIV Transmission

64% of IDUs know how HIV is and is not transmitted[24], with no statistically significant difference depending on gender revealed. The age distribution shows a somewhat

[24] The indicator is calculated using the of National Indicators System – "Percentage of IDUs who correctly identify the ways of preventing sexual transmission of HIV and know how it is not transmitted" (See Guidelines on Researches to

higher level of awareness about the ways of HIV transmission in the older age groups ($p<0.001$). This indicator increases from 51.5% (among those aged 14-19) to 59.4% among IDUs aged 20-24, 65.7% among 25-34-year-olds and 64.4% among those aged 35 and above. Regional distribution of the indicator is presented in Table 4.4.1.

Table4.4.1

Share of IDUs who Correctly Identify the Ways of HIV Transmission,
percentage and confidence intervals

City	%	Confidence intervals
Simferopol	**65.0**	61.2-68.9
Vinnytsya	**74.1**	69.6-78.2
Lutsk	**71.2**	65.3-77.4
Dnipropetrovsk	**76.8**	72.4-81.0
Donetsk	**70.8**	64.9-76.1
Zhytomyr	**50.0**	44.1-55.1
Uzhhorod	**54.0**	44.8-63.0
Zaporizhzhia	**49.1**	41.1-57.7
Ivano-Frankivsk	**67.8**	61.2-74.7
Bila Tserkva	**59.1**	48.3-69.5
Kyiv	**53.0**	46.2-59.5
Kirovohrad	**60.5**	53.5-67.3
Luhansk	**65.3**	56.4-74.6
Lviv	**30.2**	24.2-36.7
Mykolayiv	**59.4**	54.4-64.4
Odesa	**42.7**	38.4-47.4
Poltava	**84.5**	79.0-89.8
Rivne	**85.4**	80.0-90.5
Sumy	**77.2**	73.0-81.5
Ternopil	**55.6**	45.0-65.9
Kharkiv	**52.2**	45.6-59.5
Kherson	**74.8**	69.2-79.3
Khmelnytskyi	**58.7**	52.3-64.8
Cherkasy	**85.9**	82.5-89.5
Chernivtsi	**82.9**	75.9-89.5
Chernihiv	**48.9**	43.6-54.3

According to the data (Table 4.4.1), the highest level of awareness about HIV transmission is in the cities of Poltava, Rivne, Cherkasy and Chernivtsi, with the indicator ranging from 82.9 to 85.9%. There are no significant differences in the level of HIV and

hepatitis C (linked survey) among IDUs with high and low levels of awareness about ways HIV is transmitted.

Summary

Almost one-third of IDUs (29.3%) are clients of CBOs that provide services to injecting drug users, but the status of organization client does not always provide evidence of coverage by prevention services: 11% of the CBO clients are covered by prevention services. This gives grounds to assert that a certain share of IDUs are only listed as clients of organizations, but do not seek or receive prevention or other services from the representatives of CBOs.

No significant differences in terms of HIV status among IDUs with high and low levels of awareness about the HIV transmission ways were identified. This may be evidence that level of knowledge on HIV transmission is not a determining factor for HIV prevention.

Section 5. Linked Survey Results

The linked survey is a combination of interviewing of vulnerable populations and testing, which makes it possible to confirm the status reported by the respondent, obtain information in the event the respondent is unaware of his/her status or refuses to disclose the results of previous testing, as well as perform a more detailed analysis of exposure factors. In 2011, blood testing of respondents for HIV and hepatitis C was carried out.

5.1. HIV Prevalence Rates

Among those who have already been tested for HIV prior to participating in the survey, 85% agreed to report the results. From the total number of those who agreed to provide test results (5,097 respondents) 19% reported a positive HIV status. From 971 respondents who had positive status based on previous tests 85% were on record in AIDS centers and 32% participated in the ART program.

As a result of the linked survey results 21.6% received a positive HIV test result. The same test result was obtained in the 2009 study.

Among respondents who reported their HIV-positive status 91% confirmed their positive result within the linked survey (see Table 5.1.1). 7% of respondents (290 people) had a negative HIV status in the previous tests, yet tested positive within the survey.

Table 5.1.1

Self-reported HIV Status and HIV Status Confirmed by the Linked Survey Results, % and absolute figures

Linked Survey Results	Self-reported HIV status subsequent to previous testing	
	Positive	Negative
Positive	91.3 (886)	7.0 (290)
Negative	8.7 (85)	93.0 (3,835)
Total	*100 (971)*	*100 (4,125)*

At the same time, it turned out that 9% of IDUs (85 respondents or 0.9% of the total number of respondents) who reported being HIV-positive, obtained a negative result within the linked survey. 44 respondents from this group reported that they were on record with AIDS centers, and hence their HIV status should have been confirmed. The reason for these discrepancies may be limited sensitivity and specificity of the tests, which are never 100% accurate.

In the age group of IDUs from 35 years old and older almost one in three respondents (29%) obtained a positive HIV test result. 21% of the results obtained among IDUs aged 25-34 were positive. The HIV prevalence rate in the group of IDUs aged 20-24 is significantly lower, with less than one in ten (8%) being HIV-positive. The share of HIV-positive adolescents is 4%.

HIV is more prevalent among women than among men (women - 24%, men - 21%).

The level of HIV increases with increased duration of drug injecting. Among IDUs who have been injecting drugs for up to 2 years, the level of HIV is 6%, and among those with 6-10 years of experience this figure is more than double (15%). 32% of IDUs with 11 years and more of drug injecting experience are HIV-positive.

By type of drug used, the lowest share of HIV is reported among stimulant users (15%), but in order to make reasonable conclusions on this matter the impact of age and duration of drug use should be monitored.

Table 5.1.2

Share of IDUs who Received Positive Test Results for HIV? %

All IDUs	21.6
By age (p<0.001)	
14-19 y.o.	3.7
20-24 y.o.	7.9
25-34 y.o.	20.8
35 years and more	28.7
By gender (p=0.004)	
Men	20.8
Women	23.6
By type of drugs (p<0.001)	
Opioids	27.2
Stimulants	15.1
Opioids and stimulants	23.6
By duration of drug injecting (p<0.001)	
Up to 2 years	6.2
3-5 years	9.2
6-10 years	14.7
11 years and more	32.3

In 2011 the lowest percentage of HIV-positive IDUs (less than 10%) was recorded in the cities of Rivne (9%), Kirovohrad (9%), Kharkiv (8%), Zaporizhzhia (6%), Sumy (4%), Chernivtsi (4%), Luhansk (2%) and Uzhhorod (1%). The largest number of HIV-positive IDUs was identified in Mykolayiv (40%). Every third IDU received a positive test result in the cities of Khmelnytskyi (34%), Dnipropetrovsk (33%), Chernihiv (33%) and Odesa (32%).

In Poltava, Simferopol and Donetsk the share of HIV-positive IDUs is approaching the national average.

During 2008-2011 the share of HIV-positive IDUs increased in 9 cities, mostly in Cherkasy (+15%), Dnipropetrovsk (+11%) and Ternopil (+11%) (see Figure 5.1.1 and Table 5.1.3). There were no significant differences in the dynamics of IDU HIV indicators in Simferopol and Poltava. In contrast, a reduction in the number of people living with HIV among IDUs was registered in 14 cities. The share of HIV-positive IDUs decreased by more than 10% in the following four cities: Mykolayiv (-16%), Rivne (-13%), Ivano-Frankivsk (-13%) and Donetsk (-12%).

Table5.1.3

Percentage of HIV Positive IDUs by Region, %

	2008/2009	Confidence interval	2011	Confidence interval
Simferopol	23.5	18.1-29.0	22.6	18.8-26.4
Vinnytsya	4.8	2.2-8.1	13.0	9.2-16.9
Lutsk	26.7	19.3-34.9	18.0	13.7-23.5
Dnipropetrovsk	22.1	15.4-30.2	33.4	28.1-39.2
Donetsk	33.2	26.9-39.7	20.9	16.6-25.5
Zhytomyr	25.3	18.0-32.9	19.0	14.9-23.1
Uzhhorod	3.0	0.2-7.3	1.3	4.0-2.6
Zaporizhzhia	10.7	4.8-17.5	5.8	2.0-10.4
Ivano-Frankivsk	29.6	22.0-37.6	16.9	11.3-22.4
Kyiv	22.1	16.6-27.9	25.8	17.4-33.1
Kirovohrad	13.2	8.1-18.8	9.0	4.9-13.2
Luhansk	6.7	2.3-12.2	2.4	1.1-3.9
Lviv	21.0	15.2-29.9	27.6	21.7-34.1
Mykolayiv	56.4	47.9-64.8	40.2	25.1-45.9
Odesa	36.8	30.4-43.0	32.0	27.9-36.4
Poltava	23.7	16.6-32.0	22.8	17.1-28.4
Rivne	22.4	17.5-32.4	9.2	6.1-12.6
Sumy	9.3	4.6-16.2	4.2	2.1-6.7
Ternopil	6.2	1.5-13.5	17.2	8.7-24.9
Kharkiv	10.6	4.8-16.1	8.4	5.3-12.0
Kherson	26.7	19.9-34.4	28.4	23.1-34.2
Khmelnytskyi	26.8	18.2-36.5	33.7	28.7-40.4
Cherkasy	11.1	6.4-16.8	26.2	21.4-31.0
Chernivtsi	6.2	2.5-0.8	3.7	1.3-6.6
Chernihiv	27.2	17.9-37.4	33.1	27.2-38.9

- the study was conducted in 2008
- the study was conducted in 2009

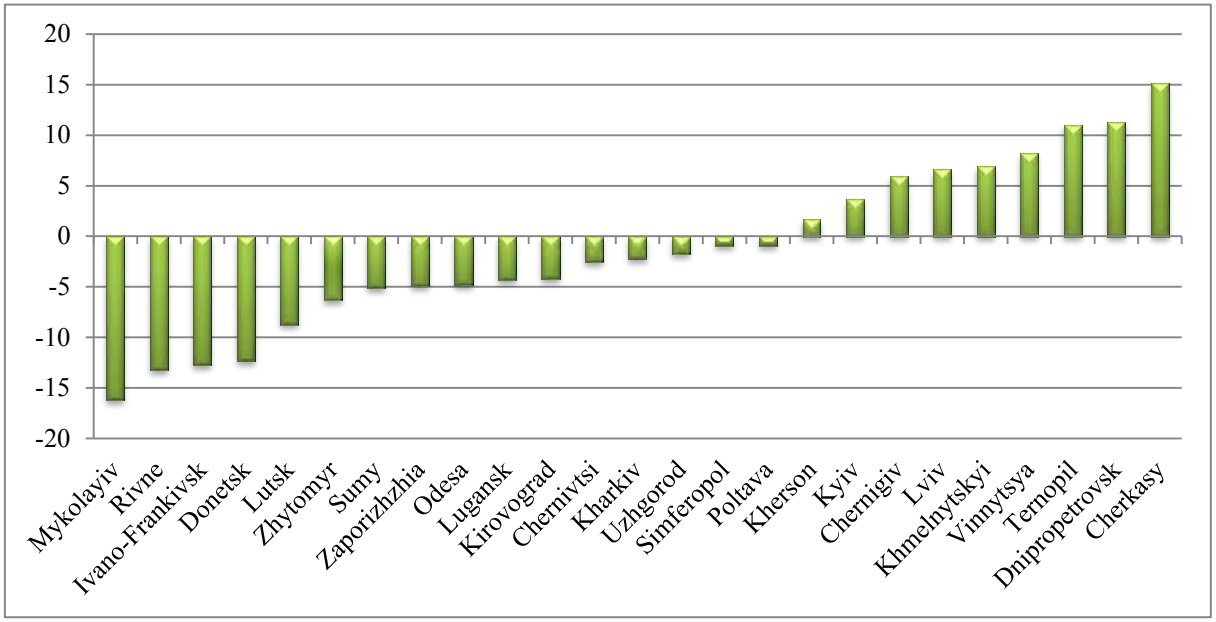


Figure 6.1.1. Dynamics of HIV Prevalence by Regions in 2008/2009-2011

Summary

As a result of the linked survey, it was determined that one in five IDUs (21.6%) is HIV-positive. The national average HIV prevalence in the target population has been stable since 2009. The regions with the highest HIV prevalence among IDUs are Mykolayiv, Khmelnytskyi, Dnipropetrovsk, Chernihiv and Odesa; in these cities over a third of IDUs tested within the study were HIV-positive.

5.2. Hepatitis C Prevalence

As a result of the linked survey, 35.7% received a positive test result for hepatitis C. This figure is unexpectedly low, given that according to the estimates of the viral hepatitis and HIV laboratory at the L.V. Gromashevskyi Institute of Epidemiology and Infectious Diseases of AMS of Ukraine, 61.5 % of IDUs have hepatitis C[25]. International studies show that the prevalence of hepatitis C virus among IDUs is at least 50%, but the data for individual countries vary considerably. The available regional estimates vary widely: from 10 to 96% in Eastern Europe and Central Asia, from 10 to 100% in South and Southeast Asia, from 34 to 93% in East Asia and the Pacific countries, from 5 to 60 % in North Africa and

[25] As per the presentation "How Many Hepatitis C Patients are There in Ukraine?" which was delivered by Tatyana Sergeyeva, senior specialist of the viral hepatitis and HIV laboratory at the L.V. Gromashevskyi Institute of Epidemiology and Infectious Diseases of AMS of Ukraine, at the round table "Hepatitis C in Ukraine – an Unrecognized Epidemic. Legal, Medical and Social Analysis" [Electronic source]. – Access mode: http://hepatit.org.ua/2009/11/05/skolko-v-ukraine-bolnyih-gepatitom-s-otsenka-uchyonyih/

the Middle East, from 2 to 100% in Latin America, from 8 to 90% in North America, from 25 to 88% in Australia and New Zealand, and from 2 to 93% in Western Europe[26].

Testing for hepatitis C was carried out within the framework of the study for the first time in 2011, making it impossible to trace the dynamics of the infection. It is also difficult to compare the obtained results with official statistical data. Statistical data do not reflect the true level of incidence and prevalence of viral hepatitis in Ukraine, due to registration of only acute forms of viral hepatitis and the small number of groups tested. It should be noted that the poor quality of tests for hepatitis C can not be considered a reason for the low prevalence indicator obtained. HIV tests developed by the same company as the hepatitis C tests worked well: the results of studies in 2009 and 2011 coincide to the decimal.

15% of all IDUs interviewed reported that they suffered from hepatitis C during the previous 12 months, and 9% of the total respondents (or 57% of IDUs with hepatitis C) treated it[27]. 83% of IDUs who tried to treat hepatitis C went to a hospital and another 16% did so on their own. 12 people went to CBOs for help.

81% of respondents who reported having hepatitis C also tested positive within the linked survey (Table 5.2.1). Among respondents who reported that over the previous 12 months they didn't have hepatitis C, 27.5% obtained a positive result for hepatitis C while getting tested within the study. Meanwhile, 19% reported that they had hepatitis C during the previous 12 months, but received a negative test result within the study, meaning most likely it was another hepatitis.

Table 5.2.1

Self-declared Results for Hepatitis C Test ("had hepatitis C in the previous 12 months") and the Status, as Confirmed by the Linked Survey Results, % and absolute numbers

Linked survey results	Hepatitis C subsequent to previous testing, self-declared by respondents	
	Present in the previous 12 months	Absent in the previous 12 months

[26] Aceijas C, Rhodes T. (2007) Global estimates of prevalence of HCV infection among injecting drug users, Int J Drug Policy, 18 (5): 352–358.

[27] It should be noted that viral hepatitis C treatment is a very long and expensive process. Modern anti-viral therapy requires about UAH 3 thousand a week, and the complete course from UAH 70 thousand to UAH 140 thousand. Only HIV-positive IDUs and Chornobyl victims can receive the anti-viral therapy free-of-charge (funded by the World Bank and the state budget, respectively). Thus, hepatitis C treatment is unavailable for the majority of IDUs.

Positive	81.1 (563)	27.5 (1,384)
Negative	18.9 (817)	72.5 (6,274)

As in the case of HIV, hepatitis C prevalence is larger among older age groups: 38% of those in the 25-34 y.o. age group have hepatitis C and 41% among those aged 35 and above (see Table 5.2.2). In the cohort of adolescents (aged under 19) 11% were identified as having hepatitis C.

Men had hepatitis C more often than women: testing within the framework of the study identified 37% of men and 33% of women as having hepatitis C markers.

By type of main drug used, the lowest share of people living with hepatitis C was reported among stimulant users (28%), but in order to make reasonable conclusions on this matter the impact of age and duration of drug use should be monitored.

Table 5.2.2

Share of IDUs who Received Positive Test Results for Hepatitis C, %

All IDUs	35.7
By age (p<0.001)	
14-19 y.o.	10.7
20-24 y.o.	18.3
25-34 y.o.	37.8
35 years and more	41.2
By gender (p<0.001)	
Men	36.8
Women	32.7
By type of drugs (p<0.001)	
Opioids	37.9
Stimulants	28.4
Opioids and stimulants	35.2
By duration of drug injecting (p<0.001)	
Up to 2 years	12.4
3-5 years	20.3
6-10 years	32.5
11 years and more	46.2

The relationship between the duration of drug injecting and the presence of hepatitis C is similar to age characteristics: over 40% of IDUs with 11 years or more of drug use have hepatitis C, and every eighth IDU with two years of drug use.

The highest level of positive tests for hepatitis C was registered in Chernihiv (68%). More than half of respondents had hepatitis C in the cities of Kyiv (59%), Zaporizhzhia

(53%), Kherson (51%) and Vinnytsya (50%). The cities with the lowest levels of hepatitis C, with the share not exceeding 10%, are: Poltava (7%), Kirovohrad (7%), Kharkiv (5%), Uzhhorod (3%) and Rivne (3%). Prevalence of hepatitis C is at the national average among IDUs in Luhansk (38%), Lviv (37%), Sumy (37%) and Mykolayiv (35%).

High prevalence of hepatitis C does not necessarily result in a high level of HIV among IDUs and vice versa. For example, in Mykolayiv the share of HIV-positive IDUs is one and a half times greater than the share of IDUs having hepatitis C (see Table 5.2.3). In Rivne, where one in five IDUs received a positive HIV test result within the linked survey, the share of IDUs having hepatitis C is about 3%.

Table 5.2.3

Percentage of IDUs Living with Hepatitis C and/or HIV by Region, %

	HIV		Hepatitis C	
City	%	Confidence interval	%	Confidence interval
Simferopol	23.5	18.1-29.0	27.8	23.9-32.0
Vinnytsya	4.8	2.2-8.1	50.3	44.4-55.3
Lutsk	26.7	19.3-34.9	24.6	19.0-30.2
Dnipropetrovsk	22.1	15.4-30.2	45.6	39.7-51.9
Donetsk	33.2	26.9-39.7	43.7	38.2-49.3
Zhytomyr	25.3	18.0-32.9	33.6	28.2-39.3
Uzhhorod	3.0	0.2-7.3	2.8	1.2-5.0
Zaporizhzhia	10.7	4.8-17.5	53.1	45.1-61.1
Ivano-Frankivsk	29.6	22.0-37.6	39.4	32.5-47.1
Kyiv	22.1	16.6-27.9	58.6	51.7-65.2
Kirovohrad	13.2	8.1-18.8	6.8	4.3-9.8
Luhansk	6.7	2.3-12.2	38.1	28.3-46.3
Lviv	21.0	15.2-29.9	37.3	30.1-44.4
Mykolayiv	56.4	47.9-64.8	34.9	30.3-39.9
Odesa	36.8	30.4-43.0	47.5	42.8-52.1
Poltava	23.7	16.6-32.0	7.1	3.7-10.4
Rivne	22.4	17.5-32.4	2.7	1.1-4.6
Sumy	9.3	4.6-16.2	37.2	31.8-43.1
Ternopil	6.2	1.5-13.5	32.7	23.8-41.7
Kharkiv	10.6	4.8-16.1	4.7	2.4-7.1
Kherson	26.7	19.9-34.4	51.4	46.4-57.7
Khmelnytskyi	26.8	18.2-36.5	32.2	26.8-37.4
Cherkasy	11.1	6.4-16.8	45.4	40.5-51.5
Chernivtsi	6.2	2.5-0.8	20.6	13.2-26.2
Chernihiv	27.2	17.9-37.4	67.7	62.2-73.4

Among the total number of respondents, 14% of IDUs have both HIV and hepatitis C (see Figure 5.2.1). 8% were positive only for HIV, and 22% only for hepatitis C. The share of IDUs who do not have either HIV or hepatitis C is 56%.

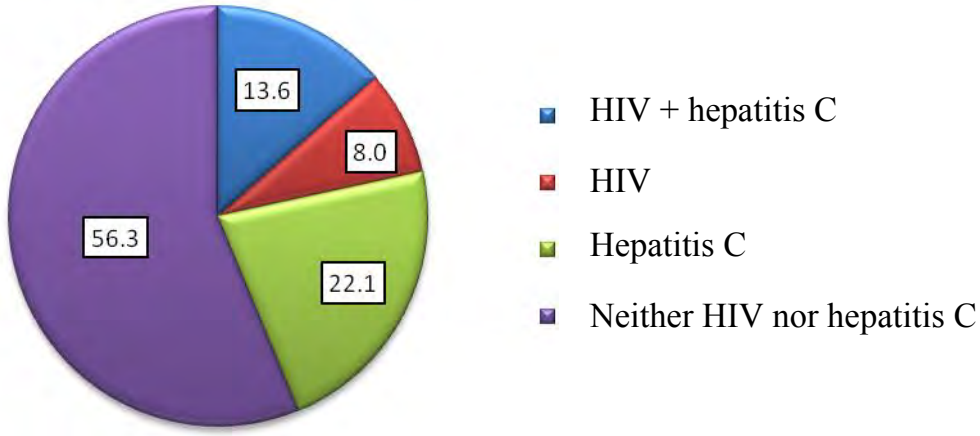


Figure 5.2.1. Overlapping the Populations of IDUs Having HIV and Hepatitis C,%

The percentage of co-infected IDUs (having HIV and hepatitis C) is largest in the cities of Chernihiv (31%), Dnipropetrovsk (22%), Kyiv (21%), Mykolayiv (21%) and Odesa (20%). The cities with the highest share of respondents who received positive test results for HIV only were Mykolayiv (20%) and Khmelnytskyi (20%). The cities with the highest share of IDUs with positive test results only for hepatitis C were Zaporizhzhia (49%), Vinnytsya (39%), Kyiv (37%) and Luhansk (37%).

IDUs having both HIV and hepatitis were more common among the older age group (35 years and above), those who consume opiates (15%) and have 11 years or longer duration of drug injecting (20%).

Summary

As a result of the linked survey, over a third of IDUs (35.7%) obtained a positive hepatitis C test result. This figure is disputable given the international experience regarding the prevalence of hepatitis C among IDUs, but the lack of sentinel surveillance data or other biobehavioral studies and limited statistics in Ukraine do not provide reliable grounds to reject the obtained results. The cities with the highest prevalence of hepatitis C in 2011, where the share of infected IDUs is more than half of the tested respondents, were Chernihiv,

Kyiv, Zaporizhzhia, Kherson and Vinnytsya. Co-infection of HIV and hepatitis C characterizes 14% of all IDUs interviewed.

5.3. Exposure to HIV/Hepatitis C: Regression Analysis

In order to identify the extent of influence of demographic characteristics and individual behavioral practices related to exposure to HIV/hepatitis C, logistic regression analysis was applied to assess individual factors and multilevel regression analysis was used to assess the structural factors and their interrelation with individual factors. The detailed description of the factors that were included in the analysis is provided below.

The individual factors affecting HIV/hepatitis C virus exposure at the level of individual IDUs (micro level) included demographic characteristics (age, gender), the presence of parenteral risk arising from unsafe injecting, the presence of sexual risk, the duration of drug use, and previous experience of stay in places of confinement. *The structural factors* described the characteristics of individual regions where the survey was held: the average level of knowledge of exposure among IDU populations in the region, the number of non-governmental organizations (CBOs) working with IDUs, and the average coverage of IDUs by CBO prevention programs. Information on exposure to HIV/hepatitis C obtained following the testing within the study was used for the analysis.

The HIV model was built based on respondents who prior to testing within the study were confident in their negative HIV status based on previous tests (HIV presence model). Thus, cases of new infections fell under the analyses. If calculations among the total number of IDU respondents are made, the possibility exists of obtaining illogical associations and connections because information about the timing of infecting is unknown. IDUs who are already aware of their positive status may change to safer behavior, and although it was the risky behavior in the past that led to the infection, in the general data array their current safe behavior will be associated with the presence of HIV. As for hepatitis C, the study did not contain questions regarding previous testing for it. Therefore, the model was calculated using the total number of respondents, given that information about new cases of hepatitis C was unknown.

Individual factors. The main ways HIV and hepatitis C are transmitted is through injecting and sexual routes. However, it should be noted that sexual transmission of hepatitis

C occurs in 3-5% of cases of infection with the virus[28]. At risk of exposure through sexual contact are IDUs who did not always use condoms during sexual contacts in the previous 90 days with at least one types of partner (regular, occasional, commercial who were given remuneration, or commercial from whom remuneration was received). At risk of infection through injecting are IDUs with at least one dangerous kind of injecting drug practice: used shared syringes/needles, got injected with a pre-filled syringe, got injected with a syringe that someone filled with his/her used syringe, or shared equipment for the preparation and distribution of drugs.

In addition to the above exposures, the models also analyze vulnerability factors: duration of drug injecting and experience of stay in places of confinement. According to research in different countries, the exposure to HIV and hepatitis C among IDUs increases with each additional year of the duration of drug injecting[29]. Being in a place of confinement is also an additional vulnerability factor because drug injecting is quite widespread there; at the same time, in penitentiary institutions access to needles and syringes exchange programs, substitution therapy and other means of harm reduction remains very limited[30].

The models also included factors that reduce the probability of getting infected: coverage by prevention programs[31] and awareness about HIV transmission. The WHO's research in low and middle income countries showed that prevention programs raise awareness about the infection, change sexual behavior and promote safer injecting practices in terms of HIV/hepatitis C, which altogether allows for substantial HIV transmission prevention[32].

Structural factors. It is important to understand the impact of structural factors, or the environment in which IDUs live, on vulnerability to a particular behavior and the probability of HIV. Inclusion in the study of 26 geographical regions of Ukraine with different

---

[28] Brettler B., Mannucci P.M., Gringeri A., Rasko J.E., Forsberg A.D., Rumi M.G., Garsia R.J., Rickard K.A., and Colombo M. The Low Risk of Hepatitis C Virus Transmission Among Sexual Partners of Hepatitis C-Infected Hemophilic Males: An International, Multicenter Study // http://bloodjournal.hematologylibrary.org/content/80/2/540.full.pdf

[29] Vlahov D, Ompad DC, Fuller CM, Nandi V.Comparison of HIV risk by duration of injection drug use // http://www.ncbi.nlm.nih.gov/pubmed/21303238

[30] Interventions to address HIV in prisons: needle and syringe programs and decontamination strategies / UNAIDS, Geneva, 2007 // http://www.who.int/hiv/idu/oms_ea_nsp_df1.pdf

[31] Coverage with prevention programs includes the experience of receiving a sterile syringe and a condom over the last 12 months and the knowledge of places where to be tested for HIV.

[32] WHO. 2003. Causes of death: Global, regional and country-specific estimates of deaths by cause, age and sex. www.who.int/mip/2003/other_documents/en/causesofdeath.pdf

epidemiological situations makes it possible to assess regional differences in exposure and peculiarities of individual behavior of IDUs.

Average knowledge of HIV was measured as the share of IDUs in the city who gave correct answers to all five questions: “Is it possible to reduce the risk of HIV by having sex only with one faithful HIV-negative partner?”, “Is it possible to reduce the risk of HIV by correctly using condoms during every sexual contact?”, “Can a healthy-looking person be HIV-positive?”, “Can I get HIV if I drink from one glass with an HIV-positive person?” and “Is it possible to get HIV by sharing a toilet, swimming pool, or sauna with a HIV-positive person?”. It should be noted that the questionnaire did not contain any specific questions on awareness about hepatitis C. However, it can be assumed that a high level of awareness about HIV can be considered in greater detail, in particular, with regard to hepatitis C. In other words, if IDUs are aware of the sexual and parenteral routes of HIV transmission and avoid risks, they automatically are less vulnerable to the hepatitis C virus.

As for the number of non-governmental organizations (CBOs) working with IDUs, this indicator is included in the model because an extensive network of CBOs in the city can help reduce the prevalence of the infection among the target group due to the greater potential of prevention programs.

Additionally, the structural factors “average coverage by CBO prevention programs” is analyzed, which includes the share of IDUs in each city who are CBO clients (hold client cards) and received free condoms and sterile syringes in the previous month.

Other structural factors that cover a wider range of socio-economic, political and cultural contexts were not included because such statistics usually reflect certain regions rather than the regional centers where the study was conducted.

The models included statistically significant factors regarding the presence of HIV or hepatitis C which do not correlate with each other. The presence of these associated factors in one model creates the so-called problem of multicollinearity. For example, when the dependence between the presence of HIV, membership in a community-based organization and the experience of coverage by prevention programs is estimated, the last two factors have a high degree of correlation: all CBO members are covered by prevention programs. This creates a situation where two factors change in the same direction, and in this case it is almost impossible to estimate the impact of the individual factors on the studied indicator. The multicollinearity leads to the bias of estimates of the model parameters (how many times

a factor increases or decreases the probability of HIV). Thus, the factors of presence of an infection which correlated with each other were excluded (for example, membership in a group of CBO clients and coverage by prevention programs).

Logistic Regression

The most significant factors affecting HIV and hepatitis C presence among IDUs at the individual level (behavioral factors and socio-demographic characteristics) were identified using the logistic regression method. The probability of presence of infection was evaluated in comparison with these reference groups:

- Probability of women to have HIV or hepatitis C compared with men;
- Probability of IDUs with a long duration of drug injecting (over 6 years and 3-5-years experience of use) to have HIV or hepatitis C compared with IDUs who have been using drugs for up to 2 years;
- Probability of infection among those who were at risk through sex or injecting drugs compared with those who did not have such risks;
- Probability to have HIV or hepatitis C among IDUs who were in places of confinement compared with all other IDUs.
- Probability of infection among IDUs who are covered by prevention programs and are aware of the ways of transmission compared with IDUs who did not participate in these programs and had low awareness about HIV.

The results of logistic regressions for the probability of HIV and hepatitis C are presented in Tables 5.3.1 and 5.3.2. The validity of the regression models was tested using the $\chi 2$ (Chi-Square) test and the estimates of the probability function (-2 Log). The model is considered valid if the indicator $\chi 2$ divided by the number of degrees of freedom (Chi-Square/df) varies within the range from 1 to 3, and the indicator of the final model probability function (including all predictors) is lower than in the empty model indicator (without predictors).

Table5.3.1

Results of the Logistic Regression on the Probability of HIV

(Among those who got tested for HIV prior to testing within the study and received a negative result, N=3,595)

Factors		N	HIV+. %	OR [95% C.I.]	P-value
Age (covariant)		-	-	0.99 [0.98; 1.02]	0.928
Gender	Women	**921**	**8.3**	**1.69 [1.29; 2.22]**	**<0.001**
	Men	2,674	7.6	1.0	-
Duration of drug injecting	**More than 6 years**	**2,778**	**8.9**	**3.20 [1.66; 6.15]**	**<0.001**
	3-5 years	530	3.5	0.99 [0.44; 2.24]	0.992
	Up to 2 years	287	3.3	1.0	-
Major drug type	**Opioids**	**2,108**	**9.6**	**1.79 [1.26; 2.54]**	**0.001**
	Stimulants	566	5.1	1.41 [0.90; 2.23]	0.138
	Mixed	921	5.0	1.0	-
Had sexual risk	**Yes**	**487**	**5.1**	**0.72[0.47; 1.09]**	**0.123**
	No	3,108	8.2	1.0	-
Had injecting risk	**Yes**	**2,781**	**8.3**	**1.56 [1.12; 2.18]**	**0.009**
	No	814	5.7	1.0	-
Stayed in places of confinement	**Yes**	**1,116**	**11.1**	**1.85 [1.41; 2.41]**	**<0.001**
	No	2,479	6.1	1.0	-
Covered by prevention programs	**Yes**	**1,963**	**6.6**	**0.66 [0.51; 0.85]**	**0.001**
	No	1,632	9.3	1.0	-
Are aware of HIV transmission ways	**Yes**	**2,476**	**7.1**	**0.75 [0.58; 0.97]**	**0.026**
	No	1,119	9.1	1.0	-
-2 Log (final model): 1489.23 (a 7% reduction compared to the threshold model (intercept only)). Chi-Square/df: 1.1 (p=0.001). Pseudo R-Square: Cox&Snell: 0.028; Nagelkerke: 0.069; McFadden: 0.055.					

Table5.3.2

Results of the Logistic Regression on the Probability of Hepatitis C

(among the total number of respondents, N=9,069)

Factors		N	Have the markers of hepatitis C. %	OR [95% C.I.]	P-value
Age (covariant)		-	-	1.00 [0.99; 1.0]	0.386
Gender	Women	815	32.7	1.01 [0.91; 1.12]	0.814
	Men	2,422	36.8	1.0	-
Duration of drug injecting	**More than 6 years**	**2,829**	**42.1**	**3.91[3.18; 4.81]**	**<0.001**
	3-5 years	**263**	**20.3**	**1.68 [1.32; 2.12]**	**<0.001**
	Up to 2 years	125	12.4	1.0	-
Major drug type	**Opioids**	**37.9**	**2136**	**1.29 [1.14; 1.45]**	**<0.001**
	Stimulants	28.4	434	1.15 [0.98; 1.35]	0.086
	Mixes	35.2	643	1.0	-
Had sexual risk	**Yes**	**2,823**	**36.1**	**0.91 [0.80; 1.04]**	**0.193**
	No	413	33.0	1.0	-
Had injecting risk	**Yes**	**2,729**	**37.3**	**1.48 [1.31; 1.68]**	**<0.001**
	No	507	29.0	1.0	-
Stayed in places of	**Yes**	**1,447**	**50.5**	**1.97 [1.78; 2.18]**	**<0.001**

confinement	No	1,789	28.8	1.0	-
Covered by prevention programs	**Yes**	**1,657**	**43.7**	**1.65 [1.50; 1.81]**	**<0.001**
	No	1,579	29.9	1.0	-
Are aware of HIV transmission ways	**Yes**	**2,098**	**34.8**	**0.91 [0.82; 0.99]**	**0.041**
	No	1,138	36.2	1.0	-
-2 Log (final model): 6395.26 (a 7% reduction compared to the threshold model (intercept only)). Chi-Square/df: 1.3 (p<0.001). Pseudo R-Square: Cox&Snell: 0.091; Nagelkerke: 0.141; McFadden: 0.092.					

Probability of getting HIV. As a result of the logistic regression analysis, it was determined that statistically significant predictors of the presence of HIV are female gender, greater duration of drug use, the use of opiates as the main drug, the presence of injecting risk and experience of stay in places of confinement.

Coverage by prevention programs and awareness about HIV transmission ways are "protective" factors that are associated more with the absence of HIV.

Sexual risk is not associated with the presence of HIV, indicating that among IDUs getting HIV through injecting drugs is more common than sexual transmission. Based on the analysis, IDUs who had at least one practice of unsafe drug injecting (shared syringes/needles, got injected with a pre-filled syringe, got injected with a syringe that someone filled using his/her used syringes, or shared equipment for the preparation and distribution of drugs) had a 1.6 times higher probability of HIV compared with IDUs who did not have such risks.

Female IDUs are 1.7 times more likely to get HIV than men.

IDUs with a long duration of drug injecting (over 6 years) have three times higher probability of HIV compared to respondents who have been using such drugs for up to two years.

It was revealed that among the users of opiates the probability of getting HIV is 1.8 times higher than among IDUs who practiced mixed use. However, the difference in the chances of HIV among stimulant users and IDUs who practice mixed use was not recorded. It is not so much the type of the drug that matters, but the age-related peculiarities: older IDUs are more accustomed to using opiates and the younger - stimulants or a mix.

Probability of the presence of hepatitis C. In the context of the presence of hepatitis C, age, gender and sexual risk are not essential. The latter fact is consistent with the findings of the study that hepatitis C is very rarely transmitted sexually[33].

Relatively small, yet statistically significant, differences in the chances of having hepatitis C were identified among IDUs with different levels of awareness about HIV. The study showed that knowledge on HIV appears to be a protective factor that reduces the probability of having hepatitis C. However, among IDUs covered by prevention programs, the probability of having hepatitis C as compared to IDUs who are not participating in prevention programs is 1.7 times higher. This is the result of the fact that the model is built using the total number of respondents and shows the probability of the presence of hepatitis C, but not the probability of getting infected. Under these conditions it is logical that IDUs who know their status are referred to CBOs and become participants of prevention programs. As noted above, the study did not contain questions about lifelong testing for hepatitis C and the awareness about one's status prior to testing under the study.

The study has shown that the presence of hepatitis C in IDUs was more associated with the risk of parenteral infection during drug use (1.5 OR [95% SI: 1.3, 1.7]), previous experience of stay in places of confinement (2.0 OR [95% SI: 1.8, 2.1]) and longer duration of drug injecting (from 6 years and more) (3.9 OR [95% SI: 3.2, 4.8]). The probability of presence of hepatitis C among injecting drug users who use opiates is 1.3 times higher (95% SI: 1.1, 1.5), which may result from the age peculiarities of this group (such practice is more characteristic of older IDUs) or from the prevalence of the practice of using blood in the process of drug cooking.

Multilevel Regression

For complex modeling of the factors of HIV/hepatitis C virus, multilevel regression is used to evaluate the impact of individual factors on the micro (individual level) and macro level (structural factors) and the level of variation (dispersion) of these factors. Under this method, the data are aggregated at two levels: individuals and regions. For example, it is possible to assess whether the individual practice of unsafe drug injecting is more risky in terms of infection in cities where a small number of CBOs currently work.

[33]Brettler B., Mannucci P.M., Gringeri A., Rasko J.E., Forsberg A.D., Rumi M.G., Garsia R.J., Rickard K.A., and Colombo M. The Low Risk of Hepatitis C Virus Transmission Among Sexual Partners of Hepatitis C-Infected Hemophilic Males: An International, Multicenter Study // http://bloodjournal.hematologylibrary.org/content/80/2/540.full.pdf

The first step in a multilevel analysis is to determine to what extent the prevalence rate is explained by individual and structural factors. In order to assess the share of the variation at both levels the intragroup correlation coefficient (ICC) is used. Factors only at the individual level are then added, and after that - factors on both levels. The maximum probability indicators demonstrate to what extent the models with both levels of factors (individual and structural) better describe the existing differences in infection compared with the one that records the individual factors only. Additionally, R2 indicators for each level of values are determined, which shows to what extent the determined factors reduce the share of unexplained variation, or, in other words, to what extent they managed to explain the existing differences in the level of infection.

The modeling results are presented in Table 5.3.3.

Table5.3.3

Results of the Multilevel Regression on the Probability of HIV/Hepatitis C (B-coefficients)

(among the total number of respondents, N=9,069)

	HIV			**Hepatitis C**		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Intercept	0.224***	0.109***	0.180***	0.368***	0.201***	0.357**
Control factors						
Age		-0.001	-0.001		-0.002*	-0.001*
Gender (men)		-0.057***	-0.057***		-0.004	-0.004
Level 1 (particular IDUs)						
Injecting risk		0.070***	0.069***		0.064***	0.064***
Sexual risk		0.011	0.009		0.054	0.054
Duration of drug use (months)		0.009***	0.009***		0.012***	0.012***
Experience of stay in places of confinement		0.120***	0.120***		0.132***	0.132***
Level 2 (cities)						
Average awareness level			-0.001*			-0.005*
Number of NGOs in the city			0.004			0.008
Average level of coverage by prevention programs			-0.026			0.301
Dispersion (variation)						
Level 1	0.158***	0.148***	0.148***	0.205***	0.189***	0.189***
R^2 (Snijders & Bosker)		0.080	0.097		0.076	0.123
R^2 (Hox)		0.063	0.063		0.078	0.078
Level 2	0.017***	0.013***	0.010***	0.031***	0.029***	0.018***
R^2 (Snijders & Bosker)		0.231	0.402		0.065	0.413
R^2 (Hox)		0.235	0.412		0.065	0.419
-2 log	9,303.39	8,614.38	8,593.34	11454.70	10,669.29	10,656.58
ICC	0.097			0.131		

*** p<0.001; ** p<0.01; * p<0.05.

The modeling results show that in the case of HIV the structural factors at the city level reflect 10% of the dispersion, while 90% are characterized by the peculiarities of individual behavior. In the case of hepatitis C the regional peculiarities reflect 13% of the variation, and, thus, here the regional differences are somewhat higher.

Among the immediate risks of HIV and hepatitis C the parenteral risk is crucial, which is consistent with the results of the logistic analysis. Neither in the case of HIV, nor in the case of hepatitis C, was any statistically significant relationship between the presence of sexual risk (sex without a condom) and positive test results revealed.

If the probability to have HIV/hepatitis C in the range from 0 (no infection) to 1 (an infection) is considered, each additional month of drug injecting increases the probability to have HIV/hepatitis C by 0.01 points. As to the presence of HIV/hepatitis C, the most significant factor at the individual level is the experience of stay in places of confinement: β-coefficient for this vulnerability factor almost twice exceeds the β-coefficient for injecting risk. This means that in the standard environment even with the use of shared equipment IDUs are less likely to become infected than in places of confinement[34].

As for structural factors, residing in a city where the whole community of IDUs is characterized by high levels of awareness about HIV has a positive impact on reducing the risk of HIV/hepatitis C. In such communities risky behavior practices are less common and, accordingly, the probability of infection decreases, even for those IDUs who have lower levels of awareness. No statistically significant relationship at the macro level between the coverage by prevention programs and the probability of presence of infection was revealed. A possible explanation of this fact can be the unsystematic involvement of IDUs in prevention programs, as well as their uneven implementation in cities. The degree of branching of the CBOs network does not affect the number of infections among IDUs: either in the case of HIV or in the case of hepatitis C.

It should be noted that the list of selected structural factors explains more than 40% of the variation[35] at the regional level for both infections, but these individual risks and vulnerability factors explain only about 10% of differences at the level of individual IDUs.

[34] In prisons the cases of injecting drug use are not recognized, the degree of branching of IDU communities is less, there are no syringe exchange programs and practically no access to equipment sterilization. Besides, the practice of tattoos is widespread in prisons, which poses an additional risk of infection. See. Interventions to address HIV in prisons: needle and syringe programs and decontamination strategies / UNAIDS, Geneva, 2007 // http://www.who.int/hiv/idu/oms_ea_nsp_df1.pdf

[35] In other words, the model describes about half of the identified variation of the 10% of available variation in the case of HIV and of the 13% of available variation in the case of hepatitis C.

This means that traditional risks and vulnerability factors need to be supplemented by other characteristics: more detailed typology of the same risks (e.g., including tattoos) and factors that reduce the probability of infection: knowledge, motivation to protect one's health, participation in prevention programs, etc. For the successful formation of such a model it is important to analyze the risk factors and vulnerabilities by the time of infection, and take into consideration the awareness of the presence of HIV.

Summary

Among the factors of risky behavior that can lead to HIV/hepatitis C, unsafe drug injecting is the most significant. Sexual transmission of HIV currently does not have a significant value. Special attention is required to HIV/hepatitis C prevention among injecting drug users in penitentiary institutions who have the highest relative chance of HIV and hepatitis C infection. The social environment (prevalence of prevention programs in the region, the average level of awareness about HIV in the region, etc.) has greater impact in the case of hepatitis C than HIV. This means that the differences between the regions of Ukraine in the structural factors of getting infected with hepatitis C are more significant.

Key Findings

The biobehavioral study conducted among injecting drug users in 2011 allows analyzing the relationship between HIV status and behavioral practices, as well as certain trends in drug use during 2008-2009.

Injecting drug users still remain the largest HIV-positive group, despite the decrease in the share of cases of parenteral HIV transmission among the general public. Testing held within the framework of the study suggests that during 2009-2011 the share of HIV-positive injecting drug users did not change and remains 21.6%. However, differences in the dynamics of HIV prevalence rates among IDUs are absent only in the cities of Simferopol and Poltava. In 9 cities of Ukraine the HIV prevalence rate among IDUs is increasing, while in 14 other cities it is decreasing. Based on the results of the linked survey, 35.7% of IDUs have hepatitis C. The absence of similar testing in Ukraine until 2011 does not allow evaluating the conformity of obtained results to other studies. 14% of IDUs have markers of both infections: HIV and hepatitis C. They are mostly older IDUs.

The analysis of the socio-demographic breakdown of IDUs showed that in 2011, as previously, drug injecting is inherent mainly in men, since their share among IDUs equals 72.5%. The respondents' average age is 33 years, varying from 28 in Zhytomyr to 40 in Dnipropetrovsk. The changes observed during 2008-2011 mainly signal the aging of IDU populations. The increase in the proportion of IDUs who have a long duration of drug injecting (11 years and more) evidences this trend. Compared with the results of the study conducted in 2008/2009, this indicator increased from 42 to 53% in 2011.

Drug injecting is usually preceded by non-injecting practices. Only in certain cases (4%) did the first experience of drug injecting precede non-injecting drug use. The data collected regarding the age of the first experience of non-injecting drug use show that, on average, IDUs get involved in such practices at 18 years, and in drug injecting later - at 21. In most cases, non-injecting drug use precedes injecting. Therefore, in order to prevent the start of drug injecting wider HIV prevention programs are required for youth having 2-3-years of non-injecting drug use experience. This population is potentially at risk of transition to injecting.

Nearly half (45%) of IDUs combine injecting and non-injecting. Opioid drugs remain the most popular type. This is evidenced both by practices of using this type of drug in the

previous 30 days and by preference for opiates. Almost a third of IDUs use stimulants. These drugs are most common among female and young IDUs. Rather large (21%) is the population of IDUs who practice mixed drug use, and combine opioid and stimulant drugs. 62% use solely opioids, and 17% use solely stimulants. Since 2008 the share of stimulant drug users has not changed significantly.

The analysis of data of risky injecting practices among IDUs indicates that almost all IDUs used sterile syringes during the most recent injection and in the previous 30 days. When answering questions about sharing equipment for preparation and distribution of drugs, and purchase of pre-filled syringes, a much larger number of respondents reported risky practices. The share of IDUs who combine different types of risky injecting behavior is almost 82%. In other words, four of every five IDUs were exposed to the parenteral risk of HIV. This evidences the need to pay special attention to injecting risks of HIV during the development and implementation of prevention programs. The risk of syringe sharing has been recognized, but awareness of other risky practices and motivation to avoid them remains low. The dominant approach to harm reduction in Ukraine that is built on exchanging needles and syringes is not sufficient, and more attention should be paid to reducing the risk of HIV, for example, the purchase and use of pre-filled syringes and distribution of injecting drugs from shared equipment, which are common among adolescent IDUs.

The early onset of sexual activity is typical for IDUs. 84% of respondents had their first sexual contact before reaching adult age, on the average, at 16 years old. As for the breakdown (type) of sexual partners, the vast majority of IDUs tend to have one permanent partner only. Given that over two-thirds of IDUs (69%) among those living with a permanent partner have a non-injecting partner, it is important to implement specific interventions among sexual partners of IDUs who are “bridge populations” in the prevalence of HIV and hepatitis C among the general public. The population of FSWs who inject drugs and are at dual risk constitutes 10%, and MSM who inject drugs and are at dual risk amount to approximately 1%. In both cases these populations are concentrated mostly among the youngest IDUs under 19. This is indicative of commercial sex being more a survival strategy than a profession.

More than half of IDUs (51%) were potentially at risk of HIV because of not using a condom during the most recent sexual contact. The type of a sexual partner is more important

in the motivation to use condoms than the type of sexual contact, and affects the reason for refusing to use condoms. In addition, condom use among IDUs depends significantly on the availability of prevention programs for distributing condoms in the region. Last year, less than half of IDUs (47%) received condoms within awareness-raising programs, at syringe exchange points, in counseling centers or other organizations. During 2008-2011 the percentage of IDUs who used a condom during the most recent sexual contact decreased in 14 cities, primarily in Ivano-Frankivsk, Uzhhorod, Kherson, Mykolayiv and Khmelnytskyi, yet increased in Dnipropetrovsk, Cherkasy, Ternopil, Sumy and Kirovohrad. There were no significant changes in the cities of Kharkiv, Lutsk, Chernihiv, Vinnytsya, and Donetsk. The percentage of IDUs who received condoms over the previous 12 months during 2008-2011 decreased in 8 cities and increased in 15 cities. In Sumy an increase of more than 60% in the share of IDUs who received condoms over the previous 12 months was recorded. This indicator grew by 57% in Luhansk and 41% in Vinnytsya.

Most IDUs (95%) believe that testing for HIV is available to them. But only 36% got tested for HIV during the previous 12 months and received the result. The interviewed IDUs who got tested indicated that they did not receive pre- and post-test counseling in 100% of cases (86% and 80%, respectively). This situation leads to a misunderstanding by IDUs of their HIV status and behavioral patterns to be followed. Not all IDUs who know their HIV-positive status are characterized by safe behavior that could lead to repeated HIV infection and expose other IDUs and sexual partners: 35% did not use a condom during the most recent sexual contact, 3.7% gave their used syringes to other IDUs.

42% of IDUs are covered by prevention programs and almost a third (29.5%) are CBO clients. However, it is impossible to determine whether this becomes a barrier to HIV and hepatitis C, given the methodology of the study. Based on the study results, the level of HIV is higher among IDUs covered by prevention programs and CBO clients. This trend may indicate that HIV-positive IDUs are more concerned about their own health, have a greater interest in the services and become clients of community-based organizations.

Among the factors affecting risky behavior that can lead to HIV/hepatitis C, unsafe drug injecting is of the greatest significance; transmission through injecting remains the main way of transmission for IDUs. The key efforts should be aimed at preventing infection risk behavior and reducing the impact of vulnerability factors. In particular, special attention is required to HIV/hepatitis C prevention among IDUs in penitentiary institutions, where the

possibility of sterilization of injecting equipment is strictly limited, no substitution treatment and needle/syringes exchange programs exist and drug injecting often goes unrecognized.

Key Recommendations for Implementation of Prevention Programs

Following the survey findings and based on the overall strategic fundamentals that are set out by WHO and UNAIDS with an aim of preventing the spread of HIV/AIDS among IDUs, we recommend the following measures to strengthen prevention activities in Ukraine:

- More attention should be paid to work among young injecting drug users with prevention interventions among them strengthened.

It is necessary to adjust HIV prevention, treatment, care and support services for underage IDUs among which the level of awareness is lower and risky practices are more common. In this population it is very important to improve access to the comprehensive range of services for the support, prevention of sexual transmission of HIV which satisfy the basic needs of hygiene, safety and food, and address social, legal and other problems.

- Gender-focused prevention programs for IDUs should be implemented.

Female IDUs are more vulnerable to HIV, as they practice unprotected sex and share injecting equipment more often. This is the reason why female IDUs require specific prevention programs that incorporate, along with traditional methods of work, psychological help and motivation to initiate the use of condoms and sterile injecting equipment, even with their regular sexual partner.

- Prevention interventions for IDUs who use stimulants and mixed drugs should be implemented.

Given the significant share of IDUs who use stimulants or practice mixed drug use (combining opiates and stimulants), there is a need to scale up prevention interventions targeted at these populations of IDUs for the purpose of developing safer behaviors in terms of HIV and other infections, preventing overdose and emergency response skills in the event of an overdose, etc.

- Control over pre-test and post-test counseling should be strengthened.

Control over pre-test and post-test counseling and its quality should become an integral part of the work of healthcare institutions and CBOs. Proper counseling for at-risk populations will help form an adequate perception of HIV status and will promote the

development of behavior patterns to be followed in order to protect their own health and that of others in the context of possible new cases of HIV and other socially dangerous diseases.

- Prevention interventions among IDUs in penitentiary institutions should be strengthened.

Given the revealed statistically significant relationship between the presence of HIV (linked survey findings) and experiences of stay in places of confinement, it is necessary to pilot intervention models for the introduction of needle exchange and substitution therapy in a number of penal colonies/pre-trial detention centers and ensure their monitoring and evaluation. In the absence of syringe exchange programs and substitution therapy in penitentiary institutions it is of importance to regularly provide prisoners with disinfectants to sterilize injecting equipment. Disinfectants should be easily accessible to prisoners in various places within penal colonies/pre-trial detention centers, along with information and educational materials on their use. It is also important to ensure the implementation of the intervention on safe tattooing in penal colonies/places of confinement (provision of disinfectants to sterilize the equipment, information and educational materials on the subject).

- The methodology of the biobehavioral study among injecting drug users should be advanced to provide for a better understanding of HIV prevention factors and motivations to change behavior.

In subsequent studies it is important to add to the study tools questions for IDUs who know their HIV-positive status on when exactly they were tested and found out about their status. This will provide an understanding on the extent to which knowledge about one's status influences a change to safer behavior in comparison with not having this status or not knowing it. Availability of such information will also work as an assessment of the effectiveness of tertiary (positive) prevention.

In the context of analysis of the factors of hepatitis C infection it is important to supplement the questionnaire with questions on testing for hepatitis C over one's lifetime/the previous year and awareness of one's status, similar to questions about HIV status.

When studying risky injecting behaviors among IDUs it is necessary to pay particular attention to the issue of sterility of drugs, which can also be infected with HIV or hepatitis C. The inclusion of these issues to the study tools will provide for a more accurate assessment of the impact of these factors on HIV status and hepatitis C infection among IDUs.

Appendix 1. Indicators of Awareness and Behavior of Injecting Drug Users on the List of Indicators under the National Plan for Monitoring and Evaluating the Effectiveness of the Response to HIV (national level)

1. Percentage of injecting drug users who reported using condoms during the most recent sexual contact

Number of respondents who gave affirmative replies to the question:	All IDUs			IDUs aged below 25			IDUs aged 25 and above		
	Men	Women	**Total (persons)**	Men	Women	**Total (persons)**	Men	Women	**Total (persons)**
1. **C5. Did you (or your partner) use a condom during the most recent sexual contact?**	2,779	1,055	3,834	486	317	801	2,292	741	3,033
2. **P1. Did you inject drugs in the recent 30 days?** and**C4. Did you have sexual contacts during the recent 30 days?**	5,765	2,258	8,023	857	517	1,374	4,907	1,742	6,649
Percentage of injecting drug users who reported using a condom during the most recent sexual contact	**48.2%**	**46.7%**	**47.8%**	**56.7%**	**61.3%**	**58.3%**	**46.7%**	**42.5%**	**45.6%**

2. Percentage of Injecting Drug Users who Reported Using Sterile Injection Equipment During the Most Recent Injecting

Number of respondents who gave affirmative replies to the question:	All IDUs			IDUs aged below 25			IDUs aged 25 and above		
	Men	Women	**Total (persons)**	Men	Women	**Total (persons)**	Men	Women	**Total (persons)**
1. **B9. Did you use a sterile needle/syringe during the most recent drug injecting?**	6,280	2,383	8,663	900	527	1,427	5,380	1,856	7,237
2. **P1. Did you inject drugs in the recent 30 days?**	6,578	2,491	9,069	945	563	1,508	5,633	1,928	7,561
Percentage of injecting drug users who reported using sterile injection equipment during the most recent injecting	**95.5%**	**95.7%**	**95.5%**	**95.2%**	**93.6%**	**94.6%**	**95.5%**	**96.3%**	**95.7%**

3. Percentage of Injecting Drug Users who Got Tested for HIV in the Recent 12 Months and Received the Results

Number of respondents who gave affirmative replies to the question:	All IDUs			IDUs aged below 25			IDUs aged 25 and above		
	Men	Women	**Total (persons)**	Men	Women	**Total (persons)**	Men	Women	**Total (persons)**
1. **G9. I don't ask you about the result of the testing, but you receive it? and G7. Let us clarify whether it was in the recent 12 months?**	2,243	998	3,241	311	216	527	1,932	782	2,714
2. **P1. Did you inject drugs in the recent 30 days?**	6,578	2,491	9,069	945	563	1,508	5,633	1,928	7,561
Percentage of injecting drug users who got tested for HIV in the recent 12 months and received the results	**34.1%**	**40.1%**	**35.7%**	**32.9%**	**38.4%**	**34.9%**	**34.3%**	**40.6%**	**35.9%**

4. Percentage of Injecting Drug Users who Live with HIV

Number of respondents who:	All IDUs			IDUs aged below 25			IDUs aged 25 and above		
	Men	Women	**Total (persons)**	Men	Women	**Total (persons)**	Men	Women	**Total (persons)**
1. received the positive result of testing for HIV (T4. Please indicate respondent's HIV test results)	1,370	588	1,958	61	47	108	1,309	541	1850
2. Affirmative answer to the question: **P1. Did you inject drugs in the recent 30 days? and T1. Did the respondent get tested for HIV within the frame of this survey?**	6,578	2,491	9,069	945	563	1,508	5,633	1,928	7,561
Percentage of injecting drug users who live with HIV	**20.8%**	**23.6%**	**21.6%**	**6.5%**	**8.3%**	**7.2%**	**23.2%**	**28.1%**	**24.5%**

Appendix 2. Indicators Of Awareness And Behavior of Injecting Drug Users on the List of Indicators under the National Plan for Monitoring and Evaluating the Effectiveness of the Response to HIV (regional level)

1. Percentage of injecting drug users who reported using condoms during the most recent sexual contact

City	Percentage in the sample	RDS-based estimated percentage	RDS-based confidence interval	Homophily
Simferopol	70.7%	60.4	56.5-64.6	0.029
Vinnytsya	53.0%	44.0	38.3-50.0	0.071
Lutsk	52.7%	41.7	35.2-46.8	-0.174
Dnipropetrovsk	39.2%	28.4	23.5-33.8	0.209
Donetsk	45.1%	40.7	35.6-46.3	0.062
Zhytomyr	26.0%	25.1	19.7-30.5	0.027
Uzhhorod	26.3%	20.9	14.9-27.8	0.058
Zaporizhzhia	33.0%	30.9	23.3-38.7	0.07
Ivano-Frankivsk	64.7%	45.5	37.5-52.7	0.198
Bila Tserkva	41.4%	40.3	29.9-53.1	0.041
Kyiv	38.9%	35.9	29.2-42.5	0.074
Kirovohrad	38.7%	54.2	47.0-60.6	-0.207
Luhansk	45.4%	47.8	35.6-56.7	0.035
Lviv	39.1%	33.5	27.3-39.7	-0.189
Mykolayiv	52.8%	43.8	38.5-49.7	0.242
Odesa	48.7%	43.0	38.7-47.6	0.059
Poltava	55.0%	48.7	42.1-55.5	0.125
Rivne	47.8%	41.6	35.1-47.8	0.196
Sumy	56.7%	61.8	56.0-67.6	0.034
Ternopil	37.1%	42.5	31.4-52.6	-0.322
Kharkiv	48.4%	39.5	33.6-46.1	0.03
Kherson	50.3%	43.5	37.9-49.0	-0.012
Khmelnytskyi	40.7%	39.1	33.5-45.8	0.021
Cherkasy	73.8%	71.1	66.2-75.7	0.126
Chernivtsi	53.9%	59.0	50.5-70.6	0.187
Chernihiv	40.0%	35.4	30.5-40.7	0.022

2. Percentage of injecting drug users who reported using sterile injection equipment during the most recent injecting

City	Percentage in the sample	RDS-based estimated percentage	RDS-based confidence interval	Homophily
Simferopol	96.9%	95.9	94.3-97.2	-0.008
Vinnytsya	97.1%	97.4	95.5-99.0	-0.004
Lutsk	98.0%	97.7	95.6-99.4	0.0
Dnipropetrovsk	97.7%	95.2	93.0-96.9	-0.003
Donetsk	93.0%	91.3	87.9-94.5	-0.014
Zhytomyr	98.0%	97.9	96.4-98.9	-0.003
Uzhhorod	99.0%	89.6	77.1-98.5	0.702
Zaporizhzhia	93.3%	93.9	90.5-96.7	-0.025
Ivano-Frankivsk	98.4%	95.6	93.0-98.0	0.103
Bila Tserkva	99.3%	98.5	96.9-99.6	-0.006
Kyiv	98.0%	96.5	93.7-98.8	0.299
Kirovohrad	95.9%	93.2	89.5-96.1	0.196
Luhansk	95.6%	94.4	89.9-97.7	0.112
Lviv	91.5%	92.4	89.2-95.3	-0.017
Mykolayiv	97.8%	95.8	93.3-97.8	0.135
Odesa	99.2%	97.5	95.9-98.6	0.075
Poltava	99.1%	99.1	98.2-99.7	-0.003
Rivne	96.6%	95.9	93.4-98.1	0.132
Sumy	98.3%	97.3	95.0-98.9	0.117
Ternopil	100.0%	99.3	98.3-99.8	-0.008
Kharkiv	92.3%	90.3	83.5-94.9	0.143
Kherson	97.3%	92.4	89.6-95.2	-0.004
Khmelnytskyi	97.7%	94.6	90.6-97.6	0.32
Cherkasy	95.5%	95.5	93.5-97.3	-0.002
Chernivtsi	99.0%	99.0	97.8-99.8	-0.005
Chernihiv	98.0%	96.9	95.1-98.7	-0.001

3. Percentage of injecting drug users who got tested for HIV in the recent 12 months and received the result

City	Percentage in the sample	RDS-based estimated percentage	RDS-based confidence interval	Homophily
Simferopol	29.6%	26.9	23.2-30.8	0.149
Vinnytsya	51.7%	51.7	44.9-56.5	0.024
Lutsk	46.9%	52.5	45.8-58.4	-0.028
Dnipropetrovsk	23.8%	17.7	14.1-22.1	0.19
Donetsk	33.9%	29.3	25.2-35.0	0.114
Zhytomyr	26.9%	30.2	24.9-35.4	-0.238
Uzhhorod	19.0%	12.9	8.7-18.3	0.154
Zaporizhzhia	32.0%	26.1	17.2-35.1	0.341
Ivano-Frankivsk	67.2%	62.8	51.8-72.0	0.324
Bila Tserkva	24.4%	21.6	15.7-29.2	0.068
Kyiv	35.6%	33.1	26.8-39.4	0.048
Kirovohrad	17.1%	48.0	41.1-54.9	0.017
Luhansk	53.4%	43.7	35.6-54.2	0.277
Lviv	20.0%	18.5	12.4-25.1	0.167
Mykolayiv	45.8%	42.6	38.0-48.4	0.15
Odesa	41.4%	35.6	31.5-40.2	0.208
Poltava	46.0%	40.2	34.3-46.3	0.071
Rivne	30.9%	29.4	23.6-35.1	0.118
Sumy	56.9%	43.1	37.2-48.6	0.325
Ternopil	51.5%	50.1	40.2-59.9	0.105
Kharkiv	17.6%	18.4	13.5-24.4	0.038
Kherson	31.3%	34.5	28.0-40.2	0.111
Khmelnytskyi	37.7%	33.8	28.0-39.	0.158
Cherkasy	62.4%	60.5	55.5-65.1	0.048
Chernivtsi	83.5%	87.0	80.3-91.9	-0.009
Chernihiv	29.8%	27.5	22.4-33.1	0.201

4. Percentage of injecting drug users who live with HIV

City	Percentage in the sample	RDS-based estimated percentage	RDS-based confidence interval	Homophily
Simferopol	20.8%	22.6	18.8-26.4	0.038
Vinnytsya	16.0%	13.0	9.2-16.9	0.101
Lutsk	19.6%	18.0	13.7-23.5	0.029
Dnipropetrovsk	41.3%	33.4	28.1-39.2	0.286
Donetsk	28.5%	20.9	16.6-25.5	0.296
Zhytomyr	22.3%	19.0	14.9-23.1	0.075
Uzhhorod	2.5%	1.3	4.0-2.6	-1
Zaporizhzhia	6.5%	5.8	2.0-10.4	0.24
Ivano-Frankivsk	18.8%	16.9	11.3-22.4	0.153
Bila Tserkva	27.8%	27.7	18.5-37.4	0.012
Kyiv	18.1%	25.8	17.4-33.1	0.019
Kirovohrad	11.4%	9.0	4.9-13.2	0.152
Luhansk	6.0%	2.4	1.1-3.9	0.162
Lviv	30.8%	27.6	21.7-34.1	0.139
Mykolayiv	43.8%	40.2	25.1-45.9	0.24
Odesa	31.6%	32.0	27.9-36.4	0.123
Poltava	27.7%	22.8	17.1-28.4	0.186
Rivne	9.7%	9.2	6.1-12.6	0.04
Sumy	4.9%	4.2	2.1-6.7	0.176
Ternopil	9.5%	17.2	8.7-24.9	-0.171
Kharkiv	10.2%	8.4	5.3-12.0	0.168
Kherson	25.6%	28.4	23.1-34.2	0.033
Khmelnytskyi	34.9%	33.7	28.7-40.4	0.143
Cherkasy	25.8%	26.2	21.4-31.0	0.132
Chernivtsi	5.5%	3.7	1.3-6.6	0.221
Chernihiv	37.5%	33.1	27.2-38.9	0.28

Appendix 3. Indicators of Awareness and Behavior of Injecting Drug Users on the List of Indicators under the National Plan for Monitoring and Evaluating the Effectiveness of the Response to HIV (regional level, disaggregated by age)

1. Percentage of injecting drug users who reported using a condom during the most recent sexual contact

City	14-24 y.o.		25 y.o. and above	
	RDS-based estimated percentage	RDS-based confidence interval	RDS-based estimated percentage	RDS-based confidence interval
Simferopol	79.1*	-	68.3*	-
Vinnytsya	43.3	27.1-58.4	44.9	39.2-51.1
Lutsk	65.9	49.9-82.2	41.0	34.1-48.3
Dnipropetrovsk	58.8	42.1-73.1	26.6	21.8-32.2
Donetsk	68.1	55.7-78.5	35.6	30.2-41.8
Zhytomyr	21.6	15.0-28.4	27.3	19.6-34.2
Uzhhorod	19.3	8.3-34.7	21.5	14.9-28.7
Zaporizhzhia	40.0*	-	34.3*	-
Ivano-Frankivsk	46.0	37.7-61.1	44.4	35.7-53.1
Bila Tserkva	46.2	27.1-74.2	39.3	28.0-53.4
Kyiv	46.3*	-	35.1*	-
Kirovohrad	50.8	34.9-65.8	55.4	47.5-61.9
Luhansk	63.5*	-	42.0*	-
Lviv	42.9	26.6-60.9	30.8	24.2-37.6
Mykolayiv	77.3*	-	49.4*	-
Odesa	63.5*	-	45.1*	-
Poltava	53.8	39.9-69.3	48.2	41.4-56.0
Rivne	63.8*	-	46.1*	-
Sumy	75.0*	-	58.0*	-
Ternopil	37.7	17.7-54.7	43.1	29.8-54.4
Kharkiv	43.3*	-	45.2*	-
Kherson	55.4	39.5-67.5	42.1	36.3-48.1
Khmelnytskyi	53.1	36.8-71.1	37.9	32.4-44.6
Cherkasy	69.0	61.1-76.8	72.9	66.9-78.5
Chernivtsi	70.5*	-	54.3*	-
Chernihiv	47.7*	-	39.6*	-

2. Percentage of injecting drug users who reported using sterile injection equipment during the last injecting

City	14-24 y.o.		25 y.o. and above	
	RDS-based estimated percentage	**RDS-based confidence interval**	**RDS-based estimated percentage**	**RDS-based confidence interval**
Simferopol	96.1	91.0-98.3	95.7	94.1-97.3
Vinnytsya	93.8	84.5-99.1	98.1	96.6-99.3
Lutsk	93.0	79.1-94.7	98.3	96.6-99.6
Dnipropetrovsk	93.8*	-	98.2*	-
Donetsk	97.6*	-	94.3*	-
Zhytomyr	98.1*	-	98.3*	-
Uzhhorod	100.0*	-	98.4*	-
Zaporizhzhia	100.0*	-	95.6*	-
Ivano-Frankivsk	100.0*	-	98.5*	-
Bila Tserkva	100.0*	-	99.6*	-
Kyiv	99.3	98.2-99.5	95.9	92.0-98.2
Kirovohrad	96.3*	-	94.8*	-
Luhansk	88.7	74.7-98.6	96.4	93.8-98.6
Lviv	97.6*	-	92.7*	-
Mykolayiv	100.0*	-	97.0*	-
Odesa	92.9	86.0-95.7	98.3	96.9-99.2
Poltava	100.0*	-	98.9*	-
Rivne	97.9*	-	95.7*	-
Sumy	96.3	92.0-98.7	97.4	94.9-99.0
Ternopil	100.0*	-	100.0*	-
Kharkiv	78.0*	-	92.6*	-
Kherson	97.3*	-	97.6*	-
Khmelnytskyi	96.8*	-	97.4*	-
Cherkasy	94.2	89.3-97.9	96.1	93.7-98.0
Chernivtsi	100.0*	-	99.3*	-
Chernihiv	97.0*	-	99.3*	-

* The indicator is calculated using the SPSS.PC statistical package. The calculation of data using RDSAT is impossible because of the sample composition.

3. Percentage of injecting drug users who got tested for HIV in the recent 12 months and received the result

City	14-24 y.o.		25 y.o. and above	
	RDS-based estimated percentage	**RDS-based confidence interval**	**RDS-based estimated percentage**	**RDS-based confidence interval**
Simferopol	41.5	30.8-52.6	24.4	20.6-28.8
Vinnytsya	53.4	38.1-69.3	50.6	43.6-55.7
Lutsk	64.6	46.2-82.8	50.0	43.6-57.6
Dnipropetrovsk	15.0	6.1-26.5	17.8	14.0-22.5
Donetsk	16.4	6.5-25.9	31.9	27.6-38.4
Zhytomyr	26.5	18.7-34.2	31.8	25.1-38.4
Uzhhorod	14.2	7.1-26.6	12.3	6.8-18.5
Zaporizhzhia	19.2	6.1-51.5	26.6	17.5-35.9
Ivano-Frankivsk	86.3	74.8-95.5	57.1	45.5-66.9
Bila Tserkva	24.1	11.0-45.2	21.0	14.6-29.4
Kyiv	29.2	20.1-39.9	34.2	27.7-42.9
Kirovohrad	59.4	42.2-71.2	45.0	37.7-52.3
Luhansk	36.7	19.8-61.0	46.7	37.7-56.5
Lviv	14.4	1.8-32.5	19.3	13.1-26.4
Mykolayiv	41.8	25.8-63.6	42.6	37.9-48.6
Odesa	18.4	10.2-26.6	50.8	41.7-62.8
Poltava	42.6	30.4-56.7	39.4	32.6-45.9
Rivne	43.3	29.6-59.4	27.9	21.7-34.2
Sumy	32.3	21.3-43.3	46.5	40.8-52.8
Ternopil	13.5	1.1-29.6	61.1	49.8-71.2
Kharkiv	12.0	4.8-23.9	18.8	13.1-25.8
Kherson	15.9	6.5-28.3	36.4	29.8-42.4
Khmelnytskyi	18.7	9.1-32.7	34.9	28.6-41.2
Cherkasy	34.4	28.5-40.7	62.8	56.9-68.5
Chernivtsi	94.1	88.4-97.7	84.1	75.3-90.5
Chernihiv	13.2	5.6-24.5	31.1	25.1-37.1

4. Percentage of injecting drug users who live with HIV

City	14-24 y.o.		25 y.o. and above	
	RDS-based estimated percentage	RDS-based confidence interval	RDS-based estimated percentage	RDS-based confidence interval
Simferopol	9.0	3.3-15.8	24.9	20.7-29.1
Vinnytsya	14.9	5.0-26.2	12.2	8.6-16.2
Lutsk	11.5	1.8-26.1	19.1	14.3-24.9
Dnipropetrovsk	16.7	7.6-29.3	34.6	29.4-40.9
Donetsk	2.9	0.2-7.3	24.8	19.7-30.5
Zhytomyr	8.5	4.3-13.3	23.5	17.8-28.8
Uzhhorod	1.4*	-	1.5*	-
Zaporizhzhia	0.0*	-	6.5*	-
Ivano-Frankivsk	15.0	6.1-24.4	17.0	10.5-22.7
Bila Tserkva	10.4	2.7-24.1	30.6	19.6-41.3
Kyiv	9.4	3.0-17.9	29.2	20.2-38.3
Kirovohrad	6.3	1.9-13.1	9.5	4.8-14.3
Luhansk	0.3	0.2-1.1	3.5	1.6-5.6
Lviv	20.7	6.1-39.8	28.9	22.5-35.6
Mykolayiv	20.7	7.9-39.8	41.3	35.8-46.7
Odesa	3.2	1.0-6.7	38.1	33.5-42.8
Poltava	4.5*	-	27.6*	-
Rivne	2.3	1.9-7.8	9.7	6.2-13.4
Sumy	0.0*	-	5.6*	-
Ternopil	0.0*	-	21.8*	-
Kharkiv	2.8	0.5-8.2	9.0	5.7-13.0
Kherson	10.6	2.3-21.5	30.4	25.5-37.7
Khmelnytskyi	7.0	2.8-22.6	36.5	31.0-43.5
Cherkasy	5.9	2.1-10.5	34.4	28.5-40.7
Chernivtsi	0.0*	-	5.1*	-
Chernihiv	10.3	3.6-19.4	39.7	32.4-46.5

* The indicator is calculated using the SPSS.PC statistical package. The calculation of data using RDSAT is impossible because of the sample composition.