ANALYTICAL REPORT BASED ON RESULTS OF LINKED SURVEY

"Behavior monitoring and HIV-infection prevalence among injection drug users"

Kyiv 2010

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Дослідження здійснено за фінансової підтримки МБФ «Міжнародний Альянс з ВІЛ/СНІД в Україні» в рамках реалізації програми «Підтримка профілактики ВІЛ та СНІД, лікування та догляд для найуразливіших верств населення в Україні»

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INTRODUCTION

Based on official statistics data, prevalence of HIV among injection drugs users during the 3 recent years remained virtually unchanged. Thus, in 2007 the number of new cases of HIV-infection revealed among IDUs was 7127, in 2008 – 7084, in 2009 – 7150. The share of IDUs in the structure of HIV transmission ways: in 2007 – 40.1%, in 2008 – 37.0%, in 2009 – 35.8%. Without regard to the gradual reduction of the share of IDUs in the structure of HIV-positive persons, prevalence of HIV among IDUs, as well as before, remains the highest compared with other risk groups. According to data of integrated bio-behavioral studies conducted in Ukraine in 2009 among vulnerable groups, prevalence of HIV among injection drugs users made up 21.6%, while among female sex workers – 12.9%, among men who have sex with men – 8.6%, among prisoners – 15%. We can state the trend to stabilizing of the epidemics among IDUs confirmed by both official statistics data and results of sentinel surveillance studies in individual cities (Kharkiv, Kherson, Cherkasy).

Monitoring surveys among injection drugs users have been conducted in Ukraine since 2001. Starting from 2007, the monitoring of IDUs' behavior is combined with testing respondents' blood for HIV. The specific feature of the 2009 survey is inclusion into its geography of the regions that are traditionally attributed to regions of the "second wave", i.e. the regions where, according to official data, HIV prevalence is lower compared with other regions. In 2009 out of the 14 regions where the survey was conducted among IDUs, the following regions were included for the first time: Vinnytsya, Zhytomyr, Zakarpattya, Zaporizhya, Ivano-Frankivsk, Chernivtsi, Chernihiv. Moreover, in 2009 blood testing was suggested to respondents not only for HIV, but also syphilis, which is also an innovatory practice. Survey results specified the need for permanent monitoring of the situation in the above mentioned regions and prevention work.

In 2009 the survey was conducted by the Ukrainian Institute of Social Studies named after O.Yaremenko in cooperation with the Ukrainian Center for AIDS Prevention at the MoH of Ukraine upon the order from the ICF "International HIV/AIDS Alliance in Ukraine".

This report contains information about risky behavior practices of IDUs, both injection and sexual ones, as well as the level of knowledge about the routes of HIV transmission, coverage of IDUs with prevention programs. Special attention is paid to results of the related research – respondents' blood testing for HIV and syphilis and HIV infection factors.

ICF "International HIV/AIDS Alliance in Ukraine" expresses its gratitude to members of the Intersector Working Group for monitoring and assessment

of efficiency of implementing program measures to fight HIV-infection/AIDS for their assistance in planning and preparing realization of this survey, as well as for the comments to the data indicated in the Report. The Alliance is also grateful to the Cand. of Medicine, associate professor of the Public Health School at the National University "Kyiv-Mohyla Academy" T.I.Andreyeva for expert comments. Extraordinarily important and valuable in the process of the survey and analysis of the data obtained was also the contribution of the independent consultant on RDS methodology, Master of Humanities, Master of Public Health, Ph.D., Lisa J.Johnson.

Glossary

General sample – the community covered by conclusions made on the basis of sampled population analysis.

RDS – (Respondent-driven sampling – sampling directed and realized by respondents) a method of searching and selecting respondents from hard-to-reach populations. It is an improved variant of the "snowball" method: recruiters-respondents selected non-randomly carry out selection of other respondents. In the case of proper observance of requirements, the method makes it possible to better represent the population in the sample than other methods of non-random selection.

Primary respondents (seeds) – recruiters-respondents who start selection of other respondents. In each city where the survey is conducted (the site), with the help of HIV-service organizations they select respondents able to contact with other representatives of the hard-to-reach population and to invite them to participate in the survey. At selection of primary respondents, it is possible to set certain age and gender quotas, however, the method envisages that in the case of proper task performance demographic characteristics of the final sample do not depend on demographic parameters of primary respondents. Every primary respondent receives a set number of invitation coupons to involve into participation in the survey further respondents, which, in their turn, after the interview are also offered to become recruiters of the next respondents. Recruiters-respondents receive remuneration both after the interview and for every new respondent.

Recruiter – the person who, having passed the interview, receives the coupons with which it is possible to recruit other respondents.

Secondary respondents – respondents who were invited to participate in the survey by primary respondents or the recruiter.

"Wave" – the population of respondents involved by recruiters of the same level. For example, a person recruited directly by a primary respondent appears in the first wave. People recruited by participants of the first wave, form the second wave, etc. The sequence of waves makes up the recruitment chain.

"Chain" – all respondents who appear in the survey as a result of recruitment by a certain primary respondent; a long chain provides for better implementation of the method.

RDSAT – the software that allows analyzing data collected with the RDS method. Use of the analytical package of the RDSAT method ma-

kes it possible to define structural characteristics of the target group of the survey and to spread the results obtained on the whole cohort of IDUs.

Network – a group of respondents linked by personal acquaintance links. Presence of networks in a hard-to-reach population is a necessary precondition of using RDS. This method makes it possible to include into the sample both those respondents who belong to large networks, and those that represent small ones.

Homophily – the inclination of recruiters to invite respondents similar to them by a certain attribute (gender, age, using NGOs services). Assessed in RDSAT as an indicator for each variable.

Sample stabilization moment (equilibrium) – the point at which characteristics of a sample no longer change, without regard to how many more people will be included into it.

Determination of the wave after which a certain statistical indicator no longer changes.

BOOT STRAP – method of calculating confidence intervals for small samples. At RDSAT, it is calculated only for local networks.

Survey methodology

Survey tasks and assumptions

The key tasks of the survey included:

1. To conduct the behavior survey among 3950 IDUs in 16 oblasts of Ukraine: Rivne, Zhytomyr, Ivano-Frankivsk, Vinnytsya, Chernihiv, Zaporizhya, Ternopil, Chernivtsi, Zakarpattya, Cherkasy, Dnipropetrovsk (the cities of Dnipropetrovsk and Kryvy Rih), Mykolaiv, Luhansk (Severodonetsk), Lviv (Chervonograd) oblasts and the city of Kyiv. To form the sample, to apply the RDS respondents recruiting method – the sample directed and realized by respondents independently.
2. To provide for respondents' blood testing using rapid tests for HIV (3950 persons from the number of IDUs) and syphilis (3950 persons from the number of IDUs), i.e. to conduct the linked survey.
3. To define the level of awareness and characteristics injection drugs users' behavior.
4. To survey the factors that resulted in HIV infection of injection drugs users at the level of regions.
5. To conduct comparison of key indicators included into the National Indicators of Monitoring and Assessment of Efficiency of Measures Providing for Control over the HIV/AIDS Epidemics in 2007 and 2009 at the level of 6 cities, where the survey was conducted both in 2007 and in 2009: Simferopol, Dnipropetrovsk, Kryvy Rih, Kyiv, Mykolaiv and Cherkasy.

Operational assumptions of the project:

1. Behavior of men, young IDUs and opiate users is more risky in practice of injections and in sexual life than behavior of women, older IDUs and users of stimulants.
2. Knowledge of IDUs about the ways of HIV infectioning improve in the course of time, and the number of IDUs who address for HIV testing, receives the test result and have started adhering to the behavior that reduces the risk of HIV transmission increase each year.
3. Dangerous practices of injection drugs use, use of non-sterile instruments, unsafe sex are the key factor of HIV infectioning.
4. Probability of HIV infectioning depends on duration and frequency of dangerous practices: period of using injection drugs, regularity of using non-sterile instruments, number of partners for unsafe sex and injections, regularity of dangerous sexual contacts.
5. Level of HIV prevalence, as well as infectioning factors are different depending on the oblast, region.

Survey design and respondents' selection

For data collection within the integrated bio-behavioral survey the RDS methodology (Respondent Driven Sampling – the sample that is directed and realized independently by the respondent) was applied. The accumulated experience of surveys conducted proves efficiency of using the RDS method for monitoring of the behavior of hard-to-reach groups representatives. An advantage of the RDS method among other methods is that it helps to contact representatives of latent groups, such as young IDUs, female IDUs, and to provide for statistical representativeness of findings. The surveys conducted in 2007-2009 make it possible to compare some indicators at the level of regions and to draw preliminary conclusions about recent trends of HIV spreading and behavior changes.

The behavior research envisaged an individual interview with injection drug users, as well as blood testing for HIV and syphilis. The survey was conducted in 17 cities of Ukraine. The field stage continued from June, 23 till September, 30, 2009. The survey sample made up 3962 IDUs in age starting from 14. For each from 2 to 4 primary respondents were planned. In the cities where recruiting took place slowly, additional primary respondents were introduced. The sample structure and number of primary respondents for each city are shown in table 1.1.

Table 1.1. Sample tasks

	City	Including primary respondents…		
		Basic	Primary respondents	
		Actual number of IDUs polled	basic	additional
1.	Simferopol	252	4	2
2.	Vinnytsya	250	4	2
3.	Dnipropetrovsk	249	4	2
4.	Kryvy Rih	249	4	2
5.	Zhytomyr	250	4	2
6.	Uzhgorod	100	2	–
7.	Zaporizhya	249	4	2
8.	Ivano-Frankivsk	250	4	2
9.	Kyiv	407	4	6
10.	Severodonetsk (Luhansk Oblast)	253	4	2
11.	Chervonograd (Lviv Oblast)	249	4	2
12.	Mykolaiv	250	4	2
13.	Rivne	254	4	2
14.	Ternopil	101	2	–
15.	Cherkasy	249	4	2
16.	Chernivtsi	101	2	–
17.	Chernihiv	250	4	2
	Total	**3962**	**64**	**30**

Selection of primary respondents in each city took place in accordance with the following criteria[1]:

- one female respondent;
- one respondent aged 14–18;
- one respondent with the experience of using drugs for less than two years;
- one respondent who uses "stimulant drugs (cocaine, amphetamines, methamphetamines in the form of powder, methamphetamines in the form of solution, methcathinone, cathinone, methyledioxymethamphetamine, etc.);
- respondents with the negative HIV status make up 50%
- respondent had enough close friends and acquaintances, i.e. those with whom he/she spends the major part of his/her free time;
- respondents must live in different districts of the city;
- respondent has not taken part in surveys during the recent 6 months.

Conducting the linked survey

Questioning of respondents was associated with realization of blood testing for HIV and syphilis. The testing took place with application of rapid tests (Cito test HIV, cito test Syphilis).

Ethical principles of the survey

The protocol and tools of the survey were examined by the Commission for professional ethics of the sociologist at the Sociology Association of Ukraine. The epidemiology component passed examination of the Committee for medical ethics at the Institute of epidemiology and infectious diseases named after L.V.Gromashevsky of the AMS of Ukraine.

Key approaches to data analysis

For data analysis, descriptive statistics were mostly used – unidimensional and two-dimensional distributions. For determination of the HIV infectioning factors described in chapter 6, regressive models were applied. The HIV-status of the respondents, which was set as a result of testing during the survey, was the main dependent variable of the analysis.

The key main variables with the help of which variation of the dependent variable is explained are: gender, age and the region of residence of the respondents, the period of using stimulants, type of the drug – opiate or stimulant. These variables help to explain not only variation of the HIV-status, but also propensity to risky behavior. Education and family status are non-basic explanatory variables. These variables will be used as explanatory ones only to the variation of the HIV-status, awareness in the field of HIV transmission and sexual behavior.

[1] Primary respondents can meet several of the parameters indicated, for example, this can be a woman aged from 14 to 18 using stimulants.

The variables that are related to propensity to unsafe practice of injections and sexual life, act as both dependent and explanatory variables simultaneously. First they are explained with the help of key independent variables, and then – they are used to explain the key dependent variable – the HIV-status. These variables include: frequency of use of the narcotic matter, use of sterile toolkits, number of partners with whom the needle is jointly used, types and number of sexual partners, use of condoms with different types of partners.

Besides, several more variables are analyzed, which are not related to this explanatory scheme but have a self-sufficient value as important information about the structure of IDUs population and their behavior. This is the question about the experience of beginning to use drugs, about the experience of HIV testing and treatment of STDs, addressing prevention programs, as well as the subjective evaluation of the risk of HIV infection for oneself.

Processing with RDSAT

Data processing with the processing package RDSAT envisages work with local networks linked inside by the relationships of acquaintance, only for which confidence intervals are calculated using the method BOOT STRAP. I.e., analysis with the software package RDSAT would envisage statistical conclusions separately for the 17 sites where the survey was conducted. But taking into account the fact that the object of analysis is the situation for the country as a whole and impossibility to conduct the analysis a number of sites because of small samples of IDUs sub-groups, it was decided to import the weights calculated in RDSAT into the statistical package SPSS, where assessment of confidence intervals, differences significance, etc. was conducted.

Results of such assessment are far more precise than ordinary sample average ones, as the RDSAT software at assessment calculation takes into account the networks size and different methods of respondents recruitment. The “weight” takes into account sizes of the network of IDU acquaintances of every respondent and is higher for those IDUs that have a small network of acquaintances, and lower for those who have large ones. Such weighing helps to reduce the sample error inherent in the “snowball” method, which lies in over- or underrepresentation of certain groups for the reason of self-recruitment of the active part of the population.

The absolute numbers are offered based on the unweighed array. That is why calculation of percentage based on absolute figures may fail to coincide with percentage quoted in the text, since the latter were calculated based on the weighted array.

Thus, the analysis was mainly carried out with the SPSS package on the array weighted by age. With the help of the RDSAT package the following were calculated:

- data in sub-section 3.2 related to distribution of respondents in cities studies by gender and age;
- regressive models in the 17 cities for HIV infectioning;
- comparative data for 6 cities for 2007-2009.

Confidence intervals and significance of differences

Confidence intervals for data calculated at the national level were calculated with the help of the statistical package SPSS using the method of laying out two

standard errors from the value of the average.

Significance of all differences in percentage among the different groups was checked by Pearson statistical significance criteria with the statistical package OCA.

Significance of differences in averages was calculated by Scheffe criterion, the SPSS package by the variance analysis method ANOVA.

As a significance criterion, p-value was used – the probability of that the discovered difference is insignificant. The statement "significant difference, $p<0.01$" means that the difference is statistically significant at the level of 1%, i.e. the probability of an erroneous determination of the difference as insignificant one makes up less than 1%. The statement "significant difference, $p<0.05$" means that the difference is statistically significant at level of 5%, and the probability of erroneous determination of the difference as insignificant makes up less than 5%. The statement "difference insignificant, $p>0.05$" should be interpreted as that this difference, without regard to its being evident, can be a result of a measuring error, and the probability of erroneous determination of the difference as insignificant is, from the point of view of the statistical convention, high.

Multidimensional modeling of HIV infection factors

For the sake of testing the assumptions related to factors of HIV infection, statistical multidimensional models (logistic regressions) of relative impact of various factors on HIV infectioning were built in chapter 6.

The method of logistic regression is based on determination for a row of independent variables (predictors) of the probability of that certain respondents would appear in one of the two categories. This probability is calculated only in comparison with some group, the values for which are set as the reference point. We refer to such groups as reference ones and we attribute to them one group from every variable where there are more than one response category. For the variables where there is just one category of a reasonable response (for example, gender or presence of sexual contacts during on year), such reference group is the part of the population that is not the carrier of certain content and has the value "0". For example, women are the reference group for men; those who have not had sex for a year for those who has had it, etc. The logistic regression coefficients in our model represent assessment of the chance of that we will find representatives of a certain group among those HIV-infected, in accordance with data of our linked survey.

If the receiving a clear interpretation is the purpose of the analysis, it is preferable to recode all variables, including metrical ones, as binominal (those that have two values, for example "1" and "0"). In this analysis information about the results of HIV testing is the dependent variable: "1" – positive, "0" – negative.

The coefficients represented in the report, the so-called Exp (B), are higher than "1" when they show a chance for a certain category to appear among HIV-infected ones as higher than for the reference group; and coefficients lower than "1" – when these chances are lower.

Missed data processing

In the report percentage to the number of respondents who provided meaningful answers to question of the questionnaire are represented. At the beginning of

each section data about which category of respondents the question referred to and how many of them answered these questions are indicated. The number of respondents to whom a concrete question of the questionnaire refers is indicated in the heading of each table, except for those who did not answer the question. If the percents were calculated in groups (the so-called two-dimensional tables), the size of the group was offered in brackets, which served as 100%.

Analysis of dynamics of changes compared with data of the 2007 survey among IDUs

For the purpose of analizing dynamics of changes of behavior, knowledge, level of HIV prevalence, etc. among IDUs, results of the 2009 survey are compared with results of the monitoring of 2007. Comparison is available only for the 6 cities in which the polling was conducted both in 2007 and in 2009: Simferopol, Mykolaiv, Dnipropetrovsk, Kryvy Rih, Kyiv and Cherkasy.

Key results of the survey

Analysis of the social demographic composition of IDUs showed that, as well as before, use of injection drugs is mainly characteristic of men – their share among IDUs is 75%.

The average age of IDUs polled makes up 30 years; the average ages in different cities fluctuates from 22 in Chervonograd to 37 in Krivy Rih. It is possible to state that the youngest IDUs live in the Western and Central regions of Ukraine, and the oldest – in the East and South.

The changes observed in the six oblast centers of Ukraine in 2007-2009 mainly indicate to aging of the IDUs population. It is possible to state significant aging of IDU population in large cities of the Eastern and Southern Ukraine up to about total disappearance of the group of those younger than 25.

In Mykolaiv, reduction of the number of women in the IDUs composition by half took place.

Among the population studied, there is a very high part of IDUs with long experience of drugs use. Mainly, the most popular drug is opium extract (74%), which is followed with a large gap by methamphetamine as solution (16%).

Those IDUs that consider stimulants to be their main drug makes up approximately one fourth. Other consider opiates as such drug. 22% of users used during the recent month both opiates and stimulants. Users of stimulants differ from users of opiated due to a greater part of women, young users and lower frequency of injections.

The indicator of awareness in HIV/AIDS issues among IDUs is 58%[2]. The awareness level is higher among IDUs with a longer experience of use (the general trend – the longer the experience, the higher the awareness level), those having higher or secondary education, as well as among those who indicated opiates as their main type of drug.

Opiates users consider their risk to be infected as relatively high. It is possible to consider the age of 25 as a certain breaking edge: starting from this age IDUs assess the risk to be infected as relatively high. Younger IDUs attribute far less importance to it. The respondents who had sexual contacts with commercial partners estimate the risk to be infected higher than those who had contacts with permanent or casual partners or those who did not have sexual contacts. The respondents who during the survey first passed the HIV test and appeared to be positive on the whole estimated their risk to be infected as quite probable and fifty to fifty (the percentage is almost identical).

[2] Percentage of IDUs who gave a correct answer to the 6 questions about HIV transmission ways.

The level of IDUs coverage with prevention programs is 40%[3]. The users of opiates are covered by prevention programs better than users of stimulants. IDUs with a long experience (starting from six years and more) are also better covered by the programs than those who started using drugs relatively recently. Coverage with programs by the city of residence is very uneven.

The indicator of using sterile injection toolkits during the the latest injection is 90%[4]. No great differences were revealed between men and women, among age groups and groups by experience that would specify trends in using sterile needles. From among the 17 cities of Ukraine, it is possible to emphasize two, in which the indicators of sterile toolkits use are the lowest – foremost, Zhytomyr (60%) and Cherkasy (83%). In the other cities this indicator is 85-95%. Users of stimulants practice safer injection practices.

Speaking about injections practices during the recent 30 days, the overwhelming majority of IDUs (85%) report that they had not used non-sterile syringes during this period. However, quite a significant part of them (57%) admit that they received the drug from a filled syringe, and 69% admit use of general toolkits for preparing the solution for injections.

The assumption about that women, as passive persons in matters of searching for drugs, and thus dependent on men, more frequently than men admit that they used a syringe after someone had already done an injection to oneself, is confirmed. But women also are more frequently inclined to pass their syringes to other IDUs than men.

Becoming older, IDUs pass to a more intensive mode of injections. Those who use non-sterile toolkits when older disinfect it more frequently. The tendencies of using non-sterile syringes and common toolkits for preparing drugs are diverse if we take age into consideration: with age IDUs use each time more sterile syringes, but, at the same time, prepare the drug in common toolkits.

Behavior of opiates users is far more risky in the practice of injections than that of users of stimulants – they more frequently inject, pass syringes to each other and use common toolkits for preparing the drug. On the other hand, users of stimulants start injection practices earlier than users of opiates, and more frequently they use alcohol.

Comparisons of the six cities showed that in 2009 the group of IDUs with experience over 10 years significantly increased. This change is absolutely in line with aging of the IDU population, which was mentioned above. Changes in the use structure indicate to an increase of the group of IDUs who practice mixed use of drugs: they use both opiates and stimulants. I.e. aging of the IDU population is accompanied by almost complete transition to opiates in some cities and an increase in use of stimulants – in other ones, as well as growth of mixed use of opiates and stimulants.

In Kryvy Rih, Simpferopol, Mykolaiv and Cherkasy transition to virtually 100% non-use of opiates took place. At the same time, in Kryvy Rih and Mykolaiv the part of those who use stimulants considerably decreased. In Kyiv reduction of opiates use by 22% and increase of use of stimulants by 26% are observed. In Cherkasy an increase of opiates use is observed together with a fourfold increase in use of stimulants. Thus, in 2009 Cherkasy and Kyiv stand out due to the greatest number of cases of “mixed” drugs use: during 30 days in these two cities almost

[3] Percentage of respondents who answered that during the recent 12 months they received free-of-charge a condom and needle and know where to undergo HIV testing.

[4] Percentage of IDUs who informed that during the last injection they used a sterile syringe and needle.

100% IDUs used opiates and, at the same time, 63% in Cherkasy and 45% in Kyiv used stimulants.

The data demonstrate significant inclination of IDUs to casual, multi-partner and commercial sexual connections. The average number of sexual partners during three months before questioning is 2.5. To a greater extent this inclination is revealed among men, young IDUs, unmarried IDUs and residents of specific cities. A bit less than a third of IDUs polled in Simpferopol, Zaporizhya and Cherkasy declared cases of commercial sex during the last 3 months before questioning.

Users of stimulants, IDUs aged 25-34 and IDUs inclined to risky contacts stand out due to a greater frequency of sexual contacts than users of opiates, younger and older IDUs. However, by the number of sexual partners these categories do not differ from each other.

Among the respondents 44% reported that their permanent sexual partner was an IDU. Most frequently men have permanent IDU partners, as well as IDUs aged 25-34 and IDUs with experience of 6 years and more. The impression is that men prefer non-IDU women, while female IDUs less frequently have the choice of a man depending on his status.

The indicator of using a condom during the latest sexual act is 58%. Less frequently condoms are used by IDUs with the experience of 3-10 years and residents of Severodonetsk, Dnipropetrovsk and Ternopil. With age and experience regularity of using condoms decreases. Use of a condom during the latest sexual act has reduced during the 2 years, in particular among the 6 cities compared – at Dnipropetrovsk and Kyiv .

The most frequently mentioned reason of non-using the condom is absence of a condom “at hand” when it is needed, limitation of sensuality, at commercial sex and the respondent’s being in the the state of narcotic or alcoholic intoxication.

Respondents know symptoms of STDs quite well (from one third to two thirds of respondents knew the most widespread symptoms). Among women, older respondents and respondents with a longer experience of drugs use the awareness level about the symptoms is higher than among other groups. The greatest number of STDs symptoms was mentioned in Cherkasy, Rivne, Ivano-Frankivsk and Chernivtsi (on average, 3.5-5 symptoms), which is significantly higher than in the other cities, where they mentioned 2-3 symptoms on average. Speaking about diseases that they have, most frequently respondents mentioned presence during the recent 12 months of hepatitis B (5.5%) and hepatitis C (8.1%). The least frequently they mentioned syphilis (1.5%). Quite often the same respondents during a year suffered several STDs at once.

Men more frequently reported tuberculosis, while women – more frequently mentioned STDs. With age the number of patients suffering tuberculosis grows reaching the maximum in the group of 35 and older. The peak of STDs and hepatitis is observed in the age group of 20-24. Users of opiates more frequently suffer tuberculosis, hepatitis B and C, venereal diseases. On the whole, more than 90% respondents cured their diseases (the highest level of treatment is that for gonorrhea – 95%), however, hepatitis C was treated only by three fourths of patients.

The majority of respondents did not see any obstacles for STDs testing (59%). If we mention the obstacles that still prevented some from testing, most frequently respondents mentioned high cost of examinations, high cost of medications, hostile or disapproving attitude of medical staff, impossibility to pass anonymous testing.

87% of respondent reported that HIV testing was accessible for them. Most accessible is testing in Chernivtsi, Ivano-Frankivsk, Ternopil, Rivne, Zaporizhya,

Uzhgorod, Simpferopol. The least accessible – in Zhytomyr, Kryvy Rih, Dnipropetrovsk, Vinnytsya.

The most widespread cause of inaccessibility of testing is absence of awareness about "who one can address" with this issue, and the fear of disclosure of the respondent's HIV-status.

43% of respondents informed that they had already passed HIV testing, a half of them did that during 2009. The testing indicator is 26%; fluctuation among the cities is extraordinarily high. Among those who agreed to report their HIV-status based on results of the previous testing, 20.5% appeared HIV-positive, which actually coincides with the result of HIV testing within the framework of the survey.

Results of the linked survey show that 22% of respondents have the HIV-positive status. Women, older respondents, respondents with a longer experience of drugs use, as well as users of opiates more frequently have the HIV-positive status than others.

Prevalence of syphilis among IDUs is 2%. Presence of syphilis increases the probability of that the IDU is HIV positive.

The results of logistic regression related to HIV infectioning factors showed that women had a higher probability of HIV infection than men. Older age groups have a higher probability to be infected than younger ones. Respondents with a longer experience of using drugs have a greater probability of being infected than those with a shorter period of using drugs.

Use of a pre-filled syringe, use of common toolkits from which they took the drug, as well as use of another person's, already used syringe are statistically significant factors of infectioning. In logistic models it was not possible to find confirmation of significance of the sexual way of HIV transmission (through the variables that directly indicate sexual contacts), use of opiates or other social and demographic indicators except for age.

At the same time, it is possible to assume that in those local groups where women are more frequently infected the sexual way of HIV transmission prevails. Significant coefficients for the variable "during the recent 30 days used a syringe with which another person already injected" may indicate to prevailing of the "injection" way of infectioning.

It is possible to assume that collective use of drugs is the dominant factor of infectioning in Dnipropetrovsk, Zhytomyr, Rivne and Chernivtsi. At the same time, in Kyiv, Kryvy Rih and Severodonetsk the gender is a significant predictor, and use of the syringe – no.

In Ivano-Frankivsk and Simpferopol the variable "use of another person's syringe" had significant coefficients equal to the gender. It is possible to assume that in these cities the sexual way of infection is significant as a way of HIV transmission at the same level as collective drugs use practices.

In 10 cities out of the 17 the age appeared a significant predictor of HIV infection, thus in four cities – Vinnytsya, Dnipropetrovsk, Cherkasy and Chernihiv – belonging to the age group of 35 and older is a significant factor. In Kyiv, Kryvy Rih, Ivano-Frankivsk, Simpferopol, Severodonetsk and Mykolaiv the risk pris also increased by belonging to the age group of 25-34 years, and in Zhytomyr a significant risk factor is only belonging to this, not to the oldest group.

Thus, except for Ivano-Frankivsk, where all predictors appeared significant, in the other models certain factors of infectioning prevail. Speaking about the sexual way of HIV transmission, this conclusion should be drawn with cautiousness, since women have a higher chance of infectioning without regard to the fact of presence of unsafe sexual contacts: a factor of their infection can be not neces-

sarily unsafe sex but the dependence position in the field of drug use. The issue is forced use from a pre-filled or used syringe, as women take a passive position in searching for raw materials. Doubtfulness of the conclusion about the sexual way of transmission is also supported in view of that in Kyiv and Kryvy Rih – the cities where the gender obtained a significant coefficient, belonging to the age group of those older than 25 is also a significant predictor. This means that IDUs with longer experience have a higher probability of being infected regardless of their gender. Although the coefficient for the variable "use of an non-sterile syringe during 30 days" appeared insignificant, IDUs of the older age could be infected before via the syringe, for example, a year prior to the survey, and later already they could start adhering to safe behavior. Thus, in those cities where the impact of this variable was significant – in Dnipropetrovsk, Zhytomyr, Rivne and Chernivtsi – possibly, HIV infection took place recently.

In Uzhgorod, Zaporizhya, Chervonograd, Ternopil it is not possible to identify infection factors: the model either did not have significant coefficients or the coefficients had the 10% significance level, which does not meet reliability criteria in this case.

Chapter 1. DEMOGRAPHIC CHARACTERISTICS OF IDUs

In this section we represent social and demographic characteristics of IDUs in the aggregated array for the 17 cities together and for each of the 17 cities individually.

The question about the social and demographic status was answered by all participants of the survey – 3962 persons. The question about the family status was not answered by 2 respondents, about education – 12 respondents. To the question about the place of residence 13 persons answered "Difficult to answer", which in this case is equated to missing of information.

1.1. Analysis of social and demographic parameters by the aggregated sample

The distribution of respondents by the national sample realized in 17 settlements of Ukraine based on the unweighed array and age weighted array is represented below. The confidence interval is calculated with the method of laying out two standard errors from the parameter value.

As it follows from table 1.1.1, men make up 75% of IDUs population based on the weighted array (column 3), the confidence interval makes up 73.9-76.7%. In the sample this part is 77% (column 2). It proves that pursuant to RDS assessment the part of men is a little bit smaller than in the sample. Thus, the part of women is a bit understated in the sample – 23% in comparison with RDS assessment – 25%.

Based on the weighted array, the particle of respondents in the age under 19 is 12% with the confidence interval 8.614.6%. In the unweighed array the part of such respondents is 9% only, i.e. in accordance with RDS assessment the size of this group was a bit underestimated. The part of respondents in the age of 20-24 in the sample is 17.5%, which is a bit understated in relation to 19% based on RDS assessment. Thus, the part of respondents in the age 25-34 is a bit overestimated – 44% vs 41% as assessed by RDS. The same can be asserted about the group of IDUs aged 35 and older: 30% vs 28% as assessed by RDS. Exactly because of the fact that the group sizes in the sample to a greater degree deviate from the evaluated part of age groups, the decision was made to weigh the data array by age.

The distribution by age shows that 345 persons in the age of 19 and younger were polled; among them 115 persons (i.e. 33%) were minor, that is 3% of the whole sample.

The group of respondents with primary education includes, based on the weighted array, 18% of those polled (confidence interval 16.0-20.0%), with secondary education – 64% (confidence interval 62.4-66.4%) and with higher – 18% (confidence interval 15.6 – 19.6%).

By the weighted array 51.5% of the sample are made up by respondents who have never been married and do not live together with their sexual partner (confidence interval 49.5-53.5%), 6% reported that they had been married but do not live with their husband/wife, including, because of his/her death or divorce (confidence interval is 4.0-8.0%), and 42.5% live with a permanent partner, i.e. they are married or have an unregistered marriage (confidence interval 34.1-43.3%). The sample averages by this attribute do not differ from evaluation parts.

The majority of respondents were born in the city of polling (85% of respondents, confidence interval 81.7-88.1%), 0.5% have been living in the city of polling for less than a year (confidence interval 0.0-3.7%), and 12% – for more than a year (confidence interval 8.8-15.3%). 3% of those polled were in the city temporally (confidence interval 0.0-5.8%). The sample averages by this attribute do not differ from evaluation parts

Schoolchildren and students together make up 7.1% by the weighted array and 5.3% – by the unweighed one. It means that evaluation by the size of networks in age groups evaluates this group as a bit larger than it follows from survey data. Among IDUs, there are three times fewer of those who have permanent occupation – 16% (confidence interval 11.5-20.7%) than on average in Ukraine (approx. 62% of adults under the age of 70)[5]. 29% more report their irregular earnings, confidence interval 23.2-32.4%, i.e. 44% in some way appear in the labor market. Unemployed persons, house-wives, disabled and other categories together make up almost a half of the population – 49%, thus the overwhelming part of this are unemployed persons – 40% (confidence interval 35.6-44.8%). The sample averages by this attribute do not differ from evaluation parts.

Table 1.1.1. IDUs distribution by gender, age, education, family status, place of residence and type of activity, absolute figures and percentage

Gender	Number in the sample	Percentage in the sample	Percentage by the weighted array	95% confidence interval
Male	3036	76.6	75.3	73.9–76.7
Female	926	23.4	24.7	23.3–26.1
Age				
14–19	345	8.7	11.6	8.6–14.6
20–24	695	17.5	18.7	15.7–21.7
25–34	1726	43.6	41.4	38.4–44.4
35+	1196	30.2	28.3	25.3–31.3
Education				
Primary	728	18.4	18.0	16.0–20.0
Secondary	2571	65.1	64.4	62.4–66.4
Higher	651	16.5	17.6	15.6–19.6
Family status				
Not married, do not live with the sexual partner	2003	50.6	51.5	49.5–53.5

[5] Calculated based on: Паніна Н.В. Українське суспільство. Соціологічний моніторинг 1992–2006./ Ін–т соціології НАН України. – К., 2006.

Gender	Number in the sample	Percentage in the sample	Percentage by the weighted array	95% confidence interval
Married or live in unregistered marriage	1709	43.2	42.5	40.5–44.5
Separated, divorced	248	6.3	6.0	4.0–8.0
Place of birth and residence				
Born in the place of residence	3390	85.7	84.9	81.7–88.1
Stays temporarily	89	2.3	2.9	0.0–.8
Stays for less than a year	22	0.6	0.5	0.0–3.7
Stays for more than a year	453	11.5	12.1	8.8–15.3
Activity				
School student	39	1.0	1.2	0.0 – 5.8
Vocational school student	51	1.3	2.0	0.0 – 8.6
Technical school student	51	1.3	1.5	0.0 – 6.1
Student of an academy, university	67	1.7	2.4	0.0–7.0
Permanent job	595	15.0	16.1	11.5–20.7
Sporadic earnings	1148	29.0	27.8	23.2–32.4
Unemployed	1625	41.0	40.2	35.6–44.8
Engaged in housekeeping	177	4.5	3.9	0.0–8.5
Disability pension	167	4.2	3.7	0.0–8.3
Other	42	1.1	1.0	0.0 –5.6
TOTAL	**3962**	**100.0**	**100.0**	**–**

The insignificant gap between the sample and evaluation averages proves that weighing by the networks size in age groups only changed the sizes of groups of women and men, as well as age groups. That is why special attention is paid to analysis of the gender and age in the next subsection, in which discrepancies between sample data and RDS assessment in the 17 cities are analyzed.

1.2. Analysis of distribution of women and men and age groups in the 17 cities

This subsection includes analysis of distribution of women and men, as well as 4 age groups in the 17 cities. The data calculated in RDSAT are represented here, and confidence intervals are calculated based on the BOOT STRAP method.

Pursuant to RDS assessment in the polled IDUs population women make up from 12% (Severodonetsk) to 37% (Cherkasy). Based on RDS assessment, the part of women in the actual population (column 3 in table 1.2.1) is higher than the sample one (column 2) in Chervonograd, Severodonetsk, Cherkasy, Zhytomyr and Ternopil. The difference makes up no more than 2%, and the sample part does not exceed the confidence interval (column 4), except for Chervonograd of Lviv oblast.

Table 1.2.1. IDUs distribution by gender in the 17 cities of polling, absolute figures, percentage, confidence intervals and homophilia indicators

Gender	Number in the sample	Percentage in the sample	Evaluation part by RDS	Confidence intervals by RDS	Homophilia
Simferopol					
Male	183	73.8	78.4	72.0–84.3	-0.003
Female	65	26.2	21.6	15.7–28.0	0.189
Mykolaiv					
Male	213	87.6	87.5	82.0–92.6	0.146
Female	28	12.4	12.5	7.4–18.0	0.143
Dnipropetrovsk					
Male	160	65.5	69.3	61.2–77.5	-0.102
Female	84	34.5	30.7	22.5–38.8	-0.051
Severodonetsk					
Male	224	90.5	88.0	79.5–94.4	0.335
Female	23	9.5	12.0	5.6–20.5	0.158
Kryvy Rih					
Male	192	79.1	80.0	69.2–88.3	0.089
Female	51	20.9	20.0	11.7–30.8	0.167
Zaporizhya					
Male	168	68.3	68.9	59.0–78.1	0.250
Female	78	31.7	31.1	21.9–41.0	0.265
Kyiv					
Male	291	75.7	75.9	68.5–81.1	0.174
Female	88	24.3	24.1	18.9–31.5	0.112
Vinnytsya					
Male	190	74.7	74.7	67.8–82.2	0.169
Female	53	25.3	25.3	17.8–32.2	0.004
Cherkasy					
Male	159	65.1	63.4	55.1–71.7	0.044
Female	86	34.9	36.6	28.3–44.9	-0.037
Chernihiv					
Male	198	80.8	82.5	75.7–88.6	-0.021
Female	47	19.2	17.5	11.4–24.3	0.020
Zhytomyr					
Male	183	75.1	70.1	63.3–77.8	0.215
Female	59	24.9	29.9	22.2–36.7	-0.100
Chervonograd					
Male	198	83.1	74.5	64.6–82.9	0.328
Female	40	16.9	25.5	17.1–35.4	-0.440

Gender	Number in the sample	Percentage in the sample	Evaluation part by RDS	Confidence intervals by RDS	Homophilia
Rivne					
Male	193	78.3	77.7	71.4–83.4	0.220
Female	50	21.7	22.3	16.6–28.6	-0.229
Ivano-Frankivsk					
Male	188	77.2	75.7	68.3–82.9	0.129
Female	56	22.8	24.3	17.1–31.7	0.043
Ternopil					
Male	72	72.3	70.3	54.1–84.2	0.114
Female	27	27.7	29.7	15.8–45.9	0.011
Uzhgorod					
Male	75	76.0	76.4	61.2–88.4	0.229
Female	23	24.0	23.6	11.6–38.8	0.252
Chernivtsi					
Male	68	69.3	72.6	62.3–82.0	-0.062
Female	30	30.7	27.4	18.0–37.8	0.003

In Chervonograd based on the sample there were 17% of women among the polled IDUs, but RDS assessment shows 25.5%. The lower limit of the confidence interval is 0.2% higher that the sample average, and the higher limit of the confidence interval reaches 35%. This city also shows the highest level of homophilia (column 5): 0.328 for men and -0.440 for women. This means that men more frequently recruited other men, and women also more frequently recruited men than women. This can prove certain reservation of the group of women in this city because of stigmatization.

As evaluated by RDS, the part of women in the actual population (column 3 of table 1.22) is lower than the sample one (column 2) in Simpferopol, Dnipropetrovsk, Chernihiv and Chernivtsi. The difference is 2-5%, however, the sample part not in a single city exceeded the confidence interval, consequently these differences do not show a significant distortion of women's representation in the sample because of the recruitment method. No differences by gender are observed among regions – in every region the variation, i.e. the difference between the city with the lowest and the city with the highest part of women is 8-18%.

At analysis of IDUs distribution by regions attention is attracted by the abrupt variation in the part of the youngest (under 19) IDUs in the sample: from one person in Kryvy Rih to 52% in Chervonograd. However, in the majority of cities respondents under 19 still make up the minority. It is thus possible to single out three cities with a relatively large part of the youngest IDUs: except for Chervonograd, Uzhgorod (evaluation part 39%) and Vinnytsya (36%). Cherkasy, Zhytomyr and Ternopil show the part of the youngest as 11%, i.e. close to the average in the population polled (12%). In the other cities this part fluctuates from 0.2 to 7%.

Table 1.2.2. IDUs distribution by age, absolute figures, percentage, confidence intervals and homophilia indicators[6]

Age	Number in the sample	Percentage in the sample	Evaluation part by RDS	Confidence intervals by RDS	Homophilia
Simferopol					
Under 19 y.o.	1	0.8	0.2	0–0.7	–
20–25 y.o.	13	5.6	4.5	2-7.7	0.052
25 and older	234	93.7	95.2	92.1–97.8	-0.006
Mykolaiv					
Under 19 y.o.	3	1.6	2.6	0–5.6	-1.0
25–34 y.o.	26	10.8	9.8	5.8–4.4	0.008
35 and older	212	87.6	87.6	82.3–92.4	0.044
Dnipropetrovsk					
Under 19 y.o.	12	5.3	3.8	0.4–8.7	0.415
20–24 y.o.	19	8.1	7.8	3.6–12.3	0.043
25 and older	208	86.6	88.4	81.2–95.0	0.333
Severodonetsk					
Under 19 y.o.	15	6.3	13.5	6.3–22.2	0.100
20–24 y.o.	61	24.9	21.9	13.7–30.3	0.203
25 and older	171	68.8	64.6	51.5–76.9	0.438
Kryvy Rih					
Under 19 y.o.	0	0.0	–	–	–
20–24 y.o.	18	7.4	7.7	3.3–13.5	0.037
25 and older	225	92.6	92.3	86.5–96.7	0.048
Zaporizhya					
Under 19 y.o.	7	3.2	3.6	1.3-–.0	-1.000
20–24 y.o.	23	9.2	8.2	4, –11.9	0.001
25 and older	216	87.6	88.2	83.1–92.7	0.026
Kyiv					
Under 19 y.o.	23	6.1	5.4	2.8–8.1	0.080
20–24 y.o.	68	17.7	19.7	14.0–26.3	0.110
25 and older	288	76.2	74.9	68.2–81.0	0.158
Vinnytsya					
Under 19 y.o.	38	16.0	35.6	21.2-48.6	0.449
20–24 y.o.	50	22.0	25.7	19.2-33.7	0.057
25 and older	150	62.0	38.6	27.1–52.1	0.593

[6] The number of respondents is shown without primary respondents, as RDS carries out estimation of the size of different groups without taking these respondents into account. Indication in the first column of the actual number of respondents would give an inadequate picture related to percentage distribution..

Age	Number in the sample	Percentage in the sample	Evaluation part by RDS	Confidence intervals by RDS	Homophilia
Cherkasy					
Under 19 y.o.	23	9.7	11.1	6.5–16.6	-0.653
20–24 y.o.	51	20.6	27.8	17.6–37	0.208
25 and older	169	69.8	61.1	51.5–71.8	0.369
Chernihiv					
Under 19 y.o.	19	8.0	7.1	2.5–13.2	0.433
20–24 y.o.	37	14.8	13.1	6.8–21.7	0.222
25 and older	189	77.2	79.8	70.1–87.5	0.176
Zhytomyr					
Under 19 y.o.	26	10.8	10.9	5.4–16.6	0.220
20–24 y.o.	43	17.3	23.1	15.8–30.7	0.133
25 and older	173	71.9	65.9	57.8–74.8	0.355
Chervonograd					
Under 19 y.o.	98	41.0	52.7	43.9–61.1	-0.016
20–24 y.o.	50	20.9	16.8	11.6–22.5	0.110
25 and older	90	38.2	30.5	23.3–38.3	0.273
Rivne					
Under 19 y.o.	9	4.3	3.3	1.4–5.7	-1.00
20–24 y.o.	93	36.6	41.6	33.3–50.4	0.119
25 and older	141	59.1	55.1	46.2–63.7	0.193
Ivano-Frankivsk					
Under 19 y.o.	2	2.0	1.9	0–4.8	-1.00
20-24 y.o.	52	20.8	26.0	19.5–34.8	-0.188
25 and older	190	77.2	72.1	63.2–79.0	0.295
Ternopil					
Under 19 y.o.	14	14.9	10.5	4.6–20.6	0.031
20–24 y.o.	30	29.7	19.6	10.2–32.7	0.185
25 and older	55	55.4	69.8	50.8–83	0.036
Uzhgorod					
Under 19 y.o.	26	26.3	38.9	21.9–51.1	0.065
20–24 y.o.	28	28.3	26.7	16–40.5	0.215
25 and older	43	45.5	34.4	21.9–52.1	0.390
Chernivtsi					
Under 19 y.o.	1	0.2	0.9	0–2.8	–-
20–24 y.o.	17	16.8	18.5	9.4–30.4	0.114
25 and older	80	81.2	80.7	68.6–89.9	0.261

Assessment of the part of respondents in the age from 20 to 24 y.o. also noticeably fluctuates – from 4.5% in Simpferopol to 41% in Rivne. However, in the majority of cities this part fluctuates from 7 to 27% and is greater than the part of the youngest respondents and smaller than the particle of respondents older than 25 years. Only in Uzhgorod, Chervonograd and Vinnytsya the age of group 20-24 y.o. is less than the both – the older and the younger group. This may mean both changes in age dynamics and temporary absence of representatives of the 20-24 y.o. group because they are in penitentiary facilities or at treatment.

The average ages of respondents makes up 30. In 14 out of the 17 cities covered by the survey respondents aged 25 and more make up the greatest part: from 55% in Rivne to 95% in Simpferopol. Exceptions are Uzhgorod, Chervonograd and Vinnytsya, where respondents are, respectively, younger – the average ages makes up 22-24.

Table 1.2.3. Average age values by groups formed based on the variance analysis, following post-hoc analysis of variance significance using Scheffe method

		1	2	3	4	5	6	7
Western regions	Chervonograd	22,0						
	Uzhgorod	24,1						
	Rivne		26,8					
	Ternopil		28,0					
	Ivano-Frankivsk			29,2				
	Chernivtsi			29,7				
Central regions	Vinnytsya	24,3						
	Kyiv			28,4				
	Zhytomyr			28,5				
	Chernihiv				31,0			
	Cherkasy		28,0					
Eastern regions	Severodonetsk			30,2				
	Zaporizhya				33,6			
	Dnipropetrovsk					34,3		
	Kryvy Rih							36,9
Southern regions	Mykolaiv				33,2			
	Simferopol						34,7	
	p-value	0,946	0,088	0,298	0,544	0,076	0,142	0,153

Thus, it is possible to state with confidence that western and central oblasts significantly differ due to the younger age of IDUs (average age from 22 to 29 years, except for Chernihiv) from the majority of eastern cities (except for Severodonetsk) and the both southern ones – 33-37 y.o. The youngest age characterizes IDUs of Chervonograd, Vinnytsya and Uzhgorod (22-24 y.o., the difference from the next older group is significant at the 10% level). The group of IDUs from Dnipropetrovsk, Simferopol and Kryvy Rih is the oldest (34-37 y.o., the difference from the next younger group is significant at the 10% level).

1.3. Structural changes in the IDUs population of the six cities based on results of surveys comparison for 2007–2009

During two years in population of the six cities – Simferopol, Mykolaiv, Dnipropetrovsk, Kryvy Rih, Kyiv and Cherkasy – certain structural changes took place, which are foremost related to age shifts and changes in the pattern of drug use.

The table below shows that the gender structure of IDUs population remains virtually unchanged during the two years, except for Mykolaiv.

Table 1.3.1. Changes in the shares of women among IDUs of the six cities, percentage and confidence intervals

	2007	Confidence intervals*	2009	Confidence intervals
Simferopol	30.0	23.0–38.7	21.6	15.7–28.0
Mykolaiv	27.9	19.4–37.6	12.5	7.4–18.0
Dnipropetrovsk	20.9	13.9–29.1	30.7	22.5–38.8
Kryvy Rih	23.0	13.9–33.7	20.0	11.7–30.8
Kyiv	18.0	12.2–24.3	24.1	18.9–31.5
Cherkasy	45.7	37.1–54.2	36.6	28.3–44.9
Total for the 6 cities	**26.6**		**24.9**	

* In this table and below confidence intervals for each of the six cities are calculated using the RDS method, and confidence intervals for the population of the six cities together – in SPSS software by laying out two standard errors from the percentage value.

Analysis of confidence intervals shows that, without regard to the visible dynamics, only in Mykolaiv a statistically significant change has taken place – the part of women in composition of IDUs reduced by more than a half and became the smallest based on RDS assessment from among all the 17 cities studied.

Analysis of dynamics by age shows significantly more important changes, which mainly indicate at aging of the IDUs population.

Analysis of the tables showed that in four out of the six cities accessible for comparison statistically significant dynamics are observed, thus in three out of them – towards an increase in the group of IDUs aged 25 and more. The most noticeable aging of the IDUs population was observed in Kyiv: the group older than 25 increased by 30 percentage points, and the group of those 20-24 y.o. reduced by half. As a result of these changes the IDUs population of Simferopol became the oldest one in Ukraine. In Dnipropetrovsk the part of the group aged 25 and older reduced a bit, but nevertheless it remains high. On the whole, it is possible to state significant aging of the IDUs population in large cities of the Eastern and Southern Ukraine.

The most evident interpretation of these changes is less frequent appearance of new IDUs in the population. However, the general changes in the six cities (three last lines) show that changes in the age group under 19 y.o. are statistically insignificant. Instead, reduction in the group 20-24 y.o. is statistically significant. It is possible to assume that the causes of these changes can be the following: representatives of this group in 2007 were less represented because they served their sentence at penitentiary facilities. Another assumption: there are no fewer new IDUs appearing, but the age of the first injection has become older. Verifica-

tion showed that the average ages of starting injections has increased from 18.9 y.o. in 2007 to 19.3 in 2009, p<0.01. In the figure below it is possible to see that is the modal initiation age in 2007 was the age of 16–17, in 2009 the distribution shows two modes – 17 y.o. and 21 y.o.

Table 1.3.2. Age structure in the six cities in 2007-2009, percentage and confidence intervals

	2007	Confidence intervals	2009	Confidence intervals
Simferopol				
Under 19 y.o.	***6.8***	3.5–10.5	***0.2***	0–0.7
20–25 y.o.	***16.2***	10.1–21.6	***4.5***	2.0–7.7
25 and older	**77.0**	70.9–84.0	**95.2**	92.1–97.8
Mykolaiv				
Under 19 y.o.	10.8	1.9-15.7	2.6	0–5.6
25–34 y.o.	22.6	13.0–30.6	9.8	5.8–14.4
35 and older	**66.7**	61.3–80.7	**87.6**	82.3–92.4
Dnipropetrovsk				
Under 19 y.o.	1.0	0–2.9	3.8	0.4–8.7
20–24 y.o.	***1.2***	0.2–2.7	7.8	3.6–12.3
25 and older	**97.8**	95.0–99.5	**88.4**	81.2–95.0
Kryvy Rih				
Under 19 y.o.	3.7	0-11.7	–	–
20–24 y.o.	10.4	4.5-19.6	7.7	3.3–13.5
25 and older	85.9	73.3–94.2	92.3	86.5–96.7
Kyiv				
Under 19 y.o.	12.1	7.7–18.2	5.4	2.8–8.1
20–24 y.o.	***41.7***	35.0–48.3	***19.7***	14.0–26.3
25 and older	**46.2**	38.2–53.7	**74.9**	68.2–81.0
Cherkasy				
Under 19 y.o.	9.5	3.0–16.9	11.1	6.5–16.6
20–24 y.o.	35.0	26.6–45.0	27.8	17.6–37.0
25 and older	55.5	45.5–64.9	61.1	51.5–71.8
Total for the 6 cities				
Under 19 y.o.	6.2	2.2–10.2	4.3	0–8.0
20–24 y.o.	***21.1***	17.1–25.1	***12.2***	8.2–16.2
25 and older	**72.7**	68.7–76.7	**83.5**	79.5–87.5

*The bold indicates statistically significant increase of the percentage between the years, italics – significant reduction.

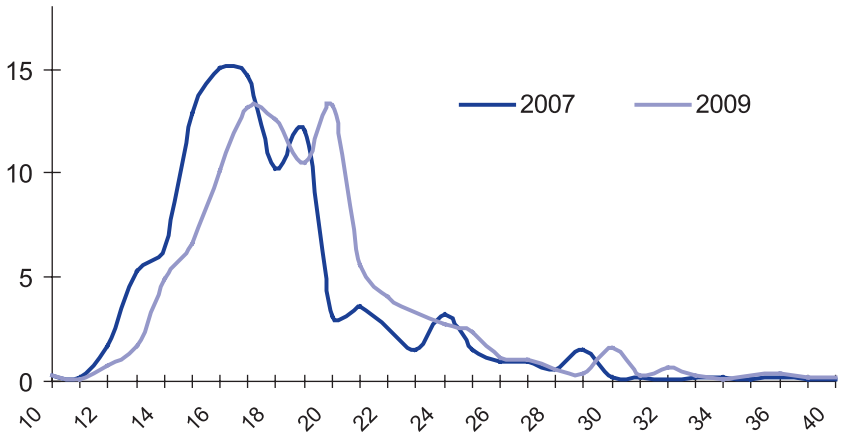


Fig. 1.3.1. Age of starting injections among respondents of 2007 and 2009 monitorings, percentage

Analysis of changes of other social and demographic variables shows minor dynamics, which mainly lies in an increase of the number of unemployed IDUs from 58 to 61.5% (Annex 1). Analysis of the education structure shows an increase of the percentage of persons with complete secondary education due to reduction of the group with incomplete secondary education, $p<0.05$. Dynamics of the civil status shows an increase of the number of those who live with a partner in an unregistered marriage from 41 to 45%, $p<0.05$. The most noticeable change is an increase in the number of unemployed IDUs from 30 to 35%, $p<0.01$. Taking into consideration the age dynamics, it is possible to assume that these IDUs once had a job but lost it because of drug use.

The part of respondents with higher education among IDUs on the whole corresponds to the general level in Ukraine and makes up 18%.

The occupation status most of all differs the IDUs population from the general population: only 16% are employed compared with 62% among the general working age population. Thus, 28% of respondents report casual earnings. Analysis of dynamics in the six large cities of Ukraine in 2007-2009 proves a further increase in the part of unemployed persons in the IDUs group.

Approximately 85% of IDUs are natives of their cities, which fully corresponds to the social structure of the population of Ukraine[7].

[7] Паніна Н.В. – Ibid.

Chapter 2. LEVEL OF KNOWLEDGE ABOUT HIV/AIDS

This chapter covers the issue of coverage with prevention programs and the awareness level among injection drugs users. In particular, attention is paid to such aspects as the level of awareness about ways of HIV/AIDS transmission and symptoms of sexually transmitted diseases, receiving of needles and condoms from information and education programs, as well as the connection between the level of awareness on HIV issues and sexual behavior and practice of drugs use.

2.1. Knowledge about HIV infection transmission routes

The risk of HIV transmission of in the IDUs community is conditioned by unsafe behavior models (use of narcotic matters in the injection way and dangerous sexual practices), and thus awareness of IDUs about the ways of HIV transmission should contribute into a reduction of the risk level of their behavior. The national indicator "Percentage of injection drugs users who correctly define ways of HIV transmission and know how HIV is not transmitted" makes it possible to draw certain conclusions about the awareness level among IDUs. It is calculated on the basis of respondents' answers to the 6 questions[8], distribution of answers to which is shown in table 2.1.1.

Data analysis showed that 58% of injection drugs users polled gave correct answers to all the five basic questions, which defined the size of the key indicator. A detailed distribution of the answers for each of these questions is shown below.

The national indicator of awareness in HIV/AIDS issues is 58%. The questions appeared a bit different by the complexity level: the last question about the possibility of infectioning through use of a rest room or a swimming pool together with an HIV-infected person caused more hesitations (a greater number of answers "I do not know" and "Difficult to answer" compared with the other questions).

Women demonstrate a lower level of awareness than men in relation to the possibility to reduce the risk of infectioning by having relationships with only one faithful uninfected partner: 83% of women vs. 87% of men gave the right answer ($p<0.01$). Speaking about the rest of the questions, no statistically significant differences between men and women were revealed.

Distribution of data on awareness about the ways of HIV transmission among men and women, different age groups, as well as by the place of residence can be seen below in table 2.1.2.

[8] Методичні рекомендації з проведення досліджень для моніторингу відповіді країни на епідемію ВІЛ-інфекції / О. Балакірєва, Л. Бочкова, М. Варбан та ін. – К., 2008. – С. 56.

Table 2.1.1. Knowledge of injection drugs users about routes of HIV/AIDS transmission, (N=3962), percentage

Questions	Answers	Total	Men	Women
It is possible to reduce the risk of HIV transmission if having sexual contacts only with one faithful, non-infected partner	Yes	85.7	86.6	83.0
	No	10.6	9.9	12.4
	Don't know/Difficult to answer	3.1	3.4	4.6
	Total	100.0	100.0	100.0
It is possible to reduce the risk of HIV transmission if correctly using the condom during every sexual contact	Yes	87.0	87.3	86.3
	No	8.8	8.6	9.3
	Don't know/Difficult to answer	4.2	4.1	4.4
	Total	100.0	100.0	100.0
A healthy-looking person can be HIV-positive	Yes	85.3	84.9	86.7
	No	8.2	8.5	7.1
	Don't know/Difficult to answer	6.4	8.6	6.1
	Total	100.0	100.0	100.0
It is possible to get infected with HIV if one drinks in turn from the same glass with an HIV-positive person	Yes	8.3	8.4	8.1
	No	85.7	85.1	87.2
	Don't know/Difficult to answer	6.1	6.5	4.7
	Total	100.0	100.0	100.0
It is possible to get infected with HIV through use of a rest room, shower, sauna together with an HIV-positive person	Yes	8.9	9.0	8.8
	No	83.0	82.7	83.7
	Don't know/Difficult to answer	8.1	8.4	7.6
	Total	100.0	100.0	100.0

Table 2.1.2. Key indicator of knowledge about the routes of HIV/AIDS transmission depending on gender, age, sexual behavior type and by cities, percentage

Category	%
Age	
14–19 (N=345)	48.5
20–24 (N= 695)	57.7
25–34 (N= 1726)	61.3
35 and older (N=1196)	57.5
Sexual behavior type	
Had no sex (N=329)	56.6
Occasional partners (N=740)	54.9
Permanent partner (N=2519)	58.7
Commercial partners (N=374)	61.6
Education	
Primary (N=728)	51.3
Secondary (N=2571)	59.3
Higher (N=651)	60.2
Period of use	
Less than 2 years (N= 345)	56.6
3–5 years (N=695)	54.9
6–10 years (N=1726)	58.7
11+ years (N=1196)	61.1
Type of drug	
Opiates (N=3175)	59.2
Stimulants (N=787)	54.3
Membership at HIV-service organizations	
NGO clients (N=1446)	63.6
Not NGO clients (N=2667)	55.3
TOTAL	**58.1**

No differences were revealed between men and women in relation to the level of awareness about the ways of HIV transmission.

Respondents in the age from 14 to 19 y.o. are less informed about HIV issues (48.5%) than older ones – 57%-61% of correct answers. The analysis also revealed a dependence of the level of awareness about HIV/AIDS issues on respondents' education. Thus, the awareness indicator among IDUs with primary education is 51%, for those who have secondary education – 59%, and for those who has higher (technical school and/or institute) – 60%. The awareness level of the least educated category of respondents significantly differs from awareness of the other two groups ($p<0.01$).

The type of sexual behavior is only to some extent related to the level of awareness in relation to ways of HIV transmission. A comparatively higher value is demonstrated by those IDUs who reported that during the recent three months they casual or commercial sexual partners (59% and 62% correct answers, respectively).

The period of drugs use is to some extent related to the level of awareness about ways of HIV transmission. The value of the awareness indicator is the highest for the group of IDUs who have the period of use 11 years and more; the difference from the other groups is statistically significant ($p<0.05$). For the level of awareness on HIV questions the type of the drug used is also important – users of opiates show a higher awareness level (59%) than those who use stimulants (54%) ($p<0.01$).

Clients of HIV-service organizations showed a substantially higher awareness in HIV-AIDS issues than those who is not their client (the difference is statistically significant, $p<0.01$).

Analysis by regions (table 6 in Annex 2) revealed a significant variance of the awareness level: the highest awareness indicator is observed in Rivne and Chernivtsi – 85% and 83%, respectively, and the indicators in Kryvy Rih is more than three times lower – 26.5%. Relatively high are the indicators in Simferopol (64%), Mykolaiv (63%), Kyiv (61%), Chervonograd (71%), Ivano-Frankivsk (80%) and Ternopil (64%). The indicators of Zaporizhya and Zhytomyr are close to the average, and indicators of the other cities can be characterized as relatively low. It should be noted that the sample average for Mykolaiv (73%) exceeded the confidence interval, as it was assessed with the RDS method. The assessment showed the value of this variable at the level of 63%.

During 2 years in the six cities compared the awareness indicator has grown by 5%. Among the differences statistically significant are growth of awareness in Kyiv by 16 percentage points, as well as reduction in Dnipropetrovsk by 16 and in Kryvy Rih by 34 points.

Table 2.1.3. Percentage of IDUs who correctly define ways of HIV transmission and know how HIV is not transmitted, in the six cities, 2007-2009, percentage and confidence intervals

City	2007	Confidence interval	2009	Confidence interval
Simferopol	57.7	48.7–67.1	63.6	56.7–70.1
Dnipropetrovsk	***75.1***	65.8–83.0	***54.5***	45.7–63.3
Kryvy Rih	***59.4***	44.9–71.9	***25.3***	17.1–34.1
Kyiv	**44.8**	36.0–53.8	**61.1**	54.6–67.7
Mykolaiv	45.7	34.8–57.1	63.4	55.5–71.2
Cherkasy	54.6	44.9–63.3	54.5	46.1–63.1
Total for the 6 cities	**52.2**	49.6-54.8	**57.4**	55.0-59.8

Detailed analysis of the indicator questions in Kryvy Rih – the city where the reduction was the greatest, discovered that awareness has not reduced identically for all the questions. Thus, the part of correct answers to the question about a faithful partner, about infectioning through a glass or domestic and hygienic facilities has gone down by 18-19%, and the part of correct answers about the appearance of an HIV-infected person – by 41% – from 90% to 49%. It should be noted that the question about safety of sex with one faithful partner has been traditionally considered easier than the question about the appearance of an HIV-positive person, however, even there reduction of the number of correct answers is observed from 85% to 58%.

Such an abrupt reduction could be caused by either appearance of a significant particle of insufficiently educated respondents or an increase of the level

of fear of the infection. Verification of the educational level of respondents from Kryvy Rih did not show any reduction of the educational level, vice versa, the part of those who have complete secondary education increased up to 67.5% in 2009, compared with 45% in 2007, foremost due to those who before obtained incomplete education only having graduated from 9 classes at school. Assessment of the risk of infection for oneself is also at the average level in Kryvy Rih. Possibly, prevention work has weakened in this city, which is demonstrated by an abrupt reduction of the level of HIV testing and of the part of persons who consider testing accessible for them.

Apart from the basic questions on the basis of which the national awareness indicator was calculated, respondents also answered additional questions, which help to better assess the awareness situation. Below we show distribution of answers to these questions.

Table 2.1.4. Awareness of injection drugs users about other ways of HIV transmission, percentage

Questions	Answers	All IDUs	Men	Women	14–19	20–24	25–34	35 and older
It is possible to get infected with HIV through a mosquito bite	Yes	10.6	11.6	7.7	22.4	11.3	8.5	8.6
	No	77.2	75.8	81.7	65.1	78.3	79.6	77.9
	Don't know/Difficult to answer	12.2	10.7	10.6	12.4	10.4	11.9	13.5
	Total	100	100	100	100	100	100	100
HIV infection can be transmitted from an HIV-positive mother to the child during pregnancy	Yes	80.5	80.0	81.9	79.1	82.8	81.1	78.8
	No	7.8	7.0	10.4	8.3	7.3	8	7.7
	Don't know/Difficult to answer	11.7	13.1	7.6	12.6	10	10.9	13.6
	Total	100	100	100	100	100	100	100
HIV infection can be transmitted from an HIV-positive mother to the child during delivery	Yes	77.8	76.3	82.3	75.8	81.2	77.2	77.2
	No	6.8	6.4	7.9	7.4	5.4	7.7	6.2
	Don't know/Difficult to answer	15.4	17.3	10	16.8	13.5	15.1	16.6
	Total	100	100	100	100	100	100	100
HIV infection can be transmitted from an HIV-positive mother to the child during breastfeeding	Yes	64.5	61.3	74.3	68.1	65.1	65.7	60.9
	No	11.8	12.4	10.1	12	10.5	11.4	13.1
	Don't know/Difficult to answer	23.6	26.3	15.6	19.9	24.4	22.8	26
	Total	100	100	100	100	100	100	100

Distribution of answers to the question "Is it possible to get infected with HIV through a mosquito bite?" showed that women (82% of correct answers) were substantially better informed compared with men (65%) ($p<0.01$). We should also pay attention to that the least aware about this question are the youngest respondents aged under 19 (65% correct answers compared with 78-79% among older ones) (the difference from other age groups is statistically significant; $p<0.01$).

No substantial differences were revealed related to the question about HIV transmission from mother to child during pregnancy except for that men more frequently had problems answering this question (13% refused to answer compared with 8% among women, $p<0.01$). Instead, such differences were observed in relation to the question about HIV transmission during delivery: women much more frequently than men gave the right answer (82% and 76%, respectively; $p<0.01$). We should also note a more substantial awareness in this issue of IDUs from 20 to 24 y.o. compared with younger and older ones ($p<0.05$).

Concerning the question about HIV transmission from mother to child during breastfeeding, there was a substantial difference between men and women: the latter significantly more frequently gave correct answers ($p<0.01$). Moreover, we should also pay attention to the noticeable part of uncertain answers ("I do not know", "Difficult to answer") of men to this question. Let us also note the statistically significant difference ($p<0.01$) between the youngest and the older respondents (age groups 14-19 and 35 and older).

Noteworthy is the considerable percentage of uncertain answers to the last two questions related to HIV transmission from mother to child during delivery and breastfeeding – the percentage of answers "I do not know" and "Difficult to answer" has increased significantly – 15 and 24%, respectively[9].

2.2. Subjective assessment of the risk to be infected with HIV

In this subsection we will pay attention to subjective assessment by respondents of the risk of being infected with HIV. Distribution of respondents' answers (fig. 2.2.1) to the question about feasibility of the risk of HIV infectioning is represented below, which shows that 38% assess the risk of HIV infectioning for themselves as quite feasible. The most numerous is the group that assesses feasibility of the own infectioning as fifty to fifty. 6% of respondents feel absolutely safe.

No connection was revealed between subjective assessment of the risk of becoming infected with HIV and the knowledge indicator.

[9] We should note that in previous years (2006) the key knowledge indicator about HIV/AIDS also included the question about the possibility to become HIV infected through a mosquito bite. Although now this question is already withdrawn from the National Indicator, for drawing a more extensive picture we indicate the value of the indicator including this question as well. In this case the value of the National Awareness Indicator is 54%. Let us remind you that the value of the indicator without the question about becoming infected through a mosquito bite is 58%. Thus, the difference is 4%.

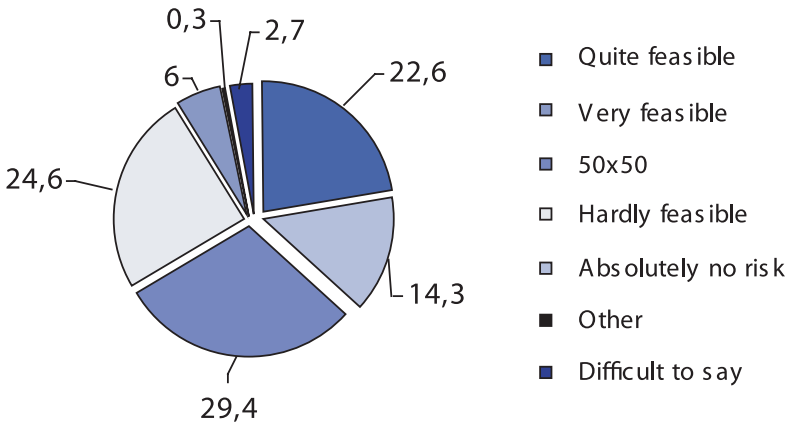


Fig. 2.2.1. Distribution of answers to the question "How feasible, in your opinion, is personally for you the risk of HIV infection?", percentage

Table 2.2.1. Subjective assessment of own risk of becoming infected with HIV depending on the age, drug use experience and by the city of residence, percentage

	Quite feasible	Very feasible	50x50	Hardly feasible	Absolutely no risk	Other	Difficult to say
Age							
14–19 (N=330)	18.2	8.6	30.8	35.4	5.3	0	1.8
20–24 (N=616)	16.1	12.6	36.1	26.2	7.1	0.1	1.8
25–34 (N=1235)	21.8	18.1	28.9	22.7	5.9	0.3	2.3
35 and older (N=838)	30.8	12.4	24.6	21.6	5.8	0.4	4.4
Experience							
0–2 years (N=507	15.3	8.7	34.1	33.4	6.7	0.3	1.4
3-5 years (N=517)	16.5	13.5	33.5	28.2	6.8	0	1.5
6–10 years (N=724)	22.1	16.0	31.0	21.1	6.6	0.2	2.9
11+ years (N=1267)	29.2	16.3	24.3	20.9	5.1	0.3	3.9
Education							
Primary (N=728)	30.0	15.0	24.7	22.7	3.7	0	4.0
Secondary (N=2571)	22.3	14.4	31.6	22.8	6.0	0.3	2.6
Higher (N=651)	16.7	13.1	26.1	33.5	8.0	0.5	2.0
Type of drug							
Opiates	26.7	15.6	28.1	18.9	4.7	2.9	3.1
Stimulants	14.5	10.1	27.5	35.8	8.6	1.5	1.9
Type of sexual behavior							
Had no sex (N=292)	25.9	20.5	21.1	24.7	6.3	0	1.5
Occasional partners (N=697)	17.8	15.7	40.2	21.8	3.1	0.3	1.2
Permanent partner (N=2246)	22.7	12.5	28.0	26.2	7.4	0.3	2.9
Commercial partners (N=345)	28.6	17.5	25.6	19.6	2.4	0.3	2.8

The older respondents are, the more feasible, according to them, is their risk of being infected with HIV. The highest risk is envisaged by IDUs aged 35 and more (30.8% vs 22% in the age group of 25-34 y.o., 16% in the age of 20-24 y.o. and 18% in the youngest group), the difference with the other age groups is statistically significant ($p<0.05$). A bit more safely IDUs aged from 25 to 34 feel (the difference from the other age groups is also statistically significant, $p<0.05$). The youngest respondents assesses the risk as almost the same as IDUs aged 20-24, between these groups no statistically significant differences were revealed.

The period of drugs use also influences assessment of the risk of infectioning. IDUs who use drugs for the period from 6 to 10 years and 11 years and more feels significantly less safe (22% and 29%, respectively) than those whose experience is shorter (15% and 16.5%). Respondents with the longest experience of drugs use consider the risk to be the highest ($p<0.01$).

We recorded a small but statistically significant ($p<0.05$) connection with the level of education: IDU respondents with primary education more frequently than those who have secondary and higher education evaluate the risk of being infected with HIV as very feasible (30% of IDUs with primary education vs 22% with secondary and 16.7% with higher education).

Those who considers opiates as their basic drugs on the whole to a greater degree feel in danger than those who consider that their basic narcotic matters are stimulants. As quite feasible the risk of being infected is assessed by 27% of users of opiates and 14.5% of users of stimulants ($p<0.01$). As hardly feasible the risk of infectioning is evaluated by 35% of users of stimulants, while those for whom opiates are the basic narcotic matter are far less sure of their safety (19%). The difference between these two groups is statistically significant ($p<0.01$).

The data prove that IDUs who during the recent three months had commercial partners estimate the risk of infectioning as considerably higher (almost 29%) than those who had contacts with casual (18%) or permanent partners (23%); the difference is statistically significant ($p<0.05$). Similarly endangered feel those who did not have sex during the recent three months (25%).

The analysis by regions discovered that IDUs in Chernivtsi feel the most safe (7.5% consider the risk of infectioning to be quite feasible and 58% consider it to be hardly feasible), while the least safe they feel in Cherkasy.

In the course of the linked survey HIV testing of respondents was conducted, and thus we have the opportunity to check how those IDUs who during the survey appeared to be HIV-positive assessed their risk of infectioning. Table 2.2.2 below shows the distribution of the subjective evaluation of the risk of being infected with HIV among such respondents. For comparison we also represent the distribution of answers of all IDUs except for those who already knew their HIV-status before the beginning of the survey.

A little bit more than one third assessed the risk of being infected as very feasible; another third estimated it as fifty to fifty.

On the whole, we can say that the respondents who during the survey for the first time discovered their HIV-status and appeared HIV-positive were aware about the risk of infectioning with HIV – 33.5% assessed it as high, and 17% as quite high. For comparison, among those who at the moment of answering questions of the questionnaire did not know their HIV status, 23% assessed the risk as high, and 14% – as quite high, $p<0.01$. Out of those who felt absolutely safe a bit less than 5% appear among those who appeared to be infected with HIV.

Table 2.2.2. Distribution of answers to the question "How feasible personally for you is the risk of becoming infected with HIV?", percentage

Category	IDUs who discovered their positive status in the course of the linked survey (N=573)	All IDUs except for those who knew their positive status before the survey (N=3580)
Quite feasible	33.5	22.6
Very feasible	17.1	14.3
Fifty to fifty	30.3	29.4
Hardly feasible	13.0	24.6
Absolutely no risk for me	4.6	6.0
Other	0.3	0.3
Difficult to answer	1.2	2.7

Chapter 3. PRACTICES OF INJECTION DRUG USING

Questions related to this section were addressed to all respondents and had the objective of discovering drug use trends – the age of starting injection practices, the drugs that are preferred, regularity of injections and observance of safe injections practices. Questions related to partners for injections and disinfection of syringes related only to the part of respondents who admitted that they used a syringe with which another person already injected – 613 persons. In the respective block of the questionnaire for the first time verification questions were used, which were to encourage the respondents to remember events of the recent 30 days in order to receive more exact information about his/her use of non-sterile syringes, regularity of syringes disinfection, the cases of passing one's syringes to other IDUs and use of common toolkits for preparation and filling of the drug.

3.1. Duration of drug use

From among 3962 respondents 3550, i.e. 90% of respondents answered the question about the age when they started using drugs in a non-injection way. This may mean that 10% of respondents have never used drugs in a non-injection way or do not remember when they started doing it. All respondents but one answered the question about the age when the IDU started using drugs in the injection way.

The average age of starting non-injection use of drugs makes up 17 years, and injection one – 19.6 years; the difference is significant, $p<0.01$. As it follows from fig. 3.1.1, in the majority of cases initiation of drug use in a non-injection way takes place at the age of 15-18, and in the injection way – at the age of 16-22. In particular, the data show that 70% of respondents started using drugs in a non-injection way before their achievement of the age of 18, and 24% – before 15 y.o. Use of drugs in the injection way in 36% cases respondents started before the age of 18, and in 7% – before achievement of the age of 15.

Men start using drugs in a non-injection way on average a year earlier (16-7 y.o.) than women (17-9 y.o.). However, the age of starting of injection practices does not differ by gender, which means that the average age is expected to be identical for men and women. However, male IDUs on average are older than female IDUs by 1.4 years – 30.3 vs 28.9 (the difference is statistically significant at the level of 1%). Possibly, this is explained by a higher mortality rate of female IDUs or by that more young women appear in the sample than young men. The latter can be predefined by that more men in early age than women are inaccessible for the survey because they, for example, serve their sentence in imprisonment facilities or are at treatment facilities. The latter assumption is supported by data from fig. 3.1.2 – in the sample there are more women in the age of 22-24 y.o. than men. There are also more women in the age group 31-32 y.o., but less than men in the

age of 33 y.o. and more. This can be explained by that in Ukraine women began practicing use of drugs later than men.

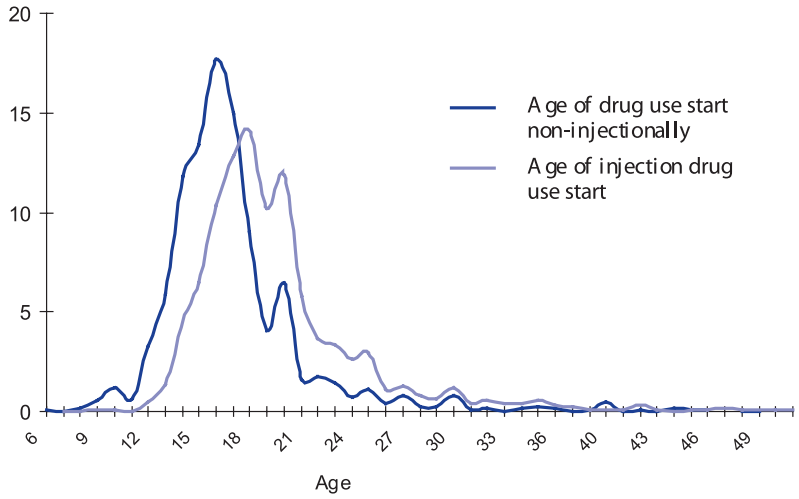


Fig. 3.1.1. Distribution of answers to the question "At which age did you for the first time try using drugs in a non-injection way?" and the question "At which age did you for the first time try using drugs in the injection way?", percentage

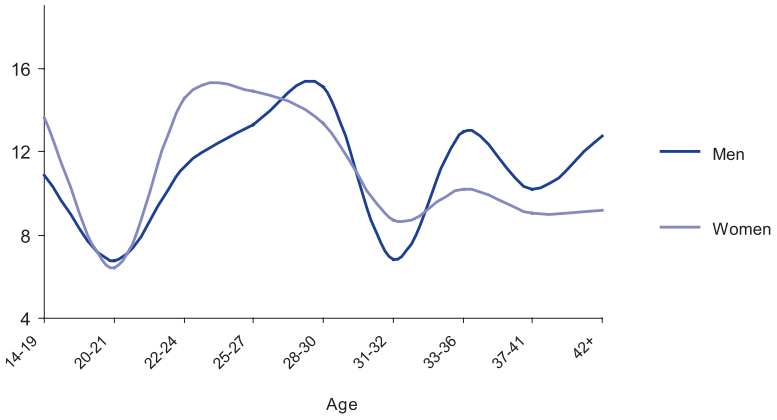


Fig. 3.1.2. Distribution of male and female IDUs by age, percentage

Below (fig. 3.1.3) we represent the distribution of respondents by the experience of using injections, which shows that the group of IDUs with the experience of use over 10 years is the most numerous one.

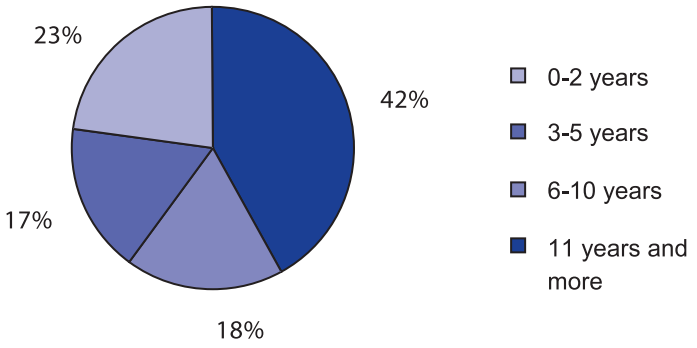


Fig. 3.1.3. Distribution of respondents by the experience of injection drug use, percentage

Fig. 3.1.4 demonstrates that this group by experience prevails both among men and women, but among women it is still relatively smaller. Thus, male IDUs have a greater experience of injections: on average, 10.7 years vs 9.1 years for women. According to the figure, this difference exists due to exactly the oldest IDUs group, which is distinctly larger among men.

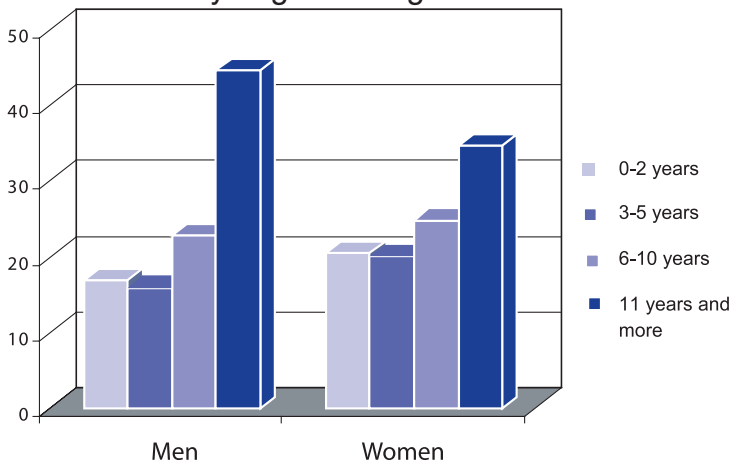


Fig. 3.1.4. Distribution of male and female IDUs by experience of injection drug use, percentage

Age and experience of the respondents quite strongly correlate – Pearson correlation coefficient makes up 0.7.

Comparison of the six cities showed that in 2009 the group of IDUs with experience over 10 years significantly increased: if in 2007 it made up 47%, in 2009 it already reached 59%.

3.2. Prevalence of use of different types of drugs

Below (table 3.2.1) we represent data on prevalence of the types of drugs that IDUs polled use, including in the injection way, during the recent 30 days.

In Ukraine, the most widespread drug is opium extract – it was used by almost 80% of respondents. The second popular is methamphetamine as solution – 28% used it in the injection way. The third rate belongs to Amphetamine as powder, which in total was used by 16% of respondents, and injections were made by 10%.

Among drugs used in any way, 11% also mention tramadol and other drugs, which respondents did not find in the list suggested – 13%.

It is necessary to pay attention to that some drugs are used more frequently in a non-injection way than the injection one. They include: Amphetamine (16% vs 10%), tramadol (11% vs 4%), Methylendioxymethamphetamine (6% vs 2%).

The opium extract as solution prevails among injection drugs, both among male and female IDUs. The pattern of drugs use among women and men is quite similar. The only exception is Amphetamine as powder – it is used in the injection way by 1% of men and 11% of women IDUs. If we generalize the information by types of narcotic matters, 81.5% used opiates during the month, and 40% – stimulants. Thus, 22% of polled IDUs used both opiates, and stimulants.

Changes in use of the main two groups of drugs – opiates and stimulants – are an important characteristic of changes in the IDUs population, which explains a lot of other behavioral changes, that is why they are shown here in comparison with 2007.

The changes analysis shows a certain increase in use of opiates in the 6 cities accessible for comparison with 2007 (tables 3.2.2 and 3.2.3).

Table 3.2.1. Types of drugs that IDUs used in general and through injections during the recent 30 days, percentage

	Used during 30 days	Used during 30 days through injections
Opiates		
Tramadol/tramal	11.0	4.1
Heroin	5.8	4.7
Liquid opium extract	80.1	79.4
Other	2.0	1.6
Stimulants		
Cocaine	2.8	0.6
Amphetamine as powder	16.4	9.8
Methamphetamine as powder	2.8	1.1
Methamphetamine as solution	29.3	28.0
Methcathinone	4.9	3.8
Cathinone	3.5	2.6
Methylendioxymethamphetamine ("Ecstasy", MDMA)	5.7	1.7
Other	1.6	1.0
Other types of drugs		
LSD, mushrooms	3.4	1.0
Other	13.4	0.8

Table 3.2.2. Use of opiates during 30 days in 6 cities, 2007-2009, percentage and confidence intervals

City	2007	Confidence interval	2009	Confidence interval
Simferopol	**86.3**	81.5–91.1	**95.2**	92.0–98.5
Dnipropetrovsk	91.0	87.0–95.0	88.0	83.6–92.4
Kryvy Rih	**87.3**	81.9–92.7	**98.8**	97.0–99.8
Kyiv	71.6	66.8–76.4	66.8	64.8–68.8
Mykolaiv	**79.5**	73.7–.3	**96.4**	94.2–98.6
Cherkasy	**88.6**	84.2–93.0	**98.0**	97.4–100.0
Total for the 6 cities	**82.5**	81.0–84.0	**88.3**	86.7–89.9

Table 3.2.3. Use of stimulants during 30 days in 6 cities, 2007-2009, percentage and confidence intervals

City	2007	Confidence interval	2009	Confidence interval
Simferopol	**36.1**	29.3–42.9	**48.8**	44.0–53.6
Dnipropetrovsk	35.2	28.4–2.0	47.8	41.8–3.8
Kryvy Rih	***20.7***	13.9–27.5	***6.0***	3.4–9.8
Kyiv	56.2	51.0–61.4	60.9	56.7–65.1
Mykolaiv	***26.5***	20.3–32.7	***11.2***	7.2–15.2
Cherkasy	**14.2**	9.4–19.0	**54.2**	51.1–57.3
Total for the 6 cities	**34.5**	31.9–37.1	**40.3**	37.9–42.7

In Kryvy Rih, Simpferopol, Mykolaiv and Cherkasy transition to virtually 100% use of opiates took place. At the same time, in Kryvy Rih and Mykolaiv the particle of stimulants use reduced significantly, and in Simpferopol and Cherkasy there was an increase in use of opiates together with an increase of use of stimulants. In Kyiv and Dnipropetrovsk the structure remained without any significant changes. Thus, in 2009 the most intensive "mixed use" was observed in Cherkasy and Simpferopol: during 30 days in these two cities almost 100% of IDUs used opiates, and stimulants were used by 54% of respondents in Cherkasy and 49% – in Simpferopol. In 2009 Kryvy Rih is the example of the "purest" use of opiates.

Table 3.2.4. Types of drugs used by IDUs through injections during the recent 30 days, by age groups, percentage

	Under 20 y.o.	20 y.o. and older
Opiates		
Tramadol/tramal	8.2	3.6
Heroin	4.4	4.7
Liquid opium extract	46.3	83.7
Other	0.6	1.7
Stimulants		
Cocaine	0.3	0.7
Amphetamine as powder	27.7	7.4
Methamphetamine as powder	1.7	1.1
Methamphetamine as solution	39.6	26.5
Methcathinone	1.6	4.0
Cathinone	2.9	2.6
Methylendioxymethamphetamine ("Ecstasy", MDMA)	2.2	1.7
Other	1.7	0.9
Other types of drugs		
LSD, mushrooms	2.7	0.8
Other	0.4	0.9

Use of opium extract significantly prevails in the group of IDUs older than 20 – 84%, while in the group of IDUs younger than 20 its use is 46%, which is only 6% more than use in this group of methamphetamine as solution. Use of methamphetamine in the older group, in its turn, is 26.5%, while in the younger one – 40%. Amphetamine is also more popular among young IDUs – 28% in comparison with 7% among IDUs older than 20 y.o. Younger IDUs also a bit more frequently use tramadol in the injection way (8%) than older ones – 4%, $p<0.01$.

For the purpose of defining which of these drugs IDUs use because they prefer it to others, and which are used subject to inaccessibility of the first one or as an additional one, respondents were asked the question about the drug that respondents consider their "key" one (table 3.2.5).

Table 3.2.5. Types of drugs that IDUs used through injections during the recent 30 days, and those that IDUs consider their "key" drug, percentage*

	Used during the 30 days	Key drug
Opiates		
Tramadol/tramal	4.1	0.7
Heroin	4.7	1.4
Liquid opium extract	79.4	73.7
Other	1.6	0.6
Stimulants		
Cocaine	0.6	0.2
Amphetamine as powder	9.8	5.4
Methamphetamine as powder	1.1	0
Methamphetamine as solution	28.0	15.9
Methcathinone	3.8	0.6
Cathinone	2.6	0.3
Methylendioxymethamphetamine ("Ecstasy", MDMA)	1.7	0.1
Other	1.0	0.2
Other types of drugs		
LSD, mushrooms	1.0	0.1
Other	0.8	0.5

*The total of the percents in the first column does not give 100%, as respondents mentioned all types of drugs that they used. The total of percents in the second column does not give 100%, respondents were asked to name one "favorite" drug.

Data from the table (second column) prove that opium extract is the most popular drug for 74% of respondents, the second most popular is methamphetamine as solution – 16%. The rest 10% of respondents were distributed among other types of stimulants. From among those who prefer opiates, 23% also used stimulants during the month, and from among those who prefer stimulants, 25% used opiates.

The quite noticeable difference in percentage between those who used methamphetamines during three months and those who mentioned methamphetamine as their "key" drug may mean that methamphetamines are often used when opiates are inaccessible.

If we add up all those who chose opiates as their key drug, it appears that 76.4% of respondents can be named “opiates users”. Respectively, 23% are users of stimulants, and 0.6% prefer other drugs.

The distribution of users of opiates and stimulants by gender, age and place of residence of the respondents, as well as injection experience, is shown below.

Table 3.2.6. Key type of drugs used in the injection way, distribution by gender, age of the respondents and the experience of the using stimulants, percentage

	Opiates	Stimulants	Other
Men (N=3036)	77.2	22.2	0.6
Women (N=926)	73.8	25.7	0.5
Age			
14–19 y.o. (N=345)	46.7	52.6	0.7
20–24 y.o. (N=695)	67.8	31.1	1.1
25–34 y.o. (N=1726)	79.2	20.2	0.5
35 y.o. and more (N=1196)	90.0	9.7	0.3
Experience			
0–2 years (N=539)	54.9	43.8	1.3
3–5 years (N=591)	67.1	32.0	0.9
6–10 years (N=950)	78.3	21.4	0.3
11 years and more (N=1878)	88.1	11.6	0.2
Residence			
Simferopol (N=250)	88.8	10.8	0.4
Mykolaiv (N=250)	94.4	5.6	–
Dnipropetrovsk (N=250)	73.9	26.1	–
Severodonetsk (N=250)	68.8	29.6	1.6
Kryvy Rih (N=250)	96.4	3.6	–
Zaporizhya (N=250)	77.1	22.9	–
Kyiv (N=400)	48.4	51.6	–
Vinnytsya (N=250)	38.4	61.6	–
Cherkasy (N=250)	93.2	4.8	2.0
Chernihiv (N=250)	68.0	33.4	1.6
Zhytomyr (N=250)	96.4	3.6	–
Chervonograd (N=250)	75.5	24.5	–
Rivne (N=250)	81.1	18.9	–
Ivano-Frankivsk (N=250)	82.8	16.0	1.2
Ternopil (N=100)	92.1	6.9	1.0
Uzhgorod (N=100)	70.0	30.0	–
Chernivtsi (N=100)	76.2	17.8	5.9
TOTAL	**76.4**	**23.0**	**0.6**

It should be mentioned that women a bit more frequently prefer stimulants – 26% vs 22% among men. With age the part of users of opiates evidently grows and reaches 90% in the group 35 years and older, while in the group of the youngest it is 47%. A similar trend is observed depending on experience – from 55% among those who have injection experience of 2 years and less, up to 88% among those who have 11 years and more of experience.

Distribution of the types of drugs by the place of residence is also quite uneven – from 96% of opiates users in Zhytomyr to 38% in Vinnytsya. However, there are more cities where the majority of IDUs use opiates as their key drug. Over 90% use opiates in Zhytomyr, Mykolaiv, Cherkasy and Ternopil; 81-89% in Simpferopol, Ivano-Frankivsk and Rivne; 68-77% in Dnipropetrovsk, Zaporizhya, Chervonograd, Chernivtsi, Severodonetsk, Chernihiv and Uzhgorod. Only Kyiv and Vinnytsya appear as an exception – over a half of IDUs there prefer methamphetamine and other stimulants.

Regarding use of alcohol during the recent 30 days, 78% answered affirmatively to this question. Among women of there are 5 % fewer affirmative answers than among men, 74% and 79%, respectively, $p<0.01$. Among age groups the youngest group stands out, 14-19 y.o., where alcohol was consumed during the month by 84.5% vs 77% in all older groups. The group with the shortest experience also differs from older ones: 83% consumed alcohol in the group with the experience of 2 years and less, vs 75-78% in older groups, $p<0.01$. However, the greatest difference (9%) is observed between users of opiates (75.5%) and stimulants (84%).

Those respondents who answered that they used alcohol (3075 persons) were asked how frequently they used alcohol during the recent 30 days (fig. 3.1.5).

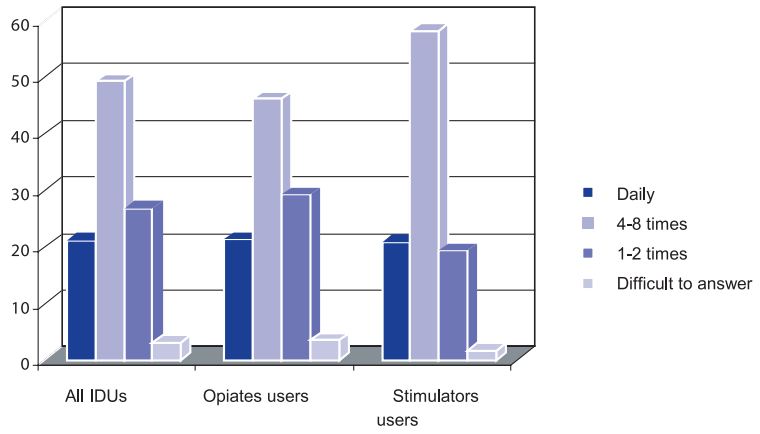


Fig. 3.2.1. Distribution of regularity of alcohol use during the recent 30 days, including by users of opiates and stimulants, (N=3075), percentage

21% answered that they used alcohol daily, 49% – 1-2 times a week, 27% – 1-2 times a month, 3% were not able to answer this question. As proven by the data, users of stimulants more frequently used alcohol than users of opiates: though the part of those who consumed alcohol daily is the same in these groups, the part of those who drank 1-2 times a week is 58% among users of stimulants and 46% among users of opiates, $p<0.01$.

3.3. Frequency of injections

Below we show the distribution of how frequently respondents injected narcotic matters during the recent 30 days, only for those types of drugs that were consumed by a statistically significant part of respondents. The data show that injections of opium extract are done significantly more frequently than injections of other drugs (fig. 3.3.1).

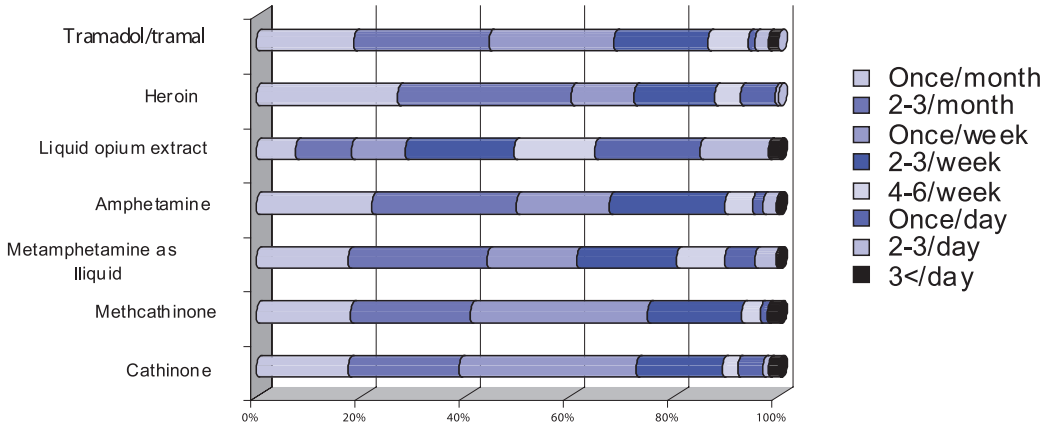


Fig. 3.3.1. Distribution of answers to the question "How often did you do injections of narcotic substances during the recent 30 days?", percentage

Thus, among opium users there are 18% of those who inject 1-3 times per month, and among users of other drugs there are 38-60% of such users. On the other hand, opium was daily used by 35%, and other drugs were daily used by 1.4-10%. It should be mentioned that 15% of opium users injected more frequently than once a day. As use of opium prevails in the population studied, its use to a greater extent characterizes regularity of injections in the studies population.

The distribution of respondents by frequency of injections of opium and methamphetamines – the drugs that are mainly used by IDUs polled within this survey – is shown below. There is a connection between frequency of injections with the gender, age of the respondents and experience of injection use (table 3.3.1, 3.3.2).

Table 3.3.1. Frequency of opium injections, distribution by gender, age of the respondent and experience of injections, percentage

	1–3/month	1–6/week	At least once/day
Men (N=3036)	18.8	47.9	33.3
Women (N=926)	16.3	42.6	41.1
Age			
14–19 y.o. (N=345)	23.8	55.3	20.9
20–24 y.o. (N=695)	19.5	51.9	28.6
25–34 y.o. (N=1726)	16.6	45.8	37.6
35 y.o. and older (N=1196)	18.4	43.1	38.5
Experience			
0–2 years (N=539)	25.4	57.4	17.2
3–5 years (N=591)	15.9	49.2	34.9
6–10 years (N=950)	18.4	44.8	36.8
11 years and more (N=1878)	16.9	43.7	39.4
TOTAL	**18.2**	**46.7**	**35.1**

Women quicker pass to the virtually daily mode of injections (41%) than men (33%) ($p< 0.01$). The youngest group of IDUs shows the lowest frequency of daily injections – 21%. In the age group 20-24 y.o. this part is already 29%, in the group 25-34 y.o. – 38%, however, after the age of 25 spreading of daily injections no longer increases. A link is traced between experience of using drugs and frequency of injections: after achievement of the experience of 3 years injections happen daily for 35% of IDUs, while during the first two years of injection experience daily injections are done by only 17% of respondents. After achievement of the experience of 5 years spreading of daily injections increases by 2% in every next experience group.

Table 3.3.2. Frequency of methamphetamine injections, distribution by gender, age of the respondent and experience of injections, percentage

	1–3/month	1–6/week	At least once/day
Men (N=3036)	42.7	45.1	12.1
Women (N=926)	48.0	46.9	5.1
Age			
14–19 y.o. (N=345)	46.4	47.0	6.6
20–24 y.o. (N=695)	42.8	52.4	4.8
25–34 y.o. (N=1726)	44.7	41.0	14.3
35 y.o. and older (N=1196)	42.0	46.0	11.9
Experience			
0–2 years (N=539)	53.0	41.4	5.6
3–5 years (N=591)	39.6	52.5	7.9
6–10 years (N=950)	42.4	46.8	10.8
11 years and more (N=1878)	41.6	42.9	15.5
TOTAL	**44.1**	**45.7**	**10.2**

In contrast to the situation with opium, men more frequently daily inject methamphetamine (12%) than women (5%) ($p<0.01$). Concerning the age, the difference is observed only between IDUs in the age younger than 25 y.o. (5-7% use methamphetamine daily) and older than 25 (12-14%) ($p<0.01$), similarly as it was observed for use of opiates. With growth of experience the part of those who inject methamphetamine daily monotonously grows from 6 to 16%; i.e. transition to daily use takes place quicker than for opium use, but on the whole a smaller part of stimulants users use them daily than among users of opiates.

The respondents who indicated use of opiates were asked the question about the experience of opioid overdoses during the recent 12 months. Among 3440 respondents who used opioids in the injection way, 13% indicated that they had overdoses at least once during the year. 86% had no overdoses, 1% – did not remember cases of overdose. Among those who had cases of overdose during the year (448 persons), a half reported one case of overdose, 29% – two, 21% – three and more cases; 2% were not able to remember the number of cases of overdose.

3.4. Practices of using injection toolkits

The national indicator "Percentage of respondents who indicated that they had used a sterile injection toolkit during the recent injection", (see annex 2, table 1) is 90%. 8.5% used non-sterile toolkits, 0.6% answered that they did not remember, and 0.8% did not give any answer.

No great differences between men and women, age groups and experience groups related to use of sterile syringes were discovered. From among the 17 cities of Ukraine, it is possible to single out two, in which indicators of using sterile toolkits are the lowest: this is, foremost, Zhytomyr (60%) and Cherkasy (83%). In the other cities this indicator is 85-95%. Users of stimulants more frequently (93%) than users of opiates (89%) indicated use of sterile toolkits ($p< 0.01$).

The indicator of using sterile toolkits during the recent 30 days is a bit lower than the national indicator and makes up 85.1%. Variation of this indicator in demographic groups is more substantial than in the case of using a sterile syringe during the recent injection, as it can be seen from table 3.4.1 below.

Table 3.4.1. Answers to the question "Has it happened during the recent 30 days that you injected with a syringe that was previously used for injection by another person?", distribution by gender, education of the respondents, experience of injections and residence, percentage

	"No"	"Yes"	"I don't remember"	No answer
Men (N=3036)	87.0	11.4	1.0	0.6
Women (N=926)	79.4	16.3	2.3	1.9
Education				
Primary (N=728)	76.2	21.1	1.7	1.0
Secondary (N=2571)	87.9	10.6	0.7	0.7
Higher (N=651)	84.3	10.8	3.2	1.7
Experience				
0–2 years (N=539)	88.3	8.7	1.4	1.6
3–5 years (N=591)	86.8	11.1	0.9	1.2
6–10 years (N=950)	85.0	13.6	0.8	0.7
11 years and more (N=1878)	831	14.4	1.7	0.8
Types of drugs preferred				
Opiates (N=3175)	84.3	13.5	1.3	1.0
Stimulants (N=787)	88.1	10.0	1.4	0.5
Place of residence				
Simferopol (N=250)	75.8	19.8	4.0	0.4
Mykolaiv (N=250)	92.0	6.8	0.4	0.8
Dnipropetrovsk (N=250)	80.6	19.0	0.4	–
Severodonetsk (N=250)	85.0	14.6	–	0.4
Kryvy Rih (N=250)	90.8	7.6	1.2	0.4
Zaporizhya (N=250)	75.4	22.6	1.6	0.4
Kyiv (N=400)	92.9	6.2	0.5	0.5
Vinnytsya (N=250)	94.8	4.4	0.8	–
Cherkasy (N=250)	66.8	23.2	4.4	5.6
Chernihiv (N=250)	82.8	15.6	0.8	0.8

	"No"	"Yes"	"I don't remember"	No answer
Zhytomyr (N=250)	93.1	4.4	–	2.4
Chervonograd (N=250)	88.8	8.8	1.6	0.8
Rivne (N=250)	88.6	10.6	0.8	–
Ivano-Frankivsk (N=250)	71.3	23.5	3.6	1.6
Ternopil (N=100)	96.0	3.0	1.0	–
Uzhgorod (N=100)	83.0	15.0	–	2.0
Chernivtsi (N=100)	97.0	3.0	–	–
TOTAL	**85.1**	**12.6**	**1.3**	**1.0**

Women more frequently (16%) than men (11%) admit that they used a syringe after someone had already done an injection with it ($p<0.01$).

Respondents with primary education a bit more frequently (21%) admitted that they used an already used syringe than respondents with secondary and higher education (11%) ($p<0.01$).

No growth of the inclination to use a toolkit already used by someone with age is observed. However, the part of such respondents increases a little with experience – from 9% in the youngest group to 15% in the oldest, the difference between these groups is significant ($p<0.05$).

A difference is also noticed between those who mentioned an opiate as their main drug and those who named stimulants as such. Thus, the first more frequently stated that they used non-sterile toolkits (13.5%) than the latter (10%).

More frequently previously used toolkits were used in Zaporizhya, Cherkasy and Ivano-Frankivsk (23%). A bit more frequently than on average for the sample non-sterile toolkits were used in Simpferopol, Dnipropetrovsk, Severodonetsk, Chernihiv and Uzhgorod (15-20%). In the other cities the indicator is 3-10%.

The respondents who have happen to use a syringe after other IDUs (613 persons) were asked with whom they did common injections. The answers were distributed as follows (table 3.4.2):

Table 3.4.2. Partners with whom common toolkits were used during the recent month, (N=613), percentage

"Have you been using during the recent 30 days a needle together with:	"Yes"	"No"	"Don't know"/No answer
permanent sexual partner	26.5	61.5	12.0
non-permanent sexual partner	13.7	34.1	12.3
occasional sexual partner	10.1	77.3	12.7
unfamiliar person who was not your sexual partner	10.1	75.6	14.3
friend, acquaintance	53.1	35.4	11.5
dealer (drug dealer)	4.1	82.0	13.9
wife/husband	4.4	80.6	15.0
another person?"	3.0	93.7	3.4

Most frequently common injections are done with well acquainted people: with friends (53%) or with a permanent sexual partner (26.5%). More rarely common injections are done with the wife/husband (4.4%) or with a drug dealer (4.1%).

The average number of partners with which IDUs have jointly used a syringe during the recent 30 days, makes up 2.2 persons. For men the number of injection partners is 2.3 persons, for women – 1.9 persons ($p< 0.05$). By the age, experience and type of drugs that they prefer the number of injection partners does not differ.

The respondents who reported that they used an already used syringe were asked how often they disinfected the syringe before using. 34% reported that they always did it (the first column in table 3.4.3). However, after the request to remember events of the recent 30 days related to disinfection 18 persons reported that they had happen to use a non-disinfected syringe. Thus, the part of those who have always done syringe disinfection reduced to 31.5%. If we categorize these 18 respondents as such that in most cases disinfect the syringe, the distribution will look as it is shown in the second column of table 3.4.3.

Table 3.4.3. Answers to the question "If you have shared drug injection with other persons, how often have you disinfected the syringe/needle before using it during the recent 30 days?" and "Think once again about events of the recent 30 days. Has it happened that you did not disinfect?", (N=613), percentage

	Before asking to remember	After asking to remember
Always (100%)	33.7	31.5
In the majority of cases (75%)	20.2	22.5
In half of the cases (50%)	8.6	8.6
Sometimes (25%)	5.7	5.7
Seldom (less than 10%)	4.7	4.7
Never	16.3	16.3
Difficult to say	10.6	10.6
Total	**100.0**	**100.0**

Therefore, the share of those who admitted that at least once they have not disinfected syringe after it was used by someone else, or could not answer the question, was 70% in sub-sample of those who used non-sterile syringes. compared with the whole sample, the part of IDUs with unsafe behavior equals 10%. Taking into account those who never disinfected used syringes, and those who was unable to answer this question, the share of this most unsafe behavior in the sub-group of 613 persons is 27%, whereas for the total sample of 3,962 persons it is 4%.

The regularity of injection instruments disinfection distributed by IDUs age and experience of injections shows that with time percent of safe behavior grow. Thus, in the youngest group the share of those who always disinfect instruments, equals 21%, whereas in the eldest group it is 34.5%, and the difference is significant, $p<0.05$. Though the difference between the other groups is not statistically significant, we can state that the youngest group is characterized with the most unsafe behavior. In the group of youngest persons by experience the percent of those who always disinfect instruments, is 24%, whereas in the eldest group it is 38%, and the difference is significant, $p<0.05$. At the same time the group with experi-

ence of more than 11 years is deemed to have the safest behavior. If only taking into account the percent of those who never disinfect instruments, the behavior of group with experience of up to 2 years looks quite safe. However, if the behavior of those who could not answer the question about disinfection, is considered unsafe, the behavior of IDUs with smaller experience can be stated more risky, compared with IDUs with the largest experience, and the difference is statistical insignificant.

With regards to the methods of disinfection of used syringes and needles, IDUs most often washed instruments with boiled water – in 41% of cases, water from the tap – in 35%, and in 11% of cases washed with soap. Only 20.5% of responses referred to the disinfection by means of boiling or washing with chlorine solution, respectively 17.5% and 3% (table 3.4.4).

Table 3.4.4. Answers to question "If you disinfect the needle or syringe, how do you do that?", (N = 515), %

Wash with water from the tap	35.4
Wash with boiled water	40.8
Boil syringe and needle	17.5
Wash with soap	11.0
Wash with chlorine solution	3.0
Other	10.0

79% of respondents have never given their used syringes to others; 0.8% has always given them, 1% has often given those, 2.7% – in 50% of cases, and 15.5% – sometimes.

Women are more inclined to give their syringes to other IDUs (24.5%), compared with men (19.5%), and the difference is significant ($p<0.01$). Significant differences by age and experience of use of injected drugs were not discovered. However, it is worth mentioning, that practice of giving syringes to other is more common for opiate users (22%), compared with users of stimulants (13.5%), ($p<-0.01$).

57% of respondents informed that they used drugs from a pre-filled syringe. And, most of those who gave both positive and negative answer to this question, consider that during the last 30 days they did not use instruments, which were used before by someone else (80 and 92% respectively). Notably, respondents answer the question, whether they used a sterile or non-sterile syringe, regardless of whether they actually saw it being filled. Table 3.4.5 below presents the distribution of use of drugs from pre-filled syringe by gender, age and experience.

Among men and women, elder and younger IDU, the share of those who took drugs from pre-filled syringe, is approximately the same.

However, the difference is observed between the group with 6–10 years of experience and other groups. In this group injections with pre-filled syringe are made more often (63%), than in groups with shorter experience (53 and 55% respectively), and longer experience (58%) ($p<0.01$). Another important observation is that opiate users make injections from pre-filled syringe 1.5 more often, than users of stimulants.

69% of respondents used common toolkits to prepare drugs at least once, and 39% did it on a regular basis (table 3.4.6).

Table 3.4.5. Distribution of answers to question "Have you made an injection from the pre-filled syringe (i.e. you did not see how the syringe was filled) during the last 30 days?", %

	"yes"	"no"	"difficult to say"	Total
Experience of drug use				
0–2 years (N=539)	53.3	45.7	1.0	100
3–5 years(N=591)	54.7	41.0	4.3	100
6–10 years (N=950)	63.0	34.9	2.2	100
11 and more years (N=1878)	57.7	40.6	1.7	100
Type of drugs				
Opiates (N=3175)	61.1	36.2	2.7	100
Stimulants (N=787)	46.4	53.1	0.4	100
Total	**57.6**	**40.2**	**2.1**	**100**

Table 3.4.6. Regularity of use of common toolkits during the last month by age, experience of suing drugs, and type of drugs, %

	Always	In most cases	In 50% of cases	Sometim-es (25%)	Seldom (less than 10%)	Never	Difficult to say	
Age								
14–19 yea-rs (N=345)	23.1	11.8	6.8	8.5	10.5	36.9	2.4	100
20–24 yea-rs (N=695)	21.6	14.7	12.0	9.3	10.4	30.4	1.6	100
25–34 yea-rs (N=1726)	26.2	13.0	9.6	9.2	10.7	30.2	1.0	100
35 and old-er (N=1196)	29.7	12.9	8.6	10.3	10.7	27.1	0.8	100
Experience of drug use								
0–2 years (N=539)	22.6	11.1	9.1	9.4	8.9	37.1	1.8	100
3–5 years (N=591)	21.5	16.7	10.1	8.2	9.1	32.1	2.2	100
6–10 years (N=950)	24.6	16.1	9.5	8.9	10.1	29.6	1.3	100
11 and more years (N=1878)	29.9	11.0	9.3	10.3	12.2	26.6	0.6	100
Type of drugs								
Opiates (N=3175)	26.0	14.4	10.0	9.6	10.7	28.4	1.0	100
Stimulants (N=787)	25.8	8.9	7.7	9.3	10.4	35.7	2.2	100
Total	**25.9**	**13.1**	**9.4**	**9.5**	**10.6**	**30.1**	**1.2**	**100**

Share of those who never used common toolkits, compared with the share of those who did it at least once, shows that with the time the inclination to a more unsafe behavior grows. In 37% of cases IDUs under 19 years old and IDUs with experience up to 2 years inclusively stated that they never used common toolkits to prepare and share drugs, whereas the share of such IDUs aged over 35 years and IDUs with experience of more than 11 years is 27%, and the difference is significant, ($p<0.01$).

In general, the tendency to risky behavior in using common toolkits has the inverse movement compared with use of common instruments, which is most often used by the youngest IDU. The inverse tendency with regards to use of common toolkits might be explained by different methods of obtaining primary products and technologies of preparing opiates and stimulants. The information shows that opiate users more often use common toolkits (72%), compared with users of stimulants (64%). As opiate users are older by age that users of stimulants, this possibly explains differences between age groups.

Table 3.4.7. Regularity of taking drugs from common toolkits over the past month, by age, drug use experience and type of drugs, %

	Always	In most cases	In 50% of cases	Sometimes (25%)	Seldom (less 10%)	Never	Difficult to say	
Age								
14–19 years (N=345)	27.9	11.8	6.8	6.3	13.1	33.4	0.7	100
20–24 years (N=695)	25.7	16.0	9.6	8.6	10.6	28.3	1.2	100
25–34 years (N=1726)	30.9	12.3	8.8	9.0	10.2	28.0	0.8	100
35 and older (N=1196)	37.1	14.7	6.9	8.4	9.1	23.5	0.3	100
Experience								
0–2 years (N=539)	30.3	12.9	5.8	6.4	12.1	32.1	0.4	100
3–5 years (N=591)	25.0	16.4	9.9	8.1	8.8	31.1	0.7	100
6–10 years (N=950)	30.4	14.2	8.5	8.5	9.6	27.5	1.3	100
11 and more years (N=1878)	35.0	12.4	8.4	9.5	10.5	23.8	0.4	100
Type of drugs								
Opiates (N=3175)	29.0	8.9	7.4	7.8	12.2	34.5	0.2	100
Stimulants (N=787)	32.1	15.1	8.5	8.7	9.7	25.1	0.8	100
Total	**31.4**	**13.7**	**8.2**	**8.5**	**10.3**	**27.3**	**0.7**	**100**

However, a separate analysis demonstrated that both the type of preferred drugs, and changes in behavior due to age play their role. Thus, among opiate users use of common toolkits is equally widespread in all age groups, whereas among users of stimulants use of common toolkits grows with the age from 55 to 73%. Use of opiates may play its role, as with the age users of stimulants more often start using opiates. In particular, daily use of opiates in the group of users of stimulants increases from 6% in the age group of persons under 19 years to 17% in age group of over 35 years.

72% of responding IDUs took the ready solution from the common toolkits at least once over the last month. It is worth mentioning, that among those who received pre-filled syringe for injections 24% stated that they never took drugs from common toolkits, whereas among those who did not received pre-filled syringe, 32% stated that, and the difference is statistically significant ($p<0.01$).

As well as in case with use of common toolkits with the time inclination to a more unsafe behavior, i.e. use of ready solution from common toolkits, grows. IDUs under 19 years old, and also IDUs with experience of under 2 years inclusively, in 33 and 32% of cases respectively admitted that they never used common toolkits for preparing and sharing drugs, whereas their share among more than 35 years old IDUs and IDUs with experience of more than 11 years is 23.5 and 24% respectively, and the difference is significant, ($p<0.01$).

3.5. Use of sterile instruments: by results of 2007–2009 surveys

Comparison of the key indicator of using injection instruments during the last injection shows an insignificant change (table 3.5.1)

Table 3.5.1. Share of IDU who used sterile injection materials during the last injection, % and confidence intervals

City	2007	Confidence interval	2009	Confidence interval
Simferopol	**77.9**	71.8–83.9	**92.0**	87.7–95.9
Dnipropetrovsk	84.5	78.0 – 90.3	88.5	81.3–93.1
Kryvy Rih	90.0	82.6–95.2	93.1	89.8 –97.2
Kyiv	**87.5**	82.2–92.3	**100.0**	–
Mykolayiv	85.0	77.0–92.7	95.4	91.8–98.5
Cherkasy	89.8	84.5–94.6	82.6	74.1–90.6
6 cities in total	**84.5**	82.5–86.5	**93.2**	92.0–94.4

Both in 2007 and in 2009 the indicator was high. Statistically significant growth was only registered in Simferopol and Kyiv. In 2009 in six cities the indicator was more than 83%. However, the other indicators if using sterile injection instruments have both smaller figures, and demonstrate considerable regional differences and changes over the time. In particular, this refers to the indicator of non-use of syringe, pre-filled by someone from IDU circle.

Table 3.5.2. Share of IDU who did not make injections using pre-filled syringe over the last 30 days, % and confidence intervals

City	2007	Confidence interval	2009	Confidence interval
Simferopol	**20.7**	14.0–29.0	**45.2**	37.4–53.2
Dnipropetrovsk	***70.5***	61.4–79.0	***52.1***	43.0–61.4
Kryvy Rih	**17.4**	8.9–27.2	**57.2**	47.2–65.8
Kyiv	46.8	37.3 –55.7	41.3	35.5–47.8
Mykolayiv	***34.2***	25.0–44.2	***13.3***	8.7–20.4
Cherkasy	***38.9***	30.6–48.2	***13.8***	8.0–19.3
6 cities in total	37.8	34.8–40.8	36.5	33.9–39.1

In Mykolayiv and Cherkasy the indicator of non-use of pre-filled syringe decreased from approximately the average level in six cities to 13–14%. In Dnipropetrovsk a slightly smaller decrease of the quite high indicator was observed. At the same time, this indicator grew twice in Simferopol and by three times in Kryvy Rih. Therefore, this indicator appeared to be more sensitive to some local factors, for instance, increase in sales of drugs in pre-filled syringes in Simferopol and Kryvy Rih.

One of those factors can be a share of respondents who obtained syringes from NGO staff. Hypothetically, in the cities, where this factor of IDUs coverage grew, the use of sterile syringes was supposed to grow as well. However, the analysis showed that in five cities out of six (except for Cherkasy) indicator of obtaining syringes from NGOs reduced by 10%. This can be explained by that in contrast to survey of 2007, in the course of survey of 2009 interviewers covered both respondents who were NGO clients or had access to their services, and more latent IDU groups.

Changes in the structure of use may also partially explain drop in the indicator of non-use of pre-filled syringe in Mykolayiv and Cherkasy. Assumption can be made that technology of preparing opiates implies a more common practice of pre-filling syringes by someone from users' group, compared with users of stimulants. Thus, 61% of those who consider opiate their main drug, obtained injections from a pre-filled syringe, whereas their share among users of stimulants was only 46% (table 3.4.5). Thus, in the cities, where in 2007–2009 use of opiates increased, the share of those who obtained an injection from a pre-filled syringe, should have shown a different dynamics. However, use of opiates did not only grow in Mykolayiv and Cherkasy, but also in Kryvy Rih and Kyiv, though in those cities the share of those who did not make injections using a pre-filled syringe remained the same.

Chapter 4. UNDERTAKING PREVENTION MEASURES AGAINST HIV TRANSMISSION DURING SEXUAL CONTACTS

Spreading HIV sexually is an important source of infection transmission among representatives of drug environment, and its spread among external social HIV risk groups. Questions of this section were only answered by the respondents who had experience in sexual contacts (3,920 persons), and mainly those of them who had sexual contacts over the last 12 months (3685 persons). 92% of respondents agreed to provide the information on characteristics of their sexual life during the last year.

4.1. Level of IDUs sexual activity

This sub-section studies various types of IDUs sexual contacts, number of sexual partners and intensiveness of their sexual life by social and demographic parameters, marital status, influence of the local drug environment, inclination to use of various types of drugs and frequency of injections.

Start of IDUs sexual life

99% of interviewed IDUs (3,920 persons) had at least one sexual contact in their life. Most of respondents (92% or 3,659 persons) had sexual contacts during the last 12 months, and about 80% (3,160 persons) of respondents had sexual contacts during the last 30 days.

Most of respondents (71%) gained their first sexual experience at age under 17 years. A part of IDUs who started their sexual life at age under 15 years (inclusive), is 44%; 50% of IDUs gained their sexual experience at age between 16 and 18 years.

Share of IDUs whose sexual debut took place at age of more than 21 (inclusive), is 1%.

The distribution of respondents by age of gaining the first sexual experience is presented by figure 4.1.1.

Women IDUs, included in the sample, started sexual life later compared with men. The average age of women's sexual début is 16 years old, whereas the men's age is 15.5 years old ($p<0.01$).

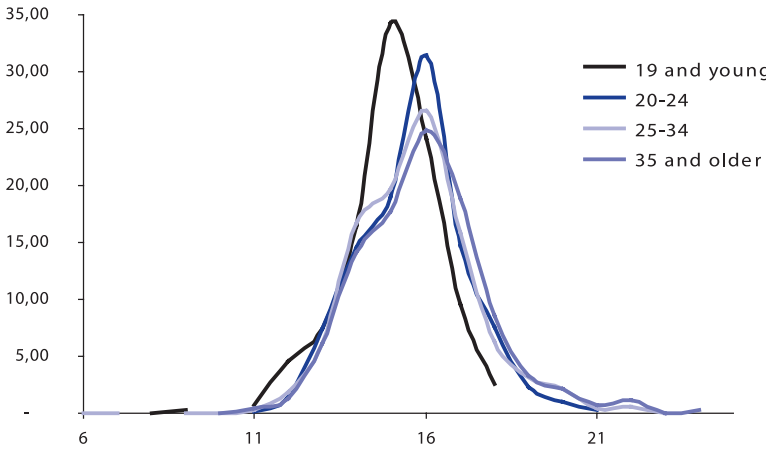


Figure 4.1.1. Distribution of answers to question "At what age you first had a sexual contact?" in four age groups (% of group, compared with total interviewed persons) (N=3791)

Sexual contacts of IDUs

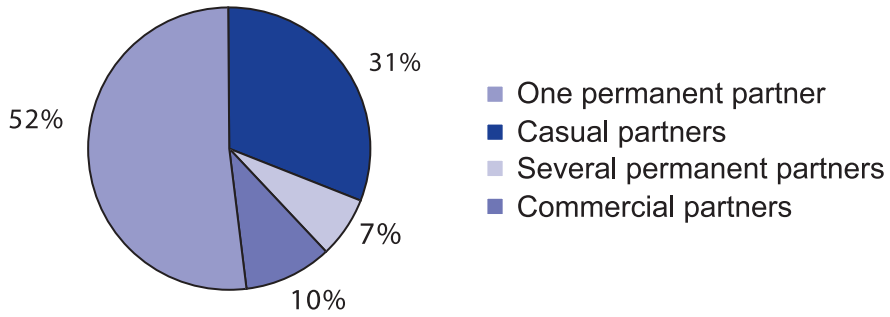
Over the last 90 days 74% (2,710 persons) of injection drug users had sexual contacts with permanent partners (but only with them), 37% (1,341 persons) of interviewed persons had casual contacts, 5% of them paid for sexual services (199 persons) and 4% rendered sexual services for remuneration (157 persons).

For more detailed analysis of sexual behavior "pure" categories of sexual partners were distinguished. This measure was caused with the fact that all three groups of sexual partners (permanent, casual, and commercial) significantly coincide: 19.8% of persons with permanent partners also had casual contacts, and approximately 3% used sexual services and 3% provided them.

Distinguished "pure" group allow for more accurate analysis of factors, which support risky sexual behavior.

"Pure" types in terms of risky sexual behavior were identified as follows:

The first category – one permanent partner – includes IDUs who informed that over the last three months they had sexual contacts with one permanent partner (1,880 persons) and had no contacts either with casual or commercial partners. They can be considered the category with relatively low probability of HIV infection through sexual contacts. The second category – casual partners (including those who have a permanent partner) – covers IDUs who stated that they had sexual contacts with casual partners (1,132 persons). Contacts with casual partners substantially increase the risk level of sexual behavior, therefore this category can be considered the most exposed to risk of infection. The third category covers the IDUs who had several permanent partners over the last three months, i.e. husband/ wife or another person, with whom respondent had long relations (236 persons). The fact of having several though permanent partners also increases the risk level of behavior. The fourth category comprises IDUs who had sexual contacts with commercial partners, including those with permanent partners? Who had casual contacts (N=349). Sexual contacts with so different types of partners allows for saying about extremely high level of sexual behavior. Figure 4.1.2 represents distribution of answers concerning this synthetic variable.



4.1.2. Distribution of variable "Type of sexual partner" (N =3597), %

Most of respondents (52%) only had sexual contact with one partner. The second group by quantity is the group comprising IDUs who had casual partners; their share is 32% of total number of respondents who had sexual contacts over the last 3 months. Share of IDUs who have several permanent partners, is 7%. The share of respondents who consumed commercial sex services or rendered such services, is 10%.

In general women are inclined to more stable sexual relations: they had one permanent partner more often that men (59% in contrast to 50%) and had less casual relations (16% In contrast to 37%) ($p<0.01$). However, women practiced commercial sex more often, than men (75% in contrast to 18%) ($p<0.01$).

With age the number of IDUs who only had one sexual partner, grows, whereas the number of IDUs practicing casual sex decreases from 44.5% to 26% (see table 4.1.1) ($p<0.01$). At the same time, share of IDUs who have several permanent partners, does not depend on the age, and the number of those who practice commercial sex, increases, though the difference between age groups is not significant ($p>0,.05$). The longer is the experience of use of injection drugs, the larger is the number of IDUs who have sexual relations with only one partner, and the smaller is the share of those who enter casual relations (see table 4.1.11) ($p<0.01$). However, share of those who have several permanent partners, remain almost unchanged ($p<0.01$). At the same time as experience grows, the share of IDUs who practice commercial sex, also grows ($p<0.01$).

Marital status encourages safer sexual behavior of IDUs. Among married the share of those who have casual contacts, is much less, than among non-married (14% in contrast to 46%), ($p <0.01$).

IDUs who have sexual partners outside IDUs environment are inclined to having more polygamous relations, than IDUs without such partners ($p<0.01$).

Obtained data demonstrated considerable difference between regions in terms of extent of commercial sex ($p<0.01$). Cities, where this survey was conducted, can be classified to 4 groups by the value of this indicator. The first group comprises cities, where the involvement of IDUs in the market of commercial sexual services exceeds 20%; the send group comprises cities, where this indicator equals about 10%, in the third group the indicator varies around 3%, whereas the fourth group comprises cities, where this indicator is 2% and less. The largest number of IDUs, practicing commercial sex, was identified in Simferopol (31%), Zaporizhya (29%) and Cherkasy (28%). According to the value of this indicator Kyiv (4%), Mykolaiv (7%) and Ternopil (10%) can also be classified to the second group of cities. The third group incorporates Vinnytsya (3%), Rivne (3%), Zhytomyr (4%) and Severodonetsk (4%). Among sampled cities, the indicator of involvement in the market of commercial sexual services is the lowest in Chernihiv

(1%), Chervonograd (1%) and Kryvy Rih (2%). In Uzhgorod IDUs with experience in commercial sex were not identified.

Таблиця 4.1.1. Кількість сексуальних партнерів кожного типу, з якими був контакт протягом останніх трьох місяців, відсотки

	One permanent partner	Casual partners, including those who have permanent partner	Number of permanent partners	Commercial partners, including those who have permanent partners and had casual contacts	All types of partners, total
Gender					
Women (N=890)	59.0	15.8	7.3	17.9	100.0
Men (N=2707)	50.1	36.6	6.3	7.0	100.0
Age					
14–19 (N=345)	45.5	44.5	6.1	3.9	100.0
20–24 (N=695)	46.4	40.9	5.3	7.4	100.0
25–34 (N=1726)	54.2	27.2	8.2	10.5	100.0
35+ (N=1196)	56.3	26.0	5.1	12.6	100.0
Marital status					
Married (N=1629)	74.1	14.0	5.0	6.9	100.0
Non-married (N=1-967)	34.2	46.0	7.8	12.1	100.0
Duration of drug use					
up to 2 years (N=496)	46.8	42.2	6.4	4.6	100.0
from 3 to 5 years (N=548)	48.7	34.1	9.3	7.9	100.0
from 6 to 10 years (N=903)	53.9	30.2	6.4	9.6	100.0
more than 11 years (N=1743)	55.1	26.5	5.7	12.7	100.0
Sexual relations with non-IDUs					
Took place (N=1080)	52.3	26.9	5.6	15.1	100.0
Did not take place (N=440)	56.6	31.8	2.3	9.3	100.0
Total	**52.3**	**31.5**	**6.6**	**9.7**	**100.0**

It has been noticed that more persons who consider stimulants their main drugs are inclined to casual contacts – 42.5% in contrast to 35% of those whose main drug is opiate, the difference is significant, $p<0.01$. However, shares of permanent and commercial partners of those groups are almost identical.

Male respondents were asked about whether they had sexual contacts with male partners during the year. 45 persons out of 3,962 respondents, i.e. 1%, gave the positive answer. Small number of this sub-group makes the identification of statistical significance impossible; however, analysis showed that their behavior

characteristics were considerably similar to those of other respondents. This concerned the use of condom, sterile syringes, and the share of casual sexual contacts. However, share of relations with commercial partners whom respondents paid for sex, makes this group different compared with other respondents – there were 14 such persons out of 45, i.e. 30%, whereas the share of commercial sex in the total sample is 5%. The inclination of this group to a more risky behavior is confirmed with the fact that 3 persons out of 45 paid for sexual services.

Respondents who said that they are married or live with their sexual partners, were asked about, whether their partner used injection drugs (table 4.1.2).

Table 4.1.2. Distribution of answers to question "Does your sexual partner take injection drugs?" by gender, age and experience of use of drugs , N=1957, %

	"yes"	"no"	"I do not know"
Men (N=1410)	33.7	61.3	5.0
Women (N=547)	69.0	27.1	3.8
Age			
14–19 years (N=47)	52.2*	44.8	3.0
20–24 years (N=230)	37.0	55.5	7.6
25–34 years (N=996)	46.6	50.4	3.0
35 and older (N=684)	41.2	52.6	6.2
Duration of drug use			
0–2 years (N=152)	39.7	55.0	5.3
3–5 years (N=220)	32.8	63.4	3.8
6–10 years (N=485)	46.8	48.0	5.2
11 and more years (N=1099)	46.0	49.4	4.6
Total (N=1956)	**43.7**	**51.6**	**4.7**

*Number of respondents in this group is too small to make statistical conclusions.

The figures show that women have IDU spouses or partners twice more often (69%), than men (33%), $p<0.01$. It may mean that men give preference to non-IDU women, whereas IDU women less often choose men based on his status. If disregarding the youngest IDUs (47 persons), the share of IDU partners grows until 35 year-old-age. Statistically significant difference is considered between group aged 20–24 (37%) and group aged 25–34 (47%), $p<0.01$, and between group 25–34 (47%) and 35 and older (41%), $p<0.05$. With regards to the experience, it should be mentioned that statistically significant difference is observed between group with 3–5 year experience (33%) and groups with longer experience (46–47%), $p<0.01$. It should be also mentioned that about 5% of those who live with their partners, do not know whether their partners take injection drugs or not.

Respondents from six cities – Simferopol, Dnipropetrovsk, Kryvy Rih, Zaporizhya, Kyiv and Mykolaiv were asked, whether they had a contact with a non-IDU over the last three months, and 66% of them gave positive answer.

Table 4.1.3. Distribution of answers to question about sexual contacts with non-IDU partners, (N=1656), %

	Positive	Negative
Men (N=1243)	71.2	28.8
Women (N=413)	51.6	48.4
Marital status		
Non-married (N=725)	58.7	41.3
Married (N=818)	73.2	26.8
Divorced (N=113)	65.9	34.1
Total (N=1656)	**66.4**	**33.6**

Men more often have non-IDU sexual partners, compared with women – 71% against 52%, and this confirms the information obtained from married and IDU who live with a partner from the general sample. Married respondents have non-IDU partners more often (73%), than non-married (56%). Statistically significant differences depending on age, experience and type of sexual contacts were not observed.

Number of IDUs sexual partners

This sub-section represents analysis of the total number of sexual partners of all types among those who had sexual contacts during the year before the survey (3,685 persons).

Analysis identified statistically significant differences in the number of sexual partners (over the last 3 months) depending on the respondents' gender. Women more often had one partner (57% women and 50.5% men), whereas men were more inclined to have 2–5 partners over the period in question (35% men and 26% women), ($p<0.01$). Women were also more inclined to have over 12 sexual partners (5% in contrast to 1%), which can be explained with a bigger share of women offering sexual services for money[11].

Based on the obtained results the conclusion can be made that after the age of 35 years and older the number of IDUs sexual partners of all types dramatically drops (see table 3.1.4.), ($p<0.01$). With age the number of IDU who had sexual contacts with 2–5 partners (during 3 last months) decreases, and the number of those who only had contacts with one partner, increases. However, the number of IDUs contacts with six and more sexual partners, remains more or less stable regardless of the age[12]. The number of respondents in sub-groups "several permanent partners" and "the availability of commercial partners" does not allow for assessment of significance of differences in percent. It should be emphasized, that the share of those who had sexual contacts, among IDUs older than 35 years, is a little smaller compared with other age groups– 79% against 95%.

[11] The mentioned statistical relationship cannot be estimated, as the number of persons who had commercial partners, in the sub-sample is insufficient.

[12] The number of respondents in sub-groups "several permanent partners" and "availability of commercial partners" does not allow to estimate of the significance of differences in percentage.

Table 4.1.4. Total number of sexual partners over the last three months, (N= 3685), %

	No partners at all	One partner	2–5	6–12	More than 12 partners	Total
Women (N=945)	7.0	57.2	25.9	4.8	5.1	100.0
Men (N=2879)	6.8	50.5	34.8	6.7	1.3	100.0
Age						
14–19 (N=345)	5.8	46.7	39.5	5.8	2.1	100.0
20–24 (N=695)	4.4	47.7	37.6	7.3	3.0	100.0
25–34 (N=1726)	4.9	54.1	32.6	6.3	2.2	100.0
35+ (N=1196)	11.6	54.3	26.8	5.5	1.7	100.0
Marital status						
Married (N=1662)	2.6	72.9	19.2	3.5	1.7	100.0
Non-married (N=2160)	10.0	36.2	43.0	8.2	2.5	100.0
Sexual contacts with non-IDU						
Took place (N=1091)	1.3	54.0	38.8	3.8	2.1	100.0
Did not take place (N=523)	16.4	55.6	21.4	5.0	1.5	100.0
Types of sexual relations						
One permanent partner	-	100.0	-	-	-	100.0
Casual partners	-	10.3	76.0	11.9	1.9	100.0
Several permanent partners	-	-	84.8	11.4	3.8	100.0
Commercial partners	-	3.2	57.8	23.0	15.9	100.0
Total	**6.8**	**52.1**	**32.6**	**6.2**	**2.2**	**100.0**

The link between marital status and the number of sexual partners, with whom there were sexual contacts during the last 90 days, is as follows: IDUs without experience in marriage are a little more inclined to multiple sexual relations. They said that they had sexual contacts with several (2–5) or many partners (more than 6) more often, compared with those who had this experience ($p<0.01$). During the last 3 months married IDUs had more contacts with only one partner in contrast to single IDUs ($p<0.01$). Most of married IDUs (73%) had one sexual partner during this period, whereas the share of non-married IDUs with one partner was 35% ($p<0.05$). Quite a large share of non-married IDUs had sexual contacts with 2–5 partners during the given period of time (43% and 40%), whereas the share of married IDUs with this number of contacts was 19%, ($p<0.05$).

The outcomes of analysis show that there is a difference in the number of sexual partners of IDU who have sexual contacts with non-IDU partners, and those who have no such contacts. The former entered sexual relations with 2–5 partners more often, ($p<0.01$). The share of those who had sexual contacts with 2–5 persons, among IDU who had sexual contacts with IDU, equals 39%. At the same time, the same indicator for the group of IDU who had no partners from outside the drug environment, is 21%. It can be also stated that the share of those who only had one partner during the last three months, among respondents with sexual re-

lations outside the drug environment, and among IDU who only have contacts in their group, does not differ, it equals 54% in the first group and 56% in the second one, ($p<0.05$).

With regards to the sexual relation type structure, the obtained data shows that 76% of those who practice sex with casual partners, have sexual contacts with 2–5 partners during the last 3 months. During the same period, 85% of those who had several permanent partners, had sexual contacts with 2–5 persons. 58% of IDU who practice commercial sex, had the same number of sexual partners, ($p<0–01$). There is also statistically significant difference between the share of IDU who either had casual relations, or several permanent partners, and the IDU who practice commercial sexual relations. Among the first two groups the share of persons with more than 6 sexual partners is 14%, whereas for IDU who paid for sex services or rendered them, this figure is 39%, ($p<0.01$).

Statistically significant link between the preferred types of drugs (opiates or stimulants), and frequency of drug use and the number of sexual partners was not found.

Intensity of IDUs sexual life

IDU respondents were asked about how often they had sexual contacts with partners of all types during the last three months. They responded using 9-level gradation, which was re-coded for 4-level for convenience of the presentation (figure4.1.3 and table 4.1.5).

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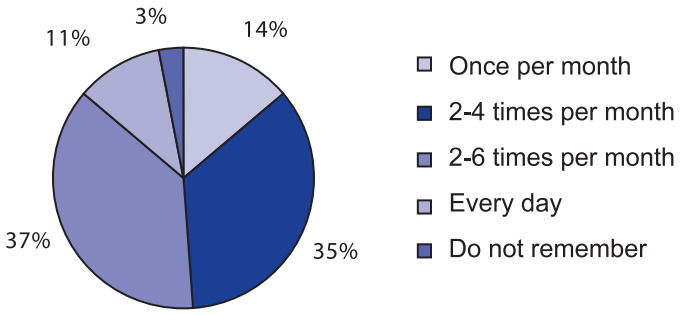

Figure 4.1.3. Frequency of sexual contacts during the last 3 months, (N =3597), %

Men are inclined to more intensive sexual contacts; for most categories of answers the difference between them and women is statistically significant ($p<0.01$). IDUs at age of 25–34 years are more inclined to have contacts 2–6 times a week (40%) compared with IDUs at age of 20–24 years (32%), ($p<0.01$). In general, IDUs at age 25–34 years had the highest frequency of sexual contacts during the last 3 months both compared with the youngest group, and the group of over 35 year-olds. Among IDUs with experience of 6–10 years, the share of persons who had contacts more often than once per month, is also higher compared with group with experience of up to 2 years. Marked differences are observed in frequency of sexual contacts among users of opiates and stimulants. However, shares of those who have contacts every day, do not differ in those groups, though, there more persons having contacts every day (49%) among users of stimulants, compared with users of opiates (33%). By type of sexual partners, only IDU who had commercial partners, differ. Their share of daily contacts is 24%.

Table 4.1.5. Frequency of sexual contacts with all types of partners over the last three months, (N= 3681), %

	Once per month and less	2–4 times per month	2–6 times per week	Once per day and more often	Do not remember/ Difficult to answer	Total
Women (N=945)	10.9	31.5	40.2	14.2	3.1	100.0
Men (N=2879)	15.6	36.4	36.1	9.3	2.6	100.0
Age						
14–19 (N=345)	15.1	40.6	37.5	4.8	1.9	100.0
20–24 (N=695)	13.2	40.4	32.0	10.1	4.3	100.0
25–34 (N=1726)	11.8	32.2	39.7	13.7	2.6	100.0
35+ (N=1196)	19.1	33.8	36.5	8.4	2.2	100.0
Period of drug use						
up to 2 years (N=496)	12.7	43.1	33.6	6.5	4.2	100.0
from 3 to 5 years (N=548)	12.5	39.5	34.7	10.9	2.3	100.0
from 6 to 10 years (N=903)	12.0	30.8	41.6	12.7	2.9	100.0
More than 11 years (N=1743)	17.3	32.5	37.0	10.9	2.3	100.0
Preferred drugs						
Opiates (N=1091)	15.8	37.1	33.3	10.7	3.1	100.0
Stimulants (N=523)	9.6	29.6	49.1	10.2	1.6	100.0
Types of sexual relations						
Total	**14.4**	**35.3**	**37.0**	**10.5**	**2.7**	**100.0**

Injection drug users also gave the number of sexual contacts with individual categories of sexual partners without following the proposed scale of answers. IDU who had sexual relations with casual partners during the last 3 months, in average did so 6.6 times. Those IDU who paid for sex services, in average did so 4 times, whereas those who provided services of sexual nature on commercial basis, in average did so 22.7 times ($p<0.01$).

Based on the obtained data no statistically significant and important link between the frequency of risky contacts and age, gender, experience of drug use, injection frequency was identified.

However, the difference between frequency of sexual contacts with casual partners in local drug cultures is statistically significant ($p<0.01$). The average number of sexual contacts with such partners is 18.2 in Uzhgorod; 9.3 in Chernihiv; 9 in Zaporizhya; 8.9 in Kryvy Rih; 7.4 in Dnipropetrovsk; 6.2 in Cherkasy; 6 in Kyiv and Vinnytsya; 5.9 in Rivne; 5.8 in Mykolayiv; 5.2 in Ivano-Frankivsk; 5.2 in Severodonetsk; 5.1 in Chervonograd; 4.9 in Zhytomyr; 2.1 in Ternopil; 3.1 in Chernivtsi and 2.1 in Simferopol.

4.2. Practice of condom use during heterosexual contacts

This sub-section studies regularity and reasons of refusal from use of condom. Some aspects of this topic were studied with regards to the type of sexual relations, number of sexual contacts, intensity of sexual activity and use of drugs, as well as social and demographic characteristics, marital status and influence of local drug environment.

Regularity of condom use

The percent of IDU who used condom during the last sexual contact, equals 58%.

With age the share of IDU who used condom during the last sexual contact decreases. In the eldest group the share of persons, using condom, is 39%, in group aged 25 – 49 years this indicator is 55%, in group aged from 20 to 24 years, it is 66% ($p<0.01$), and in the youngest group, comprising respondents from 14 to 19 years, condoms are used by 67%. Thus, the difference between the last two groups is statistically insignificant (see table 4.2.1).

Table 4.2.1. Share of IDU who used condom during their last sexual contact, (N=3597), %

Period of drug use	
Under 2 years (N=414)	57.0
from 3 to 5 years(N=451)	52.8
from 6 to 10 years (N=658)	44.7
more than 11 years (N=1185)	45.1
Age	
14–19 (N=410)	67.3
20–24 (N=685)	65.5
25–49 (N=2429)	55.2
50+ (N=72)	38.9
Marital status	
Married (N=1752)	45.0
Non-married (N=1844)	69.2
Type of drugs	
Opiates (N=2736)	56.7
Stimulants (N=862)	63.0
Total	**58.2**

With regards to use of condom the difference between men and women was not identified. Statistically significant is the difference between IDUs with experience of drug use of more than 11 years and those IDU whose experience is less than 11 years (55% in contrast to 61% used condoms), ($p<0.01$).

Opiate taking IDUs used condoms during the last sexual contact less frequently, compared with those who use stimulants (57% in contrast to 63%), ($p<0.01$).

The least number of IDU, using condoms during the last sexual contact was observed in Dnipropetrovsk (39%), Uzhgorod (41%), Zhytomyr (42%) and Severodonetsk (42%). For Kyiv this figure is 56%. It is worth reminding that in general

for Ukraine it equals 58%. Sexual activity of IDUs in Ivano-Frankivsk (79%), Chernivtsi (77%), Mykolayiv (74%), and Simferopol (73%) is the safest.

Married IDUs use condoms less often (45%) compared with divorced (67%) and single IDUs (70%), ($p<0.01$).

As the frequency of use of opiates increases from 1–2 injections per month to more, the number of IDU who use condoms, grows ($p<0.01$). The share of condom using IDUs among most active users of opiates (almost daily injections) and among IDU, using drugs from 3 to 6 times per month, is 59%, and among those who use drugs 1–2 times per month, is 48%.

It can be also stated that there is the difference between uses of stimulants who make 1-2 injections per month (57% used condom), and those who use those drugs more often (64%), ($p<0.05$).

Among IDU who have sexual contacts with persons outside the drug environment, the share of persons using condoms during the last sexual contact is 60%. This figure for IDU who had no such contacts during the last 3 months, is 52%, and the difference is significant at the level of 5%.

Statistically important is the difference between the percent, calculated for IDU who have casual contacts and those IDU who have several permanent partners or practice commercial contacts (figure 4.2.1).

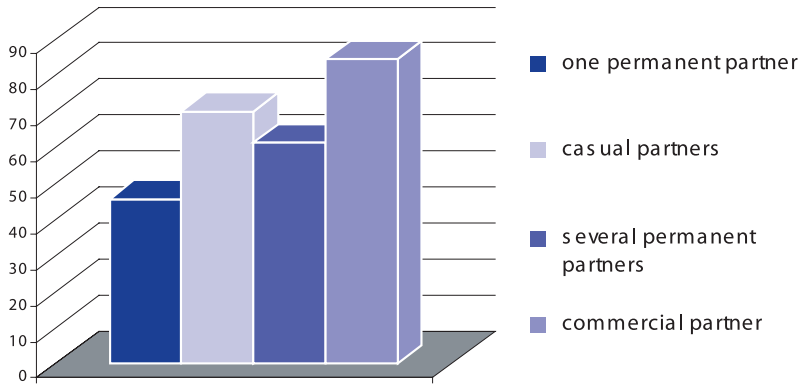

Figure 4.2.1. Use of condom during the last sexual contact with regards to types of sexual activity, % in each group

Among persons who had a permanent partner and at the same time casual contacts, 26% always use condom with permanent partners. IDU who have either several permanent contacts or contacts with commercial partners, use condom with permanent partners more often ($p<0.05$). Share of those equal 35% and 38% respectively.

IDU who practice commercial sex informed about use of condoms during the last sexual contact more often than the others (83%)[13]. This indicator for IDU who have several permanent partners, equals 61%, for IDU who practice casual contacts, it is 70%, whereas for IDUs with only one permanent partner it equals 46%, ($p<0.01$) (see figure 4.2.1).

Among IDU who have sexual contacts with persons fro outside the drug environment, contacts with permanent partners using condom account for 33%, with casual partners – 59%, and with commercial partners – 73%, ($p<0.01$).

Analysis of distribution of this indicator between 17 cities of Ukraine was as-

[13] Percentage, presented in this paragraph, was calculated based on the number of "pure" types of sexual behavior (see table 4.2.1).

sessed using RDSAT package as presented in table 2 annex 2. This distribution shows that five cities can be identified, where the use of condoms is the most common – 62–71% – those are Simferopol, Mykolaiv, Cherkasy, Ivano-Frankivsk and Chernivtsi. The second group can comprise cities, where the level of use of condoms is a little lower compared with the general sample (58%) – it lies within 42–51%. Those are Kryvy Rih, Kyiv, Vinnytsya, Chervonograd, Uzhgorod and Rivne. The group, where the use of condoms lies between 30–38%, comprises Zaporizhya, Zhytomyr, Chernihiv, and Ternopil. The group whose level of use can be characterized as low (26–27%) includes Severodonetsk and Dnipropetrovsk.

Information about frequency of condom use for sexual contacts with permanent, casual and commercial partners during the last 90 days is more representative with regards to safe sexual practice. In addition, respondents who declared the use of condom in 100% of cases, were asked to think again, whether they had a case, when they did not use condom. IDUs responses to those questions are presented in table 4.2.2. Columns “answer before reminder” present the information of respondents’ first reaction, whereas columns “answer after reminder” contain corrected information.

It can be stated that respondents use condoms with permanent partners less often (28%), compared with casual partners (53%), and commercial partners (67%), ($p<0.01$).

Table 4.2.2. Regularity of using condoms during the last three months by category of sexual partners, %

		Always	In most cases	In 50% of cases	Sometimes (25%)	Seldom (less than 10%)	Never	Difficult to say	
Permanent partners, (N=2710)	Answer before reminder	29.6	14.8	6.5	7.0	7.4	33.5	1.3	100.0
	answer after reminder	28.0	16.5	6.5	7.0	7.4	33.5	1.3	100.0
Casual partners, (N=1341)	answer before reminder	54.5	13.2	9.3	6.1	5.0	10.4	1.6	100.0
	answer after reminder	53.0	14.8	9.3	6.1	5.0	10.4	1.6	100.0
Commercial partners, (N=349)	answer before reminder	69.7	8.8	6.8	2.1	1.7	5.2	5.6	100.0
	answer after reminder	67.2	11.3	6.8	2.1	1.7	5.2	5.6	100.0

Table 4.2.3 presents distribution of condom use regularity with permanent partners by age and experience drug use. As age and experience of drug use grows, IDUs use condoms a little less often (both during the last 90 days, and during the last sexual contact), however, it does not relate to IDUs with experience of 11 years and more. In this group the use of condom is at the same level as for group with up to 2 years of experience. Respondents aged less than 19 years use condoms more regularly. He difference between elder groups is much less obvious. Married IDUs use condoms less frequent compared with non-married, and 42% married persons never used them at all.

Table 4.2.3. Regularity of condom use with permanent partner during the last 3 years, by age, drug use experience and type of drugs, %

	Always	In most cases	In 50% of cases	Sometimes (25%)	Seldom (less than 10%)	Never	Difficult to say	
Age								
14–19 years (N=262)	35.1	20.6	11.1	6.1	11.1	15.3	0.8	100.0
20–24 years (N=457)	28.9	19.9	9.0	9.2	6.6	26.0	0.4	100.0
25–34 years (N=1221)	27.0	18.0	5.8	6.1	7.2	34.2	1.7	100.0
35 and older (N=769)	26.4	10.5	4.6	7.4	6.9	43.0	1.2	100.0
Experience								
0–2 years (N=416)	32.2	20.0	6.7	7.7	9.1	23.6	0.7	100.0
3–5 years (N=452)	25.7	18.8	10.6	10.6	7.7	26.1	0.4	100.0
6–10 years (N=657)	21.3	20.5	7.5	6.1	7.6	34.4	2.6	100.0
11 and more years (N=1186)	30.9	12.1	4.3	5.8	6.5	39.3	1.1	100.0
Type of drugs								
Opiates (N=2071)	27.1	16.7	6.7	6.8	7.3	33.9	1.5	100.0
Stimulants (N=641)	30.7	15.9	5.8	7.6	7.6	31.8	0.5	100.0
Marital status								
Married (N=1575)	20.6	15.5	4.9	7.7	7.6	42.2	1.4	100.0
Non-married (N=1133)	38.2	17.8	8.6	5.9	7.1	21.3	1.1	100.0
TOTAL	**28.0**	**16.5**	**6.5**	**7.0**	**7.4**	**33.5**	**1.3**	**100.0**

Regularity of using condoms with permanent partner depends on the age, experience of drug use and marital status. As age grows, the share of persons, always using condoms decreases from 35% in group of 14–19 year-olds to 26% in the group of 35 years old and older, the difference is statistically significant, $p<0.01$. Correspondingly, the share of persons who never used condoms with permanent partner during the last 3 months grows from 15% in the youngest group to 43% in the oldest group, $p<0.01$. As experience grows the share of persons using condoms for each sexual contact during the last three months, decreased from 32 to 21%, however only if experience of drug use of less than 10 years. IDUs with experience of more than 10 years use condom almost as often (31%), as IDUs with experience of less than 2 years. Married IDUs use condoms twice less often compared with non-married, if taking into account answers “always” and “never”.

Table 4.2.4. Regularity of condoms use with casual partner during the last 3 months, by age, drug experience, and type of drugs, %

	Always	In most cases	In 50% of cases	Sometim-es (25%)	Seldom (less than 10%)	Never	Difficult to say	
Age								
14-19 years (N=199)	53.3	14.6	12.6	7.5	7.5	3.0	1.5	100.0
20–24 years (N=321)	53.0	17.1	12.1	7.8	1.9	7.5	0.6	100.0
25–34 years (N=516)	57.9	12.0	7.8	4.8	4.3	11.0	2.1	100.0
35 and older (N=304)	51.3	10.2	6.6	5.3	7.6	17.1	2.0	100.0
Experience								
0–2 years (N=301)	54.2	15.6	10.6	6.3	5.3	6.3	1.7	100.0
3–5 years (N=241)	52.3	17.4	12.0	6.6	3.7	7.1	0.8	100.0
6-10 years (N=310)	57.7	11.9	9.4	8.1	3.5	9.0	0.3	100.0
11 and more years (N=488)	53.9	10.5	7.2	4.3	6.1	15.4	2.7	100.0
Type of drugs								
Opiates (N=974)	52.9	13.8	9.7	6.4	4.8	10.9	1.6	100.0
Stimulants (N=367)	58.9	11.7	8.4	5.2	5.2	9.3	1.4	100.0
Marital status								
Married (N=272)	59.2	9.6	7.4	3.3	4.8	14.0	1.8	100.0
Non-married (N=1068)	53.5	14.1	9.7	6.7	5.0	9.5	1.5	100.0
TOTAL	**53.0**	**14.8**	**9.3**	**6.1**	**5.0**	**10.4**	**1.6**	**100.0**

Regularity of using condoms with casual partner is associated with age, experience of drug use, type of IDUs used drugs, and his/ her marital status, however as much as in case of use with permanent partner. As well as with permanent partner, regular use of condom increases with age, however, this can be only concluded based on answers “Never”: this answer was given by IDUs at age of 35+ years 5 times more often (17%), than IDUs at age under 19 years (3%), $p<0.01$. As experience increases, percent of persons who did not use condoms during the last three months, increases from 6 to 15%, $p<0.01$, which completely follows the trend of use of condom with permanent partner. Users of stimulants regularly use condom with casual partner more often (59%), compared with users of opiates (53%), $p<0.05$. Married IDUs answered “Never” more often (14%), compared with non-married (9.5%), $p<0.05$.

Share of IDU who had sexual contacts with commercial partners, is insufficiently large to assess statistical significance of difference of difference groups.

Respondents were asked about certain details of using condom during the last 30 days, in particular, whether they had cases, when condom was torn or slipped, or whether it was always put on before the beginning of sexual contact, and also whether there were cases, when sexual contact continued after condom had been taken off.

The shares of IDU who informed that they did not out on condom before the beginning of sexual contact with permanent, casual and commercial partners, equal 10%, 13% and 14% respectively of total number of those who had the contacts in question. The difference between presented is not significant at the level of 0.05.

The information that condom was taken off before the end of sexual contact with permanent, casual, and commercial partners, was provided by 13%, 14% and 16% respectively of the total number persons who had the contacts in question. The difference between presented percents is not significant.

12% of IDUs informed that the condom was torn during sexual contact with permanent partners, whereas information about torn condom during sexual contact with casual or commercial partners was provided by 14% and 25% respectively, ($p<0.05$).

4.3. Reasons of occasional use of condoms

IDU who did not use condom during their last sexual contact, were asked about the reasons of refuse from using it.

Non-availability of condom as a reason of its non-use during the sexual contact with casual partners was mentioned by 47% of respondents who had contacts with casual partner (see table 4.3.1). According to respondents, only 13% of non-use of condom for sexual contacts with permanent partners were conditioned with missing condom, $p<0.01$. At the same time 28% of cases of non-use of condom with commercial partners have the same discursive reason.

Another important reason of refusal from use of condoms is an opinion that it decreases sensitivity. This was the reason of 35% (N=480) of refusals from use of condom during contacts with permanent partners, 33% (N=132) during contacts with unfamiliar persons, and 28% (N=16) for contacts with commercial partners.

The share of IDU who did not use condoms as they did not think they were necessary, was also quite high. Among refusals from use during contacts with permanent partners, the share of those explanations makes 43%, during contacts with casual persons – 21% ($p<0.01$), and during contacts with commercial partners – 14%.

Along with other reasons of refusal from use of condoms with commercial partners, it is also important to mentioned lack of client's wish to use it – 16%, influence of alcohol – 28% or drugs – 33%.

Table 4.3.1. Reasons of refusal from condom during the last sexual contact, %

	With permanent partner	With accidental partner	With commercial partner
Condom was not available	13.0	46.9	28.4
Its use reduces sensitivity	35.4	33.4	27.5
Too expensive	2.0	6.6	1.8
The partner objected condom	11.1	4.7	15.7
We did not consider it necessary	43.4	20.5	14.4
We did not think about it	13.3	8.4	6.1
Was under influence of alcohol	1.4	6.2	27.8
Was under influence of drugs	4.1	12.4	32.8
Was a victim of sexual violence	0.2	0.5	0
Other	3.4	1.3	7.7
Difficult to say	0.7	1.9	2.8

It is also with mentioning, that high price for condoms and sexual violence were the least frequently mentioned reasons of non-use of condoms.

The ways of receiving condoms

Share of IDU who received condoms from NGOs during six months, is 43%,

Those who did not use condoms due to their unavailability, had no access to charity distribution of condoms more often than others. Among IDU who did not use condom during contacts with casual and permanent partners (and, according to them, did so as condoms were missing), 81% and 71% (respectively) did not receive condoms from NGOs. At the same time IDU who did not mentioned missing condoms as a reason of their non-use for contacts with casual and permanent partners, did not receive condoms in charity organizations less frequent, 64% and 59% respectively, $p<0.01$.

4.4. Use of condoms during the last sexual contact: by results of 2007–2009 surveys.

Indicator "Use of condom during the last sexual contact" showed negative changes during 2 years in six cities – it reduced from 58 to 51%.

Table 4.4.1. Changes in indicator "Percent of IDU who used condom during the last sexual contact", by city

City	2007	Confidence interval	2009	Confidence interval
Simferopol	53.0	42.9–61.7	64.2	57.3–71.5
Dnipropetrovsk	***46.0***	35.3–58.9	***24.2***	16.5–32.3
Kryvy Rih	48.6	36.9–68.5	51.0	42.5–60.6
Kyiv	***67.0***	58.0–74.1	***41.6***	35.5–48.1
Mykolayiv	48.5	35.1–60.7	65.4	58.3–73.0
Cherkasy	58.4	48.4–68.9	61.7	54.0–71.1
6 cities in total	***57.9***	**54.7–61.1**	***51.4***	49.0–53.8

Statistically significant decrease was observed in two cities –Dnipropetrovsk by 22 percent points, and in Kyiv by 25 percent points. Reasons of those changes could be decreased number of risky sexual contacts, i.e. contacts with casual and commercial partners, decreased number of condoms, which IDUs could receive from NGOs, and increased use of alcohol as a factor of weaker control over behavior.

With regards to the first hypothesis, the share of risky contacts has not changed during 2 years in six cities. However, considerable changes were observed in some cities. In particular, share of casual contacts in Dnipropetrovsk actually reduced from 38% to 29.5%, though the difference is not statistically significant. Information about contacts with commercial partners are presented in table 4.4.2.

Table 4.4.2. Share of respondents who had contacts with commercial sexual partners during 3 months in six cities, % and significance of differences

City	2007	2009	Significance of differences (p-value)
Simferopol	**24.9**	**34.0**	p<0.05
Dnipropetrovsk	14.6	15.9	p>0.05
Kryvy Rih	***11.3***	***3.1***	p<0.01
Kyiv	11.8	3.6	p<0.01
Mykolaiv	***10.0***	***4.4***	p<0.05
Cherkasy	**16.9**	**29.5**	p<0.01
6 cities in total	14.7	14.2	p<0.01

The figures show that the share of IDUs commercial partners in Kyiv actually reduced, however in absolute terms the number was and remained quite small (12% in contrast to 4%). In Simferopol and Cherkasy the number of commercial sexual partners increased considerably, whereas in Kryvy Rih and Mykolayiv it decreased, however, there changes in indicator of use of condoms were not observed.

With regards to condoms, which were given to IDUs by NGOs, this indicator decreased in all six cities. This may have happened due to larger number of IDUs in the sample who were not clients of NGOs.

Table 4.4.3. Share of respondents who received condoms from NGOs in six cities, % and significance of difference

City	2007	2009	Significance of difference (p-value)
Simferopol	***95.2***	***81.0***	p<0.01
Dnipropetrovsk	***70.6***	***55.7***	p<0.01
Kryvy Rih	57.4	48.2	p>0.05
Kyiv	72.1	66.7	p>0.05
Mykolaiv	***61.5***	***33.2***	p<0.01
Cherkasy	74.3	73.0	p>0.05
6 cities in total	***72.9***	***60.3***	p<0.01

However, analysis of statistical significance of difference showed that only in three cities decrease was significant – in Mykolayiv (by 28 points), in Dnipropetrovsk and in Kryvy Rih (by 14–15 points). So, decrease did not only take place in Dnipropetrovsk and Kyiv.

With regards to hypothesis of use of alcohol as a factor of reduced control over behavior and, consequently, use of condom, its use increased in Dnipropetrovsk.

Table 4.4.4. Share of respondents who used alcohol during the month, including daily, in six cities, % and significance of differences

City	Use of alcohol during the month			Daily use of alcohol during the month		
	2007	2009	p-value	2007	2009	p-value
Simferopol	77.1	81.0	p>0.05	18.0	16.2	p>0.05
Dnipropetrovsk	**52.3**	**76.7**	p<0.01	**12.1**	**38.2**	p<0.01
Kryvy Rih	88.0	76.7	p>0.05	***34.0***	***20.9***	p<0.01
Kyiv	79.5	85.0	p>0.05	***34.3***	***26.9***	p<0.05
Mykolaiv	80.0	81.2	p>0.05	14.0	11.8	p>0.05
Cherkasy	**51.1**	**71.9**	p<0.01	15.5	16.8	p>0.05
6 cities in total	71.4	79.3	p<0.01	22.3	22.3	p>0.05

In addition to Dnipropetrovsk use of alcohol increased significantly in Cherkasy; in Kyiv increase was statistically insignificant. Daily use of alcohol in creased in Dnipropetrovsk by three times, whereas in Kyiv it even reduced. Decrease was also observed in Kryvy Rih. Therefore, use of alcohol could only be a factor of decrease in use of condoms in Dnipropetrovsk.

Chapter 5. USING HIV PREVENTION SERVICES

5.1 Diagnosing and treatment of sexually transmitted diseases (STD)

All 3,962 respondents answered the question about symptoms of sexual diseases. Only 13.5% did not mention any symptoms of venereal diseases. Table 5.1.1 below presents the distribution of answers to questions about which particular symptoms respondents knew.

Table 5.1.1. Distribution of answers concerning symptoms of diseases, transmitted sexually, (N=3962), %

Symptoms:	%
…aching pain in the lower part of abdomen	11.2
…genital discharges	59.1
…discharges with (unpleasant) smell	29.3
…burning and itching pain during urination	36.2
…skin rash, ulcers on genitals	40.9
…enlarged inguinal lymph nodes, swelling inguinal area	12.0
…itching pain in the area of genitals	31.4
…high body temperature, worsened overall state	15.9
…pain and unpleasant feeling during sexual contact and erection	15.6
…other	2.9
…no answer	13.5

Most often respondents mentioned “genital discharges” (59%), “skin rash, ulcers on genitals” (41%), “burning and itching pain during urination” (36%), “itching pain in the area of genitals” (31%) and “discharges with (unpleasant) smell” (29%). Less frequently respondents mentioned “high body temperature, worsened overall state” (16%), “pain and unpleasant feeling during sexual contact and erection” (16%), “enlarged inguinal lymph nodes, swelling inguinal area” (12%), “aching pain in the lower part of abdomen” (11%) and other symptoms (3%). Below distribution of answers concerning symptoms is represented by gender, age, experience and region, where respondents live.

Table 5.1.2. Distribution of answers about symptoms of sexual diseases by respondent's gender, (N=3962), %

Symptoms:	Men (N=3036)	Women (N=926)
…aching pain in the lower part of abdomen	8.9	18.2
…genital discharges	57.6	63.8
…discharges with (unpleasant) smell	24.6	43.6
…burning and itching pain during urination	37.4	32.4
…skin rash, ulcers on genitals	39.7	44.6
…enlarged inguinal lymph nodes, swelling inguinal area	11.1	14.9
…itching pain in the area of genitals	27.0	44.7
…high body temperature, worsened overall state	15.0	18.9
…pain and unpleasant feeling during sexual contact and erection	15.4	16.5
…other	2.9	2.9
…no answer	14.5	10.3

As one can see from table 5.1.2, women actually mentioned almost all symptoms, except for "burning and itching pain during urination" than men (37% of men and 32% of women, difference is significant at the level of 1%, $p<0.01$). Priorities in symptoms both for men and women are the same: most often "genital discharges" are mentioned (64% of women, and 58% of men, the difference is significant at the level of 1%, $p<0.01$). For women the second most often mentioned symptom is "itching pain in the area of genitals" and "skin rash, ulcers on genitals" (45% each); whereas for men the second frequently mentioned symptom is "skin rash, ulcers on genitals" (40%), and also "burning and itching pain during urination" (37%). Women also most often mentioned "discharges with (unpleasant) smell" (43% of women, and 25% of men, the difference is statistically significant at the level of 1%, $p<0.01$). Men lees often mentioned "aching pain in the lower part of abdomen" (9% of men, and 18% of women, the difference is statistically significant at the level of 1%, $p<0.01$). Statistically significant difference was also found for the respondents who did not mention symptoms of STD: there are more such respondents among men, than among women (14.5% in contrast to 10%, the difference is statistically significant at the level of 1%, $p<0.01$).

Among diseases, which respondents were sick for during the last 12 months, most frequent was diagnosis of hepatitis C (8%), whereas the most seldom was syphilis (1.5%) (table 5.1.3 and 5.1.4).

Table 5.1.3. Distribution of answers to questions "Did you have the following diseases over the last 12 months?", (N=3962), %

Tuberculosis	5.8
Gonorrhea	4.0
Genital herpes	2.3
Clamidiosis	2.1
Hepatitis B	5.5
Hepatitis C	8.1
Syphilis	1.5
Trichomoniasis	2.0
Other	1.7

Table 5.1.4. " Did you have the following diseases over the last 12 months?", distribution by gender, (N=3962), %

	Men (N=3036)	Women (N=926)	Total
Tuberculosis	6.5	3.6	5.8
Gonorrhea	3.7	4.9	4.0
Genital herpes	1.6	4.5	2.3
Clamidiosis	0.7	6.2	2.1
Hepatitis B	5.5	5.6	5.5
Hepatitis C	7.8	9.0	8.1
Syphilis	1.5	1.5	1.5
Trichomoniasis	1.6	3.3	2.0
Other	1.0	4.0	1.7

Among men tuberculosis was named more often, than among women (7% in contrast to 4%, p<0.01). However, women mentioned some venereal diseases more often, than men: genital herpes was named by 5% of women ion contrast to 2% of men (the difference is significant at level of 1%, p<0.01); clamidiosis – 6% of women in contrast to 1% of men (the difference is significant at level of 1%, p<0.01). Other statistically significant differences were not observed.

Table 5.1.5. "Did you have the following diseases over the last 12 months?", by age, (N=3962), %

	14–19 years (N=345)	20–24 years (N=695)	25–34 years (N=1726)	Over 35 years (N=1196)	Total (N=3962)
Tuberculosis	0.2	2.3	4.6	12.2	5.8
Gonorrhea	2.0	5.8	3.6	4.2	4.0
Genital herpes	0.7	1.7	3.2	2.1	2.3
Clamidiosis	2.6	2.8	2.2	1.2	2.1
Hepatitis B	0.7	4.6	6.1	7.2	5.5
Hepatitis C	1.1	4.6	10.4	10.1	8.1
Syphilis	0.4	0.7	2.6	1.2	1.5
Trichomoniasis	0.7	2.7	2.3	1.8	2.0
Other	3.5	1.3	1.7	1.3	1.7

The peak of hepatitis C falls on age of 25–34 (10%), of hepatitis B – on the oldest age group (7%) (p<0.01).

Share of cases of "tuberculosis" grows with age: at age of 14–19 years old only 0.2% of persons are sick with tuberculosis, whereas at age over 35 years, their share is already 12% (p<0.01). Venereal diseases have a little different age structure. Their peak falls on age of 20–24, after that the percent of sick starts reducing. In particular, at age of 14–19 years the share of respondents who had venereal diseases varies around 0–3%; the share of those respondents at age of 20–24 years is 1–6%; and at age of 25–34 years this share drops a little and equals 2–4%; whereas at age over 35 years their share varies between 1% and 4%. Possibly, the reduced number of venereal diseases after the age of 24 can be explained with respondents' decreased sexual activity, as the frequency of contacts reduces with age.

Table 5.1.6. "Did you have the following diseases over the last 12 months?", by experience of drug use, (N=3958), %

	Up to 2 years (N=539)	3–5 years (N=591)	6–10 years (N=950)	Over 11 years (N=1878)	Total (N=3958)
Tuberculosis	1.4	3.1	3.6	10.0	5.8
Gonorrhea	2.1	4.9	4.8	3.9	4.0
Genital herpes	1.0	1.3	3.3	2.8	2.3
Clamidiosis	1.0	3.9	2.3	1.6	2.1
Hepatitis B	2.4	2.8	5.2	8.0	5.5
Hepatitis C	0.7	5.1	8.3	12.4	8.1
Syphilis	0.3	0.3	2.3	2.1	1.5
Trichomoniasis	2.0	1.9	1.5	2.3	2.0
Other	3.8	0.4	1.1	1.7	1.7

All treads, which we observed for age categories, have the same relation with experience of drug use. Sickness rate for tuberculosis constantly grows depending on length of drug use: for example in the group with experience of up to 2 years 1% of respondents were sick with tuberculosis, whereas among persons with experience of 11 and more years, the disease rate is 10% ($p<0.01$). With regards to STD one can state that their peak falls on group with experience of 3–5 years and 6–10 years, after this the experience grows and the disease rate decreases. In particular, in group with experience of "up to 2 years" the percent of sick during the last 12 months is 0-2%, in the group with experience of "3–5 years" – 0–5%; in group with experience of "6–10 years" – 2–5%; and in the group of "11 and more years" – 2–4% ($p<0.01$).

Sick with hepatitis show a little different trend: in the group with experience of up to 2 years the disease rate for hepatitis B is 2%, it reaches its maximum in the group with experience of more than 11 years (8%, the difference with the previous group is significant, $p<0.01$). The same trend is observed for hepatitis C: in he group with experience of up to 2 years the disease rate is 1%, and in the group with experience of more than 11 years – 12% ($p<0.01$).

The table below presents the percent of diseases of opiate users and users of all other drugs.

Table 5.1.7. "Did you have the following diseases over the last 12 months?", distribution by type of used drugs, N=3962, %

	Opiates (N=3175)	Stimulants (N=787)	Total
Tuberculosis	6.8	2.6	5.8
Gonorrhea	4.7	1.8	4.0
Genital herpes	2.3	2.5	2.3
Clamidiosis	2.1	2.0	2.1
Hepatitis B	6.7	1.7	5.5
Hepatitis C	9.7	3.2	8.1
Syphilis	2.0	0.1	1.5
Trichomoniasis	2.0	2.1	2.0
Other	1.4	2.9	1.7

Users of opiates appeared to have twice higher disease rate for tuberculosis, compared with users of other drugs (7% for "opiate users" in contrast to 3% for "all other", $p<0.01$). Gonorrhea rate is twice higher for "opiate users" compared with "all others" (5% in contrast to 2%, $p<0.01$). The rate of hepatitis for opiate users is higher for "all others" too: 7% of opiate users are sick with hepatitis B compared with 2% of "all others" ($p<0.01$), and 10% of opiate users are sick with hepatitis C compared with 3% of "all others" ($p<0.01$).

Table 5.1.8 presents the distribution of diseases by city. All cities have their own specific structure of diseases, which does not comply with classification by region, split into East – West, into large and small cities. Thus, by rate of spread of tuberculosis Mykolayiv (18%), Simferopol (11%), Dnipropetrovsk (10%), Zhytomyr (10%), and Kryvy Rih (8%) are among leaders. The least percent of sick with tuberculosis is observed in Chernihiv (3%), Vinnytsya (2%), Uzhgorod (2%), Chernivtsi (2%), Rivne (2%), Severodonetsk (2%), Chervonograd (2%), and Ternopil (0%).

The highest rate of gonorrhea is observed in Cherkasy (12%), Zhytomyr (12%), and Ivano-Frankivsk (10%), whereas the lowest rate is observed in Dnipropetrovsk (1%), Severodonetsk (1%), Chernihiv (1%), Kyiv (0.5%), Uzhgorod (0%), and Chervonograd (0%).

The highest rate of sickness with genital herpes is observed in Cherkasy (18%); whereas the lowest is in Ternopil (1%), Vinnytsya (1%), Zhytomyr (0%), Uzhgorod (0%), Severodonetsk (0%), Chervonograd (0%), Mykolayiv (0%), and Chernivtsi (0%).

The highest rate of sickness with clamidiosis is observed in Cherkasy (13%) and Ivano-Frankivsk (8%); in all other cities the sickness rate is 0-1%.

The highest rate of sickness with hepatitis B is observed in Ivano-Frankivsk (18%), Mykolayiv (12%), and Cherkasy (10%); whereas the lowest – in Ternopil (1%), Chernivtsi (1%), Severodonetsk (0.4%), and Zaporizhya (0.0%).

The highest rate of sickness with hepatitis C is observed in Mykolayiv and Rivne (15%), Ivano-Frankivsk (14%), Kyiv (14%), and Kryvy Rih (10%); whereas the lowest rate is in Chernivtsi (1%).

The highest rate of sickness with syphilis is observed in Rivne (11%), Cherkasy (6%), Ivano-Frankivsk (4%); in all other cities the sickness rate is 0–1%.

The highest rate of sickness with trichomoniasis is observed in Cherkasy (10%), and Simferopol (6%); in all other cities the sickness rate is less than 4%.

However, there are several cities, where the number of sick IDUs is bigger compared with the average for the population: in Cherkasy (gonorrhea, genital herpes, clamidiosis, hepatitis B, trichomoniasis), Ivano-Frankivsk (gonorrhea, clamidiosis, hepatitis B, hepatitis C, syphilis), Zhytomyr (gonorrhea), Mykolaiv (tuberculosis, hepatitis B, hepatitis C), Kryvy Rih (tuberculosis, hepatitis C), and Kyiv (hepatitis C).

Table 5.1.9 below presents the percent of the respondents who had treatment of those diseases.

From the table it is obvious that more than 90% of persons named their diseases, except for hepatitis C, which was only treated by 67% of persons. Statistically significant differences between men and women were not found, except for genital herpes: it was treated by 90% of men, and only 79.5% of women ($p<0.01$).

Table 5.1.8. Distribution of venereal diseases, hepatitis and tuberculosis by city, %. N=3962

Tuberculosis	Gonorrhea	Genital herpes	Clamidiosis	Hepatitis B	Hepatitis C	Syphilis	Trichomoniasis	Other	
Kyiv	4.4	0.5	2.5	0.7	4.4	14.0	0.0	0.2	0.7
Vinnytsya	2.0	2.4	0.8	0.4	4.4	9.2	0.4	4.4	7.6
Dnipropetrovsk	10.0	1.2	2.8	2.0	5.6	8.8	0.0	0.0	2.4
Kryvy Rih	8.4	3.6	2.4	1.6	4.8	10.4	1.2	4.0	0.0
Zhytomyr	9.6	12.0	0.0	0.0	1.6	4.4	0.4	0.4	0.0
Uzhgorod	2.0	0.0	0.0	0.0	4.0	3.0	1.0	0.0	0.0
Zaporizhya	4.0	1.6	0.4	0.8	0.0	5.2	0.0	0.4	0.0
Ivano-Frankivsk	6.4	10.0	2.0	8.0	17.6	14.0	3.6	5.2	0.0
Simferopol	10.7	7.1	2.0	0.8	7.1	3.6	0.8	6.0	5.6
Severodonetsk	1.6	1.2	0.0	0.0	0.4	5.1	0.0	0.4	0.0
Chervonograd	1.6	0.0	0.0	0.0	4.0	2.4	0.0	0.0	3.6
Mykolaiv	18.4	6.0	0.0	0.4	12.4	14.8	0.8	0.4	1.2
Rivne	2.4	0.4	2.0	1.6	5.1	15.0	10.6	0.0	0.4
Ternopil	0.0	2.0	1.0	1.0	1.0	5.0	0.0	2.0	4.0
Cherkasy	4.8	12.4	18.1	12.9	9.6	2.8	5.6	10.0	0.0
Chernivtsi	2.0	7.9	0.0	1.0	1.0	1.0	1.0	0.0	5.9
Chernihiv	3.2	0.8	1.2	2.8	4.8	6.0	0.0	0.0	1.2
Total	5.8	4.0	2.3	2.1	5.5	8.1	1.5	2.0	1.7

Table 5.1.9. Distribution of answers to question "Did you have treatment of (the following diseases)...?", (N=3962), %

	Yes	No
Tuberculosis (N=259)	92.1	7.9
Gonorrhea (N=158)	94.9	5.1
Genital herpes (N=93)	84.7	15.3
Clamidiosis (N=82)	94.8	5.2
Hepatitis B (N=218)	83.2	16.8
Hepatitis C (N=322)	67.4	32.6
Syphilis (N=61)	90.2	9.8
Trichomoniasis (N=80)	87.9	12.1
Other (N=68)	98.2	1.8

Statistically significant differences between various age groups were only identified among sick with hepatitis B and C. Figure 5.1.1 demonstrates that among sick in elder age groups virus of hepatitis B was treated less often compared with younger age groups. The treatment rate among the youngest was almost 100%, whereas in the oldest age group only 75% of sick respondents were treated aga-

inst it (p<0.01). The situation is similar with hepatitis C: at age of 14–9 years 40% sick respondents undergo treatment, at age 20–24 years hepatitis C is treated by 77% of respondents (p<0.05), after that the treatment rate drops dramatically to 71% in the age group of 25–34 years (p<0.01), and even to 61% in the age group of 35 years and older (p<0.01). It can probably be explained that younger persons have an acute form of the disease and they have its treatment, whereas in the elder groups the form is chronic, the disease was treated when it was in the acute form.

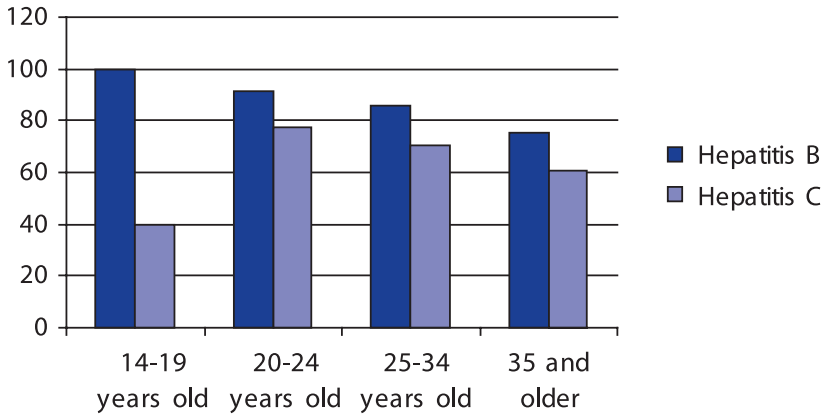

Figure 5.1.1. Share of those who underwent treatment of hepatitis B and hepatitis C, by age groups

Figure 5.1.2 shows differences in treatment of diseases depending on the experience of drug use. The hepatitis B treatment rate in the group with experience of up to 2 years is 88%, whereas in the group with experience of 11 and more years it only equals 78% (p<0.01). The number of those who had treatment of hepatitis C, is the largest among IDUs with experience of drug use of 3–5 years and 6–10 years (85 and 74% respectively) (p<0.01).

Number of sick in each city does not allow for making statistically correct conclusions concerning differences between the cities. Significant differences by type of drug use were not found.

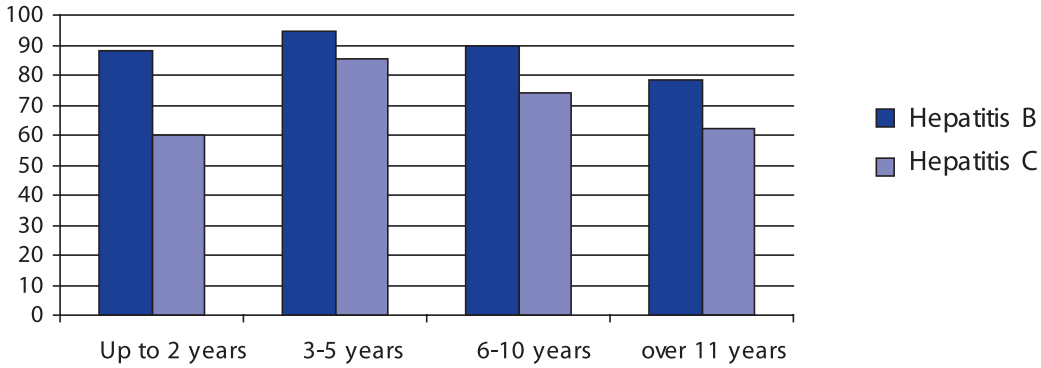

Figure 5.1.2. Percent of persons who had treatment of hepatitis B and hepatitis C, by groups of experience of drug use

Speaking about ways of treating tuberculosis, venereal diseases and hepatitis, most of respondents addressed medical institutions (dermatovenereological dispensary, female consulting centers, AIDS centers, private clinics, and other medical institutions): from 66% in case of genital herpes to 100% in case of syphilis. Independently or according to advice of friends/ mates of respondents underwent

treatment against tuberculosis (2%), gonorrhea (29%), genital herpes (34%), clamidiosis (13%), hepatitis B (2%), hepatitis C (7.5%), and trichomoniasis (13%).

Respondents are not in a hurry to address specialized institutions when they detect symptoms of these or those diseases. Table 5.1.10 below shows the number of days between the manifestations of first symptoms and when respondents address medical institutions for the aid. It is worth mentioning that more than 50% of respondents who were sick of this or that disease, could not say how many days passed since the first manifestations of symptoms: about 50% of respondents replied about that concerning tuberculosis, whereas with regards to gonorrhea only one third could reply the question, one fourth of respondents could reply this question concerning syphilis, genital herpes, clamidiosis, and hepatitis C, and only one eighth of respondents could answer this question with regards to syphilis.

Table 5.1.10. Number of days since the manifestation of the first symptoms of disease to request for medical aid, in average

	Average No of days
Tuberculosis (N=162)	25
Gonorrhea (N=150)	11
Genital herpes (N=78)	30
Clamidiosis (N=78)	20
Hepatitis B (N=181)	17
Hepatitis C (N=217)	19
Syphilis (N=55)	22
Trichomoniasis (N=70)	15
Other (N=67)	90

As we can see from the table, respondents refer for assistance in case of gonorrhea (in average 11 days) or trichomoniasis (15 days). In all other cases more than 2 weeks or even one month pass, (i.e. in case with genital herpes) before respondents address for medical aid. As the number of respondents who answered this question is quite limited, no statistically significant differences could be found by gender, age, experience of drug use, type of used drugs, or cities.

When saying about factors, which did not allow for undergoing diagnostics for STD and treatment against it, or were an obstacle for taking special treatment course in medical establishments, most of respondents (59%) informed that they had no obstacles at all. When saying about specific obstacles for respondents, most often IDUs mentioned high price of examination (13%), high price of medicine (12%), hostile attitude or criticism of the medical staff (7%), and impossibility to obtain the service anonymously (7%). The following variants were chosen by less than 5% of respondents: length of examination (5%), need for repeated visits to the medical establishment (5%), length of treatment (4%), necessity to pay for "doctor's additional services" (4%), inconvenient location of medical institutions (2%), and inconvenient working hours of medical institutions (1%).

It is worth mentioning, that "high price of examination" is a more serious obstacle for women, than for men (16% for women against 12% for men, $p<0.01$), as well as "hostile attitude and criticism of the medical staff" (9% of women and 6% of men, $p<0.01$).

See the graph below for those factors, which have statistically significant differences by age (figure 5.1.3).

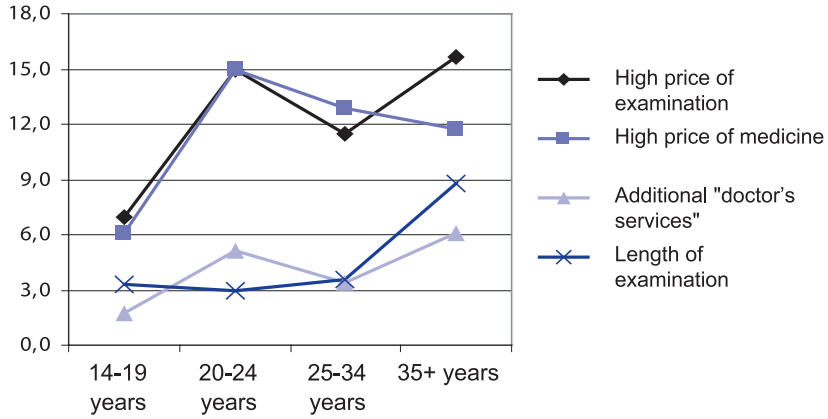

Figure 5.1.3. Factors, which prevented from for STD diagnosing and treatment, by age groups, %

In the youngest group high price of examination is an obstacle for 7%, and in the group of 20–24 years it is an obstacle for 15%; among respondents above 25 years it is problem for 11.5%, and at age of 35 and more– for 16% (all differences are significant at the level of 1%, $p<0.01$). High price of medicine is an obstacle for 6% of respondents at age of 14–19 years, 15% of respondents at age of 20–24 years ($p<0.01$), after this importance of this factor decreases to 12% for the group of 35 and older (the difference is significant at the level of 5%, $p<0.05$).

The need to pay "doctor's services" additionally tends to become a bigger obstacle as the age of respondents grows. At age of 14–19 years it is an obstacle for 2% of respondents, whereas at age of 35 and more it is an obstacle for 6% of respondents in this age group (the difference is significant at the level of 5%, $p<0.05$). The length of examination is only an obstacle for 3% of respondents from group of 14–19 year olds, however at age 35 and older, the share of those is 9% ($p<0.01$).

Below see the figure 5.1.4, which only presents the factors, which have statistically significant differences by experience of drug use.

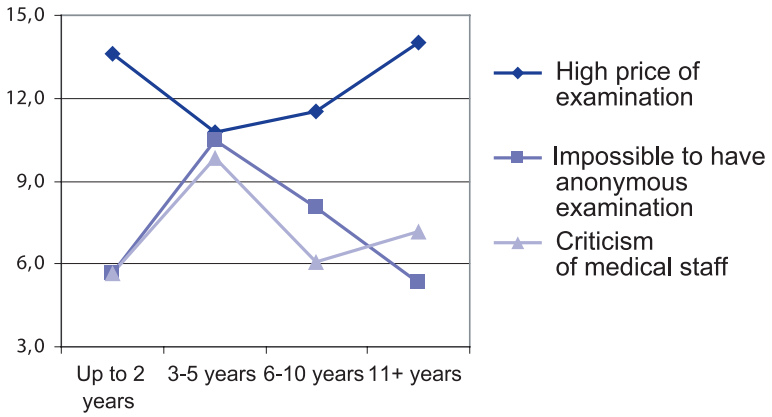

Figure 5.1.4. Factors, which prevented from STD diagnosing and treatment, distribution by experience of drug use, %. N=3959

High price of the examination if an obstacle for 14% of the group with experience of drug use of up to 2 years, after this, the problem for the other two groups by experience diminishes (11% and 11.5%, for experience of 3–5 years and 6–10 years respectively, the difference is significant at the level of 5%, $p<0.05$). For the

group with experience of 11 and more years the importance of this factor grows to 14% (the difference is significant compared with the previous group at the level of 5%, p<0.05).

Impossibility to undergo examination anonymously is linked with experience: in the group with experience of up to 2 years it is an obstacle for 6%, whereas in the group with experience of 3–5 years – for 10.5% (p<0.01); after this the importance of the factor drops to 5% for the group with experience of 11 and more years (p<0.01).

Criticism of the medical staff is an obstacle for 6% from the group with up to 2 years of experience, and for 10% from the group with 3–5 years of experience (p<0.01), after this as the experience grows the number of respondents who chose this factor, decreases: to 6% for the group with experience of 6–10 years (p<0.01), and to 7% for the group with experience of 11 and more years (the difference is significant for the group with experience of 3–5 years at the level of 5%, p<0.05).

When analyzing factors, which prevented from examination depending on the type of used drugs, we managed to find out that this question differentiate respondents from the financial point of view: among users of opiates there are more persons who referred to high price of medicine (13% in contrast to 9% among users of stimulants, p<0.01) and to the need to pay for "doctor's additional services" (5% in contrast to 2% among users of stimulants, p<0.01). Users of opiates also complained about the length of examinations more often (5% in contrast to 3% among users of stimulants, p<0.01), and also about the length of treatment (5% in contrast to 2% among users of stimulants, p<0.01).

5.2. Accessibility of pre-test councelling for IDUs and request for testing

Most of respondents have the information about places, where they can be tested for HIV – 83% out of 3,962 respondents. 84% respondents informed that they can be tested anonymously. 87% respondents informed that HIV test is accessible for them, and for 13% of respondents the test appeared to be inaccessible (N=3813). When analyzing the structure of negative answers, we clarified that there are no differences between men and women on this issue, however, differences were found depending the age and experience of drug use of respondents (figure 5.2.1 and 5.2.2).

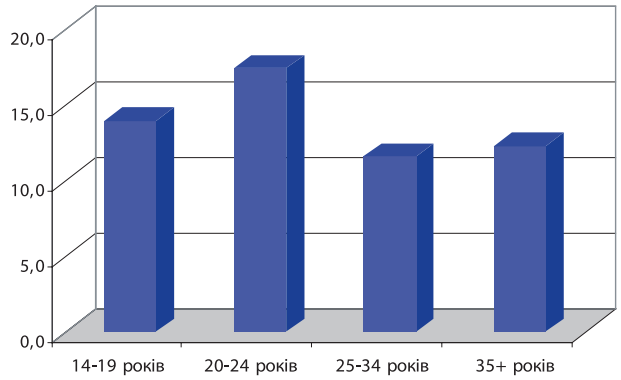

Figure 5.2.1. Negative answers to question "Is HIV test accessible for you?" depending on the age, N=3813, %

It is obvious from figure 5.2.1 that testing is the most inaccessible for the age group of 20–24 years old. In all other age groups the percent varies between 12–14%, which is a statistically significant difference in contrast to group of 20–24 year-olds at the level of 1%, $p<0.01$.

When analyzing accessibility of the HIV test based on the experience of drug use, the group with experience of 3–5 years (19%) is the most vulnerable. As experience of drug use grows, the number of respondents who declared the inaccessible testing, reduces: 15 % for the group with experience of 6–10 years and 9% for the group with experience of 11 and more years ($p<0.01$).

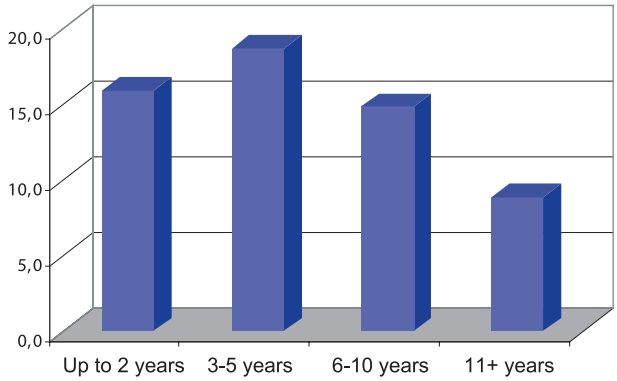

Figure 5.2.2. Negative answers to question "Is HIV test accessible for you?" depending on the experience of drug use, %, N=3811

Table 5.2.1 presents the accessibility of treatment by city.

Table 5.2.1. Answers to question "Is HIV test accessible for you?", distribution by city, N=3813, %

	Accessible	Inaccessible	Total
Kyiv	84.5	15.5	100
Vinnytsya	74.4	25.6	100
Dnipropetrovsk	74.2	25.8	100
Kryvy Rih	65.9	34.1	100
Zhytomyr	57.4	42.6	100
Uzhgorod	99.0	1.0	100
Zaporizhya	98.8	1.2	100
Ivano-Frankivsk	99.6	0.4	100
Simferopol	98.0	2.0	100
Severodonetsk	92.0	8.0	100
Chervonograd	90.8	9.2	100
Mykolaiv	89.9	10.1	100
Rivne	98.8	1.2	100
Ternopil	99.0	1.0	100
Cherkasy	93.9	6.1	100
Chernivtsi	100.0	0.0	100
Chernihiv	81.6	18.4	100
Total	**86.8**	**13.2**	**100**

Testing is the most accessible in Chernivtsi (100%), Ivano-Frankivsk (100%), Ternopil (99%), Rivne (99%), Zaporizhya (99%), Uzhgorod (99%), and Simferopol (98%). The least accessible it is in Zhytomyr (57% recognized testing accessible), Kryvy Rih (66%), Dnipropetrovsk (74%), and Vinnytsya (74%).

The respondents (554 men) who answered that testing is inaccessible for them, were asked questions about the reasons. Table 5.2.2 below presents answers to this question.

Table 5.2.2. Answers to question "Why is the test inaccessible for you personally?", N=554, %

Do not know whom to address	50.4
There is not testing institution in our locality	2.7
Do not know, where the testing institution is located	14.2
No money to pay for the test	14.8
Inconvenient working hours of testing institution	1.1
Inconvenient location of testing institution	0.4
Not satisfied with staff's attitude	12.2
Afraid of spreading the information about status	24.3
Other	2.2

According to the table, most often respondents do not know whom to address on the issues relating to the test (50%), and are afraid of spreading the information about their status (24%). Least often they mentioned institution's inconvenient location (0.4%), inconvenient working hours (1%), lack of institutions for testing in their locality (3%).

Table 5.2.3. Share of persons who were tested for HIV during the last 12 months and received its results, by gender, age, experience of drug use, type of drug use, %

Men (N=3036)	25.4
Women (N=926)	29.7
Age	
14–19 years (N=345)	12.7
20–24 years (N=695)	26.6
25–34 years (N=1726)	30.8
35+ years (N=1196)	25.5
Experience	
Up to 2 years (N=539)	11.2
3–5 years (N=591)	24.2
6–10 years (N=950)	32.1
11+ years (N=1878)	30.7
Type of drugs	
Opiates (N=3175)	28.3
Stimulants (N=787)	20.5
Total	**26.4**

Of all interviewed persons 44% informed that they addressed institutions/ organizations in order to have HIV test. 43% of all interviewed persons (1,981 respondents) informed, that they were tested for HIV. Of 1,981 respondents who were HIV tested, 53% did so during 2009, 23% – during 2008, and 24% – during previous years. 80% of tested, obtained pre-test doctor's advice, 96% of tested obtained their results. Therefore, the key indicator "Number of IDU who were HIV tested during the last 12 months and obtained its results" equals 26%. Table 5.2.3 below presents the distribution of this indicator by demographic groups.

It should be mentioned that among men the percent of tested is less than among women by 5 points – 25% in contrast to 30%, $p< 0.01$. Percent of tests increases with age from 13% to 31%, however, only until the age of 34 years. In group "35+ years" percent is smaller compared with group "25–34 years old". As experience in drug use grows, the percent of tests also grows from 11% to 32%, however only until experience of 6 years; then it does not change. Users of opiates were tested more often (28%) than users of stimulants (20.5%).

Distribution of tests by city (see table 3 in annex 2) shows incredibly high variation of the key indicator for HIV test – from 84.5% in Chernivtsi to 2% in Zhytomyr. A group of cities can be distinguished, where the indicator is quite high – in addition to Chernivtsi, it includes Rivne (62%), and Ivano-Frankivsk (56%). For two other cities, Dnipropetrovsk and Cherkasy, the indicator equals about 40%. For five other cities, Mykolayiv, Zaporizhya, Kyiv, Vinnytsya, and Chernihiv, the indicator tends to the average for the interviewed sample. For six other cities the indicator is 5–15%: they are Simferopol, Kryvy Rih, Severodonetsk, Chervonograd, Uzhgorod and Ternopil. The lowest indicator was shown by Zhytomyr – less than 2%.

5.3. Request for HIV testing: survey report for 2007–2009

HIV test indicator displayed positive dynamics in 2007–2009.

This dynamics is not significant in absolute figures, just 5% increase, though some cities show a significant dynamics. As the total level of dynamics is not high it means that the regions with previously high test indicator showed its decrease in 2009, and the regions with low level showed an increase. Such dynamics may recur from time to time. However, we decided to pay attention to the three cities showing statistically significant dynamics in 21–25 pct comparing to 2007. They are Dnipropetrovsk and Cherkasy where the test indicator grew from 16.5% and 15% to 38% and 40%, accordingly, and Kryvy Rih, where the indicator decreased from 30% to 5%.

Table 5.3.1. Percentage of IDUs who during the last 12 months recurred for HIV testing and received the result, percentage and confidence intervals

City	2007	Confidence interval	2009	Confidence interval
Simferopol	22.0	15.2–29.3	14.7	9.9–19.7
Dnipropetrovsk	16.5	9.9–24.8	37.7	29.0–46.5
Kryvy Rih	29.9	17.5–43.3	5.4	2.7–8.8
Kyiv	33.7	25.5–41.5	29.4	23.6–35.9
Mykolaiv	18.9	13.1–25.8	19.8	14.1–25.8
Cherkasy	14.7	9.8–19.6	40.0	30.4–51.5
Total for the 6 cities	24.8	22.8–26.8	29.7	27.6-31.8

The indicator drop could be hypothesized as follows. First, a lot of respondents from Kryvy Rih possibly might have been tested in 2008 and didn't consider the re-test necessary. Second, the IDUs population in Kryvy Rih may have increased acquiring new IDUs who consider the testing unnecessary assessing their infection risk as negligible. Third, specific operation of HIV-service organizations may decrease their efficiency level in preventive programs, and, as consequence, to decrease the IDUs awareness about anonymous HIV testing locations. Respectively, increased activity of these organizations in Dnipropetrovsk and Cherkasy might build up awareness on necessity and procedure of testing that followed into increased number of tests.

First hypothesis was not confirmed. Table 5.3.1 shows that among all tests which IDUs of Kryvy Rih had ever made in their life the percentage of those dating back before 12 months is rather low: 14%. In 2007 and earlier 65% of respondents made their last test that is a biggest share in all the sampling. Thus, from the prevention point of view these tests are not fresh and their so-called "recent" testing cannot be the reason for non-testing.

Kryvy Rih IDUs population analysis by age as well as by term shows that this IDU population not only didn't acquire the new IDUs who do not feel infection risk but to the contrary is represented by the IDUs with even greater term than in the survey of 2007. Besides, the comparative analysis of subjective HIV infection risk didn't show a significant difference between Kryvy Rih and other cities: 34% of IDUs from this city consider the risk as absolutely real. It gives a bigger number than in Simferopol, Kyiv, and Dnipropetrovsk, but less than in Mykolaiv and Cherkasy.

So, the IDUs awareness level was left to check for where the HIV test can be done and to assess the testing availability specifically for IDUs. The absolute majority of them know where to do the test and they assess it as available. Though, some dynamics is observed (table 5.3.2).

Table 5.3.2. Share of respondents reporting about their knowledge of where to do the HIV test, 2007–2009, in six cities, percentage and distinction significance

City	2007	2009	Distinction significance (p-value)
Simferopol	100.0	98.8	p>0.05
Dnipropetrovsk	85.4	77.9	p<0.05
Kryvy Rih	83.3	77.5	p>0.05
Kyiv	87.6	84.5	p>0.05
Mykolaiv	82.0	87.2	p>0.05
Cherkasy	84.9	93.6	p<0.01
Total for the 6 cities	87.4	86.4	p>0.05

It should be noted that in Kryvy Rih the awareness about the place of testing actually decreased, though, statistically it was not significant. In Cherkasy the indicator increase was observed. In Dnipropetrovsk the indicator decreased, though, the decrease of testing level was not observed.

Table 5.3.3. A share of respondents reporting about their opportunity for anonymous HIV testing, 2007–2009, in six cities, percentage and distinction significance

City	2007	2009	Distinction significance (p-value)
Simferopol	89.8	96.0	p<0.05
Dnipropetrovsk	72.9	75.9	p>0.05
Kryvy Rih	86.7	72.3	p<0.01
Kyiv	95.5	85.7	p<0.01
Mykolaiv	75.5	77.6	p>0.05
Cherkasy	81.3	96.0	p<0.01
Total for the 6 cities	84.9	84.1	p>0.05

It should be noted that in Kryvy Rih and Cherkasy a share of IDUs considering they have opportunity for anonymous HIV testing, decreased and increased according to hypothesis, though, the indicators were changed as it was observed both in Simferopol and Kyiv that does not linked with the changes in testing level (table 5.3.4).

Table 5.3.4. Share of respondents reporting about availability of HIV testing for them, 2007–2009, in six cities, percentage and distinction significance

City	2007	2009	Distinction significance (p-value)
Simferopol	88.3	95.6	p<0.01
Dnipropetrovsk	73.9	77.9	p>0.05
Kryvy Rih	96.0	66.7	p<0.01
Kyiv	97.2	87.2	p<0.01
Mykolaiv	81.5	86.8	p>0.05
Cherkasy	79.0	93.6	p<0.01
Total for the 6 cities	86.8	84.9	p>0.05

The most evident distinction is observed in Kryvy Rih under analysis of responses to a question whether HIV test is available. Due to the positive response percentage decrease by 19 pct Kryvy Rih among six cities has the smallest share of those who consider the testing available: 67%. Respectively, due to the percentage increase of positive response Cherkasy get close to the maximal indicator – 94–85%. Upward dynamics in Dnipropetrovsk turned to be statistically not significant.

So, we can conclude that the decrease of testing in Kryvy Rih was due to the weakening of preventive work. To the straight question: why they didn't make testing, the respondents chose the response variants: "I don't know to whom to address" and "I don't have money for testing", though, the number of those who actually answered this question is insufficient to compare these answers to other cities. In Cherkasy the preventive work may have become more efficicent in 2008–2009. The indirect evidence of this fact is that 80% of all testing in this city goes for 2009. It is hard to make any conclusion about Dnipropetrovsk as the dynamics of answers there does not correspond to the testing dynamics; moreover, in Simferopol and Kyiv a certain dynamics was observed not corresponding to the hypothesis.

Data analysis on the actual time when the respondent passed the last testing allows formulating another hypothesis (table 5.3.5, 5.3.6).

Table 5.3.5. Share of respondents who reported about their HIV testing at least once in their life by the monitoring data in 2009, in six cities, percentage

City	In 2009	Autumn 2008	Summer 2008	Spring or winter 2008	In 2007 or earlier	
Simferopol	16.3	3.4	22.4	7.5	50.3	100.0
Dnipropet-rovsk	52.5	11.7	8.9	6.1	20.7	100.0
Kryvy Rih	11.3	10.0	7.5	6.3	65.0	100.0
Kyiv	59.2	8.8	7.1	6.7	18.1	100.0
Mykolaiv	33.3	6.3	8.7	7.9	43.7	100.0
Cherkasy	80.3	11.3	5.6	–	2.8	100.0
Total for the 6 cities	46.5	8.7	10.0	5.8	29.1	100.0

Table 5.3.6. Share of respondents who reported about their HIV testing at least once in their life by the monitoring data in 2007, in six cities, percentage

City	In 2007	Autumn 2006	Summer 2006	Spring or winter 2006	In 2005 or earlier	
Simferopol	36.5	3.4	3.4	9.5	47.3	100.0
Dnipropetrovsk	31.1	23.0	9.8	13.1	23.0	100.0
Kryvy Rih	63.3	6.3	8.9	5.1	16.5	100.0
Kyiv	80.2	6.4	1.7	3.5	8.1	100.0
Mykolaiv	28.7	15.6	15.6	10.7	29.5	100.0
Cherkasy	50.0	11.5	7.3	2.1	29.2	100.0
Total for the 6 cities	50.7	9.6	6.9	6.9	25.8	100.0

This hypothesis is based on the fact that a share of testing in 2009, 2007 and 2005 prevails at some extent comparing to the number of testing in 2006 and 2008. This gives the idea that in some regions the number of testing is increasing due to more active work of NGO linked with behavior monitoring, f.ex. This phenomenon can be depicted as the testing increase as a result of “campaigns”. Behavior monitoring may be such a campaign as it makes necessary to recruit the respondents. Thus, data generalization of the two tables allows hypothesizing that shuch campaigns were held in Cherkasy in 2009, 2007, and 2005 or earlier. Namely, these years are marked with the biggest testing share among respondents in 2007 and 2009. In Kyiv these campaign years were 2007 and 2009, in Simferopol – 2005 and 2007, and in Kryvy Rih – 2007. Dnipropetrovsk and Mykolaiv show the data giving the least evidence about such campaign hypothesis. Indicator testing growth in Cherkasy seems to be the consequence of such campaign, whereas testing indicator decrease in Kryvy Rih is the result of the absence of such campaigns in 2007.

5.4. IDUs coverage with prevention programs

Key indicator "Percentage of injection drugs users responding they know where they can pass HIV test, and during last 12 months they received gratis a condom and a syringe" forms an impression on IDUs coverage extent with preventive programs, their obtaining syringes and condoms.

Data analysis showed that 40% of respondents know where to pass an HIV test and received gratis condom and a syringe during the last year. A separate analysis of distribution of the answers to the questions included to key indicator (knowledge where to pass an HIV test, to get syringes and condoms during the last year) showed the following: 83% know where to pass an HIV test, 46% of respondents during the last year received sterile needles and syringes, and 43% of IDUs received condoms.

Table 5.4.1. Key indicator of coverage with prevention programs depending on gender, age, and domicile section of respondents, percentage

Category	%
Age	
14–19 (N=345)	14.4
20–24 (N= 695	36.9
25–34 (N= 1726)	48.2
35 y.o. and older (N=1196)	41.2
Education	
Primary (N=728)	40.4
Secondary (N=2571)	38.7
High (N=651)	45.6
Term of use	
0–2 years (N=539)	21.3
3–5 years (N=591)	26.9
6–10 years (N=950)	47.2
11+ years (N=1878)	49.6
Drug type	
Opiates (N=3175)	42.9
Stimulants (N=787)	31.3

No difference was found between men and women as to their coverage with preventive programs. Indicator value is the lowest for the younger age group (14%), and then it grows significantly for the second (37%) and third age groups (48%) ($p<0.01$) and again is somewhat decreasing for the IDUs from 35 years and older (41%) ($p<0.01$). IDUs with high education are more covered with preventive programs (47%) than those with the secondary (39%) or primary education (40%) ($p<0.01$).

Data evidence that the IDUs with term of use of 6 years and more are better covered with preventive programs – the difference from those having smaller term of use is almost in two times ($p<0.05$). The least covered are the IDUs with the term of use less than two years (a significant distinction, $p<0.05$). Opiate users are much more covered with preventive programs than those who use mainly stimulants ($p<0.01$).

Analysis of coverage with preventive programs in the regional section revealed the extreme heterogeneity of regions in this connection – from 94.5% in Chernivtsi, to 1.5% in Zhytomyr (table 5 in Add. 2). Comparatively high value of key indicator was fixed, besides Chernivtsi, in Ivano-Frankivsk (88%), Simferopol (79%), Rivne (64%) and Cherkasy (60%). The indicators of coverage are located around the medium value for the aggregate in Dnipropetrovsk, Kryvy Rih, and Kyiv (39–50%). The indicators are relatively small (17–32%) for Mykolaiv, Zaporizhya, Chernigiv, Uzhgorod and Ternopil. Low indicator value was fixed for Severodonetsk (13.5%), Vinnytsya (16%) and Chervonograd (13%). It was noted that the lowest indicator value is for Zhytomyr: 1.5% of IDUs respondents was covered there.

It should be noted that in 7 cities out of 17 studied ones the sampling value exceeded the limits of confidence intervals calculated using the RDS technique. In all these cases the estimated share showed 3–10% lower than the sampling value. It means that the analysis of this variable should not be carried in any case by non-weighted array because the survey being performed without weighting should have been given a significant distortion of picture towards the excess of coverage indicator.

Among all the respondents 32% of IDUs are the clients of public organizations (further – PO). Below (table 5.4.2) the main characteristics are presented of PO clients: distribution by gender, age, education, term of use, and type of drug.

Table 5.4.2. Characteristics of clients and non-clients of NGOs, percentage

Category	Clients (N=1446), %	Non-clients (N=2516), %
Age		
14–19	3.0	15.6
20–24	15.6	20.2
25–34	46.8	38.9
35 y.o. and older	34.7	25.2
	100.0	100.0
Education		
Primary	20.2	17.0
Secondary	60.5	66.3
High	19.2	16.8
	100.0	100.0
Term of use		
0–2 years	6.8	22.9
3–5 years	10.3	20.0
6–10 years	25.0	22.4
11+ years	57.9	34.6
	100.0	100.0
Drug type		
Opiates	84.7	72.4
Stimulants	15.3	27.6
	100.0	100.0

No difference was found between men and women as to their being the clients of public organizations. Referring to other characteristics it can be said that the PO clients are elder than those IDUs-respondents who are not the clients: 35% are over 35 years old, whereas among the non-PO clients they form 25%. More than a half (58%) of PO clients has a term of drug use more than 10 years, whereas among the non-clients they make 35%. The NGO clients use the opiates more often (85%) than the non-clients (72%).

In regional section the biggest number of public organization clients reside in Ivano-Frankivsk (19%), Simferopol (17%), Cherkasy (13%) and Kyiv (10%). The smallest number resides in Zhytomyr (0.5%), Uzhgorod (0.6%), Severodonetsk (0.3%), Chervonograd, and Ternopil (0.5%).

The preventive programs coverage indicator remained the same during two years. This statement sounds as non-persuasive against an informational background about the decrease in almost all the cities of a share of respondents who received gratis the syringes and condoms (section 4 and 5). Though, as the indicator consists of several factors its size depends on how many people received one and another service. So, the stability of indicator against a background of its components decrease signifies that a share of those IDUs who received syringes as well as condoms, and who also know where to pass the HIV test, increased. Respectively, the share of those who received syringes or condoms, decreased. The greater share of these respondents in 2007 can be explained by the fact that the IDUs didn't receive the complete set of services, or they were the clients of different programs or actions where they received only syringes as IDUs, or only condoms.

Table 5.4.3. Indicator "Percentage of IDUs being covered with prevention programs of HIV/AIDS"

City	2007	Confidence interval	2009	Confidence interval
Simferopol	89.3	84.1–93.9	79.3	73.1–84.6
Dnipropetrovsk	43.3	33.0–55.0	41.5	32.0–50.1
Kryvy Rih	33.3	21.9–45.4	39.1	29.8–48.3
Kyiv	47.9	39.2–57.0	50.0	42.1–57.1
Mykolaiv	36.2	25.8–45.3	23.4	17.5–31.0
Cherkasy	50.8	42.6–59.3	60.0	51.1–69.5
Total for the 6 cities	54.8	52.2–57.4	57.4	55.0–59.8

Only in Simferopol a coverage decrease was observed by 10%, though, even under such condition it is the highest in Ukraine – 79%. Such stable structure of coverage can be explained by the local specifics of preventive programs realization. The high indicator in Simferopol showed itself indirectly through a share of respondents who already participated in related studies in 2007 and 2008. When the respondents were questioned about their participation in similar studies during their blood test after questioning a third of respondents from Simferopol gave positive answer. Among other cities the indicator varied around 3–6%..

Chapter 6. RESULTS OF LINKED SURVEY AMONG IDUs

In this section the prevalence is analyzed of HIV and syphilis among the IDUs and the factors of infection. A separate analysis is presented for every city where the survey was held.

6.1. Prevalence of HIV and syphilis

Among those who passed the HIV test 75% received the after-test consultation; 59.5% passed the HIV test and STIs in public organizations using the quick tests. 86% of those who passed testing agreed to inform about their result (1662 respondents). Among those who agreed to inform about their status (1662 respondents), 20.5% (370 persons) showed HIV-positive status. It makes 9% to all the respondents. Out of 370 respondents who had HIV-positive status, 89% were registered in AIDS Center. It should be noted that by the results of linked survey the HIV level makes 21.6%. In table 6.1.1 below the ratio is presented of self-declared HIV-status and HIV-status by the results of linked survey.

Table 6.1.1. Self-declared HIV-status and HIV-status confirmed by results of linked survey, (N=1662), percentage

		Results of linked survey		Total
		Positive	Negative	
Self-declaration of HIV-status from the previous testing	Positive (N=382)	97.0	3.0	100
	Negative (N=1280)	7.8	92.2	100

As it is evident from the table 97% of respondents who self-declared their HIV-positive status received also positive result by the results testing within the survey. It was found that 3% of respondents who self-declared their HIV-positive status received negative result in linked survey (12 cases).

By the results of linked survey the level of HIV-infected makes 22% (943 respondents). Among women the HIV is more frequent than among men (25% among the women against 20.5% among the men, distinction is statistically significant on the level of 1%, $p< 0.01$). (Table 6.1.2).

Table 6.1.2. HIV-status by the results of linked survey, distribution by gender, age, term of drug use, type of used drug, percentage.

	Positive	Negative	Total
Men (N=3036)	20.5	79.5	100
Women (N=926)	25.1	74.9	100
Term of drug use			
Under 2 years (N=539)	5.3	94.7	100
3–5 years (N=591)	11.7	88.3	100
6–10 years (N=950)	24.9	75.1	100
11+ years (N=1878)	30.7	69.3	100
Type of drug			
Opiates (N=3175)	25.7	74.3	100
Stimulants (N=787)	8.5	91.5	100
Total	**21.6**	**78.4**	**100**

With the increased term of drug use the level of HIV-infected is growing. If in the group of term under 2 years the HIV-infected make only 5%, in the group with the term of 3–5 years they make already 12% (distinction is statistically significant on the level of 1%, $p< 0.01$), in the group with the term of 6–10 years – 25% (distinction is statistically significant on the level of 1%, $p< 0.01$), in the group with the term of 11 and more – 31% (distinction is statistically significant on the level of 1%, $p< 0.01$).

Among the opiate users the level of HIV-infected is higher than among the stimulant users (26% in opiate users against 8.5% among the stimulant users, distinction is statistically significant on the level of 1%, $p< 0.01$).

Table 6.1.3. Positive tests for syphilis by the results of linked survey, distribution by gender, age, term of drug use, type of used drug, percentage.

	Positive	Negative	Total
Men (N=3036)	1.3	98.7	100
Women (N=926)	3.4	96.6	100
Age			
14–19 y.o. (N=345)	0.0	100	100
20–24 y.o. (N=695)	0.8	99.2	100
25–34 y.o. (N=1726)	2.1	97.9	100
35+ years (N=1196)	2.6	97.4	100
Term			
Under 2 years (N=539)	0.4	99.6	100
3–5 years (N=591)	0.7	99.3	100
6–10 years (N=950)	1.3	98.7	100
11+ years (N=1878)	3.1	96.9	100
Total	**1.8**	**98.2**	**100**

In table 4, Add. 2, the distribution is presented of HIV-infected share by the cities. The highest percentage of HIV-infected is observed in Mykolaiv (55%), and Kryvy Rih (42%). In seven cities the indicator of HIV-infected is close to medium in studied aggregate; they are Simferopol, Dnipropetrovsk, Kyiv, Chernihiv, Ivano-Frankivsk, and Rivne. In Zaporizhya, Zhytomyr, and Chernivtsi the indicator is 11–12%. The smallest percentage of HIV-infected – 3–8% – is in Severodonetsk, Chervonograd, Ternopil, Uzhgorod and Vinnytsya.

All the 3962 respondents passed a test on syphilis as well within the linked survey, out of them 1.8% received positive syphilis test (70 respondents). Below (table 6.1.3) a distribution is given of positive tests for syphilis by gender, age, term of drug use, type of used drug.

Table 6.1.4. Positive tests for syphilis, distribution by gender, age, period of drug use, type of used drug, percentage.

	Positive	Negative	Total
Kyiv	1.2	98.8	100
Vinnytsya	0.0	100.0	100
Dnipropetrovsk	2.0	98.0	100
Kryvy Rih	2.4	97.6	100
Zhytomyr	0.8	99.2	100
Uzhgorod	1.0	99.0	100
Zaporizhya	6.4	93.6	100
Ivano-Frankivsk	3.2	96.8	100
Simferopol	5.6	94.4	100
Severodonetsk	0.0	100.0	100
Chervonograd	0.0	100.0	100
Mykolaiv	1.6	98.4	100
Rivne	0.4	99.6	100
Ternopil	2.0	98.0	100
Cherkasy	0.0	100.0	100
Chernivtsi	0.0	100.0	100
Chernihiv	2.8	97.2	100
Total	**1.8**	**98.2**	**100**

Among women the positive tests for syphilis were found more often than among men (3.4% among women against 1.3% among men, $p<0.01$). The number of positive tests for syphilis is increasing with the age: if among the age group of 14–19 y.o. syphilis was not found at all, then, among the age group of 20–24 y.o. there were 0.8% of sick persons, and among the eldest age group of 35 y.o. and older – 3% (distinction is significant between the group of 20–24 y.o., 35 y.o. and older on the level of 1%, $p<0.01$). With the bigger term the number of positive tests for syphilis is increasing: indicator is increasing from 0.4% for the group with the term under 2 years to 3% for the group with the term over 11 years, though, statistically confirmed growth is observed only among the groups with the term of 6–10 years (1%) and with the term over 11 years ($p<0.01$). Statistically significant difference by the type of used drug was not revealed. Below (table 6.1.4) the distribution is presented of positive tests for syphilis by the cities.

The highest level of positive tests for syphilis was fixed in Zaporizhya (6%) and Simferopol (6%). No syphilis was found in Vinnytsya, Severodonetsk, Chervonograd, Cherkasy and Chernivtsi.

The attention should be given to the syphilis self-declaration data discrepancy during the last 12 months period and syphilis test results in linked survey. If during last 12 months syphilis was declared by 5.5% (200 respondents), during the survey it was found only in 2% (70 respondents), the respondents are different in both groups.

Among those who has positive syphilis test, 38% also showed positive result for HIV test, whereas among those who has syphilis negative reaction 21% showed HIV positive. However among HIV-infected and HIV-non-infected the syphilis pathogen was found in approximately the same number of persons. This shows equal to the international data on the higher HIV infection risk at those who has syphilis.

6.2. HIV infection factors: Results of logistic regression

In order to check the below given hypothesis on the HIV infection factors this survey uses regression logistic models. Namely, the following hypotheses were checked:

- HIV-positive share is bigger among women due to certain physiological and social factors.
- Probability of HIV infection depends on dangerous practices: use of non-sterile instruments, unsafe sex.
- Probability of HIV infection depends on the term and frequency of dangerous practices: term of use of injected drugs, regularity of use of non-sterile instruments, number of unsafe sex partners and injections, frequency of unsafe sex.

Three models were built to check these hypotheses that differ by the number of variables introduced to every of them. First reason of building several models is because the term of drug use closely correlates with the age of respondents (r=0.730). It means including these two variables to one model will follow into instability of equation caused by so-called multicollinearity problem. Thus, the age and term of use values were checked on separate models. Second, variables “got an injection from already filled syringe” and “during last 30 days used a syringe which was used by another person” have the same high correlation (r=0.483) that forced us to show their value on separate models. So, model 1 in table 6.2.1 includes the effect of gender, age, use of shared ware and use of already filled syringe; that is, the variables not correlating among themselves. Second model includes the effect of the term of use instead of age; the third includes the effect of gender, age and use of already used syringe instead of use of shared ware and already filled syringe. Such approach allows comparing the explanatory force of related but different variables.

The final model was built as the result of revealing the significant number of variables, related to HIV infection risk in the studied aggregate of 17 cities. The aim of search was the optimal model from the point of view of its explanatory force for the whole sample as well as for separate cities. So, the variables were kept in the final models that are statistically significant covariates of HIV infection, and do not correlate among themselves: gender, age, term of use, frequency use of shared ware to make drugs, use of already filled syringe, use of a syringe that was already used by another person.

So, models (table 6.2.1) were built on the samples from 3830 to 3871, the respondents were excluded who didn't answer certain questions. The number of HIV-positive in all the three models is similar (832 respondents), so models differ only by a set of risk factors, and the inner structure of sample (from the point of view of the characteristics of HIV-infected) stayed in fact identical.

Chances of infection were assessed comparing to so-called reference groups:

1) chances of women to get HIV infection relating to chances of men for HIV infection;

2) all the age groups were compared with the age group of 20–24. ;

3) all the groups were compared by the term of use to the group with the term of use under 2 years;

4) those who received an injection from already filled syringe were compared with those who didn't make any injection from already filled syringe;

5) frequency of use of shared ware: a group of those who filled the drug from the shared ware always (in 100% of cases), in the majority of cases (75%), in the half of cases (50%), sometimes (25%) (2299 respondents in all), was compared with the group of those who seldom (10%) or never filled the drug from the shared ware (1615 respondents in all).

6) those respondents who during last 30 days used the other's syringe, were compared with those who didn't use the other's syringe during last 30 days.

Below (table 6.2.1) the results of logistic regression are presented.

According to all the three models there exists a high probability to find the women among the HIV-infected rather than men. In average, this probability for the women is 1.5 times more than for the men.

Age of respondents showed to be a very strong covariate explaining the biggest part of variation (models 1 and 3). It was found that the age group of 14–19 y.o. has approx. by 80% less probability of HIV infection than a group of 20–24 y.o. Though, the age group of 25–34 y.o. has approximately 2.7 times more chances to get infected and the age group of 35 y.o. and older has approximately 2.8 times more chances to get infected than the age group of 20–24 y.o.

Though, term of use showed itself to be even stronger covariate than the age (Model 2). It was found that a group with the term of 3–5 years has 2.35 times higher probability of HIV infection, and a group with the term of 6–10 years – 5.28 higher probability of HIV infection, and a group of 11 and older – even 8 times higher probability of HIV infection than a group with the term of 0–2 years.

The chance to find those respondents who did injection from already filled syringe among HIV-infected approximately is 1.5 times more than the chance to find those who didn't do this.

Those respondents who filled the drug from the shared ware always or mainly have approximately 1.3 time higher probability of HIV infection, than those who never filled the drug from the shared ware or made it extremely rarely (in 10% of cases).

Those respondents who during the last 30 days used a syringe which was used by another person, have by 30% chances more of HIV infection than those who didn't use a syringe being used by another person (Model 3).

Table 6.2.1. Results of logistic regression of the probability of HIV infection, all the coefficients (exp(B)

	Model 1 (N=3833)	Model 2 (N=3830)	Model 3 (N=3871)
Women (compared with men)	1.43***	1.50***	1.41***
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	0.19***	–	0.19***
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	2.68***	–	2.81***
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	2.78***	–	2.80***
Term of use 3–5 years (compared with the group of 0-2 years of use)	–	2.35***	–
Term of use 6–10 years (compared with the group of 0-2 years of use)	–	5.28***	
Term of use 11 and older (compared with the group of 0-2 years of use)	–	7.86***	–
Received injection from already filled syringe during last 30 days	1.63***	1.51***	–
Frequency of use of shared ware during last 30 days	1.30***	1.29***	–
During last 30 days used a syringe which was used by another person	–	–	1.30**
Intercept (B)	-2.88***	-3.78***	-2.48***
Pseudo R-sq: Cox & Snell	0.073	0.078	0.064
Pseudo R-sq: Nagelkerke	0.113	0.121	0.099

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

[15] The group aged 14–19 should have become the reference one as having the least number of HIV-infected persons, but namely this group had the insufficient number of respondents in the regional section to make the correct comparison with this group.

6.3. HIV infection factors: Results of logistic regression within cities where the survey was held

In order to check the hypothesis on the level of the regions the model was used in 17 cities where the survey was held. As the number of respondents being questioned in the cities is relatively small (from 99 to 407 respondents) this fact strongly limits the number of covariates to be included in the models. The covariates of model 3 were used for testing; they include gender and age of a respondent and also a use of a syringe which was used by another person within last 30 days. The choice of model 3 and a variable of using the syringe being used by another person are conditioned by a fact that this model showed to be significant for the greater number of cities than the 1st and 2nd models.

Table 6.3.1. Results of logistic regression of the probability of HIV infection, city of Kyiv (N=400), coefficients (exp(B)

	coefficients (exp(B)
Women (compared with men)	2.96***
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	0.28
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	8.03***
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	14.71***
During last 30 days used a syringe which was used by another person	0.79
Intercept (B)	-4.49***
Pseudo R-sq: Cox & Snell	0.116
Pseudo R-sq: Nagelkerke	0.178

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

By the results of the linked survey among IDUs in Kyiv one fourth of respondents revealed to be HIV-infected. By the results of logistic regression the women in Kyiv have three times higher probability of HIV infection than men. Age group of 14–19 y.o. has no significant difference in HIV infection comparing to a group of 20–24 y.o. A group of 25–34 y.o. instead has 8 times higher chances to get HIV infection, and the age group of 35 y.o. and older – in 15 times higher probability to get HIV infection than the age group of 20–24 y.o.

Use of already used syringes during last 30 days didn't show significant rates for Kyiv inhabitants, so we can conclude that this is not a mass infection factor in Kyiv.

Table 6.3.2. Results of logistic regression of the probability of HIV infection, city of Vinnytsya (N=247), coefficients (exp(B)

	coefficients (exp(B)
Women (compared with men)	0.31
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	–
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	8.62
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	13.55*
During last 30 days used a syringe which was used by another person	2.27
Intercept (B)	-3.24*
Pseudo R-sq: Cox & Snell	0.069
Pseudo R-sq: Nagelkerke	0.244

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

In Vinnytsya only 18 HIV-infected respondents were revealed that explains a weak side of explanatory model. Among group of 14–19 y.o. the HIV-infected were not found at all that prevented from calculating the rate. It was found that the age group of 35 y.o. and older has 13.5 times higher probability of HIV infection, though, this rate is significant only on the level of 10%. Use of shared syringe, same as in Kyiv, is not a factor of mass infection as the rate is not significant comparing to those who didn't use a syringe which was used by another person.

Table 6.3.3. Results of logistic regression of the probability of HIV infection, city of Dnipropetrovsk, (N=247), coefficients (exp(B)

	coefficients (exp(B)
Women (compared with men)	1.40
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	1.99
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	6.69*
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	12.83**
During last 30 days used a syringe which was used by another person	3.97***
Intercept (B)	-4.13***
Pseudo R-sq: Cox & Snell	0.103
Pseudo R-sq: Nagelkerke	0.155

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

Results in Dnipropetrovsk differ at certain extent from two previous cities. First, it was found that the women in Dnipropetrovsk have same chance of HIV infection as men (the difference between these two groups is insignificant). Unlike the previous two cities the use of someone other's syringe showed significant rates: those who used another people's syringe during last 30 days have higher probability of infection almost 4 times more than those who didn't use another people's syringes. Probably, for Dnipropetrovsk this type of injection transmission is more specific.

Among the age groups the oldest respondents have 13 times higher probability of HIV infection than the respondents of the age group of 20–24 y.o. In the age group of 25–34 y.o. the probability of HIV infection is 6.7 times higher than for the age group of 20–24 y.o. (the rate is significant on the level of 10%).

Table 6.3.4. Results of logistic regression of the probability of HIV infection, city of Kryvy Rih, (N=245), coefficients (exp(B))

	coefficients (exp(B)
Women (compared with men)	2.59***
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	–
Age group of 25–34 y.o. (compared with the group 20–24 y.o.)	11.41***
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	4.03**
During last 30 days used a syringe which was used for injection by the other person	1.04
Intercept (B)	-3.09***
Pseudo R-sq: Cox & Snell	0.127
Pseudo R-sq: Nagelkerke	0.171

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

City of Kryvy Rih shows the standard explanatory picture: women 2.6 times are more frequently infected with HIV than men; the older age groups are more frequently infected than the younger respondents. At that the use of other people's syringe doesn't show that significant increment of HIV infection comparing to those who don't use the other people's syringes.

Table 6.3.5. Results of logistic regression of the probability of HIV infection, city of Zhytomyr (N=243), coefficients (exp(B)

	coefficients (exp(B)
Women (compared with men)	0.83
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	0.09
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	3.75***
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	0.71
During last 30 days used a syringe which was used by another person	13.69***
Intercept (B)	-1.48**
Pseudo R-sq: Cox & Snell	0.162
Pseudo R-sq: Nagelkerke	0.239

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

In Zhytomyr we observe very much the same picture of infection as in Dnipropetrovsk: no significant difference between men and women; the infection probability increase is observed 13.7 times more for those who use the other people's

syringes. Among the age groups the biggest risk is shown in a group of 25–34 y.o. which has the probability of infection almost 4 times higher than at the reference group of 20–24 y.o.

Table 6.3.6. Results of logistic regression of the probability of HIV infection, city of Uzhgorod (N=99), coefficients (exp(B)

	coefficients (exp(B)
Women (compared with men)	3.81
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	0.18
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	0.00
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	0.35
During last 30 days used a syringe which was used by another person	0.16
Intercept (B)	-3.82**
Pseudo R-sq: Cox & Snell	0.039
Pseudo R-sq: Nagelkerke	0.149

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

The model for Uzhgorod has a weak explanatory force because not any single covariate showed significant rates. It is explained by the fact that by the results of linked survey only 5 HIV-infected out of 100 respondents were revealed in the city that prevented from building the reliable explanatory model.

Table 6.3.7. Results of logistic regression of the probability of HIV infection, city of Zaporizhya, (N=243), coefficients (exp(B)

	coefficients (exp(B)
Women (compared with men)	0.42*
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	1.38
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	1.72
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	0.59
During last 30 days used a syringe which was used by another person	0.25*
Intercept (B)	-0.89**
Pseudo R-sq: Cox & Snell	0.047
Pseudo R-sq: Nagelkerke	0.093

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

he model for Zaporizhya has the same weak explanatory force as for Uzhgorod because not any single covariate showed significant rates. In Zaporizhya by the results of linked survey only 23 HIV-infected out of 249 respondents were revealed that prevented from building the reliable explanatory model.

Table 6.3.8. Results of logistic regression of the probability of HIV infection, city of Ivano-Frankivsk (N=237), coefficients (exp(B)

	coefficicents (exp(B)
Women (compared with men)	3.21***
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	–
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	2.63**
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	2.54*
During last 30 days used a syringe which was used by another person	2.98***
Intercept (B)	-3.40***
Pseudo R-sq: Cox & Snell	0.120
Pseudo R-sq: Nagelkerke	0.171

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

In Ivano-Frankivsk women have 3.2 times higher probability of HIV infection than men. The older respondents have higher probability of infection, than younger: a group of 25–34 y.o. is HIV infected 2.6 times more frequently than a group 20–24 y.o. In the age group of 14–19 y.o. the HIV-infected were not found at all; due to this fact it was impossible to calculate the rate. With all that in Ivano-Frankivsk the tendency of infection through the use of someone else's used syringe is well developed: those respondents who have the same experience are HIV infected three times more frequently than all the others.

Table 6.3.9. Results of logistic regression of the probability of HIV infection, city of Simferopol (N=241), coefficients (exp(B)

	coefficients (exp(B)
Women (compared with men)	2,.23**
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	8,.64
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	0,.41
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	0,.78
During last 30 days used a syringe which was used by another person	2,.97***
Intercept (B)	-2,.20***
Pseudo R-sq: Cox & Snell	0,.077
Pseudo R-sq: Nagelkerke	0,.119

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

The model for Simferopol shows the absolute insignificance of age categories in explaining the causes of HIV infection. Though, as in the case of Ivano-Frankivsk, belonging to female gender and use of other's syringes are well explaining the HIV infection. Namely, women have more than twice higher probability of HIV infection than men, and the users of other's syringes have almost 3 times higher probability of HIV infection than those who don't use the other people's syringes.

Table 6.3.10. Results of logistic regression of the probability of HIV infection, city of Severodonetsk, (N=241), coefficients (exp(B))

	coefficients (exp(B)
Women (compared with men)	7.97***
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	3.44
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	6.74*
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	6.96*
During last 30 days used a syringe which was used by another person	0.12*
Intercept (B)	-6.27***
Pseudo R-sq: Cox & Snell	0.091
Pseudo R-sq: Nagelkerke	0.202

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

In Severodonetsk the unique significant infection factor was belonging to female gender: women in this city have 8 times higher probability of infection than men. Age category and use of other's syringes is or insignificant, or significant on the level of 10%, that doesn't correspond to reliability criteria for such a small array.

Table 6.3.11. Results of logistic regression of the probability of HIV infection, city of Chervonograd (N=243), coefficients (exp(B)

	coefficients (exp(B)
Women (compared with men)	0.18
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	4.08
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	138.05
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	181.71
During last 30 days used a syringe which was used by another person	0.93
Intercept (B)	-4.25
Pseudo R-sq: Cox & Snell	0.152
Pseudo R-sq: Nagelkerke	0.380

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

The model for Chervonograd showed itself statistically not significant, that is, we fail to reveal not any infection factor having statistic confirmation. Extreme high rate is in the group of 25–34 y.o. to which the majority of HIV-infected belongs (21 out of 29 HIV-infected respondents).

Table 6.3.12. Results of logistic regression of the probability of HIV infection, city of Mykolaiv (N=247), coefficients (exp(B)

	coefficients (exp(B)
Women (compared with men)	0.92
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	–
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	2.51**
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	3.67***
During last 30 days used a syringe which was used by another person	1.54
Intercept (B)	-0.58
Pseudo R-sq: Cox & Snell	0.091
Pseudo R-sq: Nagelkerke	0.122

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

In Mykolaiv only in the age groups section significant rates were revealed: the older are respondents the higher is the probability of infection – 2.5–3.7 times higher comparing to the group of 20–24 y.o. Age group of 14–19 y.o. was represented only by 4 respondents, not any of them was HIV-infected, and it prevented from calculating the rate. The gender and the use of other's used syringe do not influence the infection probability increase.

Table 6.3.13. Results of logistic regression of the probability of HIV infection, city of Rivne (N=250), coefficients (exp(B)

	coefficients (exp(B)
Women (compared with men)	1.92*
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	0.51
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	1.70
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	0.60
During last 30 days used a syringe which was used by another person	3.42***
Intercept (B)	-2.15***
Pseudo R-sq: Cox & Snell	0.064
Pseudo R-sq: Nagelkerke	0.093

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

In Rivne women are approximately twice more frequently HIV-infected than men, though, this is significant only on the level of 10%. The use of other's used syringe increases the probability of HIV infection approximately in 3.5 times. Age groups don't have serious influence on the probability of HIV infection.

Table 6.3.14. Results of logistic regression of the probability of HIV infection, city of Ternopil(N=99), coefficients (exp(B)

	coefficients (exp(B)
Women (compared with men)	1.05
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	–
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	1.55
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	5.50
During last 30 days used a syringe which was used by another person	1.87
Intercept (B)	-3.40**
Pseudo R-sq: Cox & Snell	0.041
Pseudo R-sq: Nagelkerke	0.104

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

The model for Ternopil showed to be too weak to generalize about infection factors because not any rate is statistically significant. The rate of the age group of 14–19 y.o. was not calculated due to the low number of respondents in this age category.

Table 6.3.15. Results of logistic regression of the probability of HIV infection, city of Cherkasy, (N=224), coefficients (exp(B)

	coefficients (exp(B)
Women (compared with men)	2.29*
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	0.23
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	0.55
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	3.75**
During last 30 days used a syringe which was used by another person	0.27*
Intercept (B)	-3.07***
Pseudo R-sq: Cox & Snell	0.082
Pseudo R-sq: Nagelkerke	0.168

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

In Cherkasy we observe the following picture of infection: women have approximately twice higher probability of HIV infection than men; the older respondents have higher probability of infection than the younger ones (age group of 35 y.o. and older have approximately 4 times higher chances of infection than the age group 20–24 y.o.). Other infection factors are statistically not significant.

Table 6.3.16. Results of logistic regression of the probability of HIV infection, city of Chernivtsi (N=100), coefficients (exp(B)

	coefficients (exp(B)
Women (compared with men)	0.78
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	–
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	3.58
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	2.15
During last 30 days used a syringe which was used by another person	78.00***
Intercept (B)	-3.50*
Pseudo R-sq: Cox & Snell	0.000
Pseudo R-sq: Nagelkerke	0.000

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

In Chernivtsi not any single covariate, except the use of other people's syringe, showed significant rates. The rate of use of other people's syringe is too big, it is explained by the too small number of those who used a syringe which was used by another person (5 persons) and the HIV-infected in Chernivtsi (11 persons). Such small numbers make the equation unstable.

Table 6.3.17. Results of logistic regression of the probability of HIV infection, city of Chernihiv (N=245), coefficients (exp(B)

	coefficients (exp(B)
Women (compared with men)	1.39
Age group of 14–19 y.o. (compared with the group of 20-24 y.o.)	–
Age group of 25–34 y.o. (compared with the group of 20-24 y.o.)	6.46***
Age group of 35 y.o. and older (compared with the group of 20-24 y.o.)	1.83
During last 30 days used a syringe which was used by another person	0.50
Intercept (B)	-2.47***
Pseudo R-sq: Cox & Snell	0.145
Pseudo R-sq: Nagelkerke	0.207

Significance level: *: <0.1, **:< 0.05, ***:< 0.01.

In Chernigiv the only infection factor is the age category of respondents: a group of 25–34 y.o. has 6–5 times bigger chances of HIV infection than the age group of 20–24 y.o. Other patterns (gender and the use of other people's syringe) were not revealed.

CONCLUSIONS

This survey is dedicated to the specificity of injecting drugs users' behavior, namely the experience of drugs use, use of sterile instruments for the injections, and condoms for sexual contacts.

Analysis of social-demographic content of IDUs showed that in 2009, as earlier, the use of injected drugs is more characteristic ofo men – their share among IDUs makes 75%.

Average age of respondents is 30 years: from 22 y.o. in Chervonograd to 37 y.o. in Kryvy Rih. We can state that the youngest IDUs live in Western and Central regions of Ukraine, and the oldest – in the Eastern and Southern regions.

Changes observed in six big cities of Ukraine in 2007–2009 mainly evidence about the aging of IDUs population. We can state the significant aging of IDUs populations in big cities of the Eastern and Southern regions of Ukraine almost to the total disappearance of the groups younger than 25 y.o. During two years the age of injection drug use start has grown; this fact explains somehow the aging of IDUs population.

In the sample studied extremely big is the share of IDUs with the period of injection drug use over 10 years – almost a half. The age of first injection increased to some extent.

Approximately one fourth of IDUs are those who consider stimulants to be their main drug, the rest consider it to be the opiates. Stimulant users differ from opiate users by the bigger share of women, young users, and less frequent injections.

The majority of IDUs (85%) reports about the non-use of non-sterile syringes during their last injection. Though, 57% of them evidence about receiving the drug from already filled syringe, and 69% of them report about the use of shared ware to prepare the drug solution for injections.

With the age the IDUs turn to more intense injection mode. Those who use non-sterile toolkits start to disinfect it more frequently with the age. With the age IDUs use every time more of sterile syringes but use more the shared ware.

Opiate users behavior is much more risky in injection practice than the stimulant users behavior – they do injections frequently, they pass syringes to one another and use the shared ware to make the drug. From the other side the stimulant users start injections practice earlier than the opiate users and they frequently drink alcohol.

Changes in the use structure are evidencing about the increase of use of opiates (Kyiv, Simferopol, Kryvy Rih, Mykolaiv, Cherkasy) as

well as stimulants (Kyiv and Cherkasy). So the aging of IDUs population is accompanied by almost total transfer to opiates in one cities and growth of mixed use of opiates and stimulants in other cities.

Data show significant inclination of IDUs to casual sex, multi-partners' and commercial sex. Average number of sexual partners during three months before the questioning is 2.5. This tendency is mainly developed among men, young IDUs and unmarried IDUs. Female IDUs declare higher share of cases of commercial sex. Almost one third of IDUs-respondents in Simferopol, Zaporizhya and Cherkasy declared cases of commercial sex during 3 months before the questioning that makes a significant difference from other regions.

44% of respondents reported about having an IDU as a permanent sexual partner.

Use of condom during the last sexual contact is 58%. With the age and term the regularity of condom use decreases. This indicator gave negative dynamics during 2 years, namely, in Dnipropetrovsk and Kyiv out of six compared cities.

Respondents know well enough the symptoms of STIs. Among women, older respondents and respondents with big experience of drug use the symptoms knowledge is higher than among men and younger IDUs.

Incidence rate: the respondents reported most frequently about the presence of hepatitis B (9.5%) and hepatitis C (12%) for the period of last 12 months. Syphilis was least reported (5%). It can be stated that the same respondents had several STIs at the same time during one year.

Men frequently have tuberculosis, whereas women report about frequent STIs. With the age the number of TB cases is increasing reaching the maximum in the group of 35 y.o. and older. A peak of venereal diseases and hepatitis goes for the age group of 20–24 y.o. More than 90% of respondents were treating their diseases, though, only three fourth were treating hepatitis C. About 2% of respondents showed reaction when tested for syphilis. The presence of syphilis increases the probability of HIV infection.

87% of respondents reported that HIV test is accessible for them. 43% of respondents reported that they had already passed the HIV test and a half of them did it yet during 2009. Testing indicator for the period of last 12 months is 26%; variability between cities is extremely high. Among those who agreed to reveal their HIV-status by the results of the previous testing 20.5% were found HIV-positive.

Results of linked survey show that 22% of all the respondents have HIV-positive status. Women and older IDUs-respondents by age and term have higher probability of HIV infection than men and younger IDUs.

Use of already filled syringe, use of shared ware from which the drug was filled, and also use of other's used syringe is statistically a significant infection factor.

Presence of risky sexual behavior and use of condoms do not show a direct influence on the level of HIV infection.

In Dnipropetrovsk, Zhytomyr, Rivne and Chernivtsi the variable "use of other's used syringe" had an influence on the HIV infection, whereas female gender had not. In Ivano-Frankivsk and Simferopol the variable "use of other's used syringe" had an effect similar to the gender effect. We can assume that in these cities the sexual transmission of infection is present together with the practices of shared drug use as a way of HIV transmission.

In Kryvy Rih, Kyiv, Mykolaiv first of all women and older IDUs are exposed to the highest infection risk.

In Vinnytsya, Uzhgorod, Zaporizhya, Chervonograd, Ternopil neither of infection factors prevails over others.

Higher awareness about routes of HIV transmission is developed by the IDUs with the bigger term of drug use, higher or secondary education, and also those who named opiates as their main drug type.

IDUs coverage with prevention programs makes 40%. Opiate users are covered by the prevention programs better than the stimulant users. Very uneven is the coverage with programs depending on the place of living: from 1.5% in Zhytomyr to 94.5% in Chernivtsi.

Discussion and limitations of survey

The problem of data collection by RDS method is that the comparison of two data arrays as representative is not reliable. Quite probable is that the use of method in 2007 gave the opportunity to cover one section of IDUs population, and the questioning of 2009 – the second one. Such situation is probably due to the fact that in every of 17 studied cities, probably, there is not one but several IDU populations difficult of access. Such subpopulations may include stimulant users, users of expensive drugs, under-age IDUs, IDUs living in suburbs, others. Thus, the aging of IDU population in Simferopol, Mykolaiv and Kyiv, probably, was not developed, but simply another section of population was covered which representatives were more accessible. This, accordingly, had consequences for representation of such variables as type of drug used by IDUs, level of coverage with preventive programs and level of HIV infection as these variables are linked with the age and term of drug use.

HIV infection factors analysis showed mixed picture in 17 cities. Age of IDUs and term of drug use is a dominating HIV infection factor. This means accumulation of various risks: unsafe sex and dangerous injections; a result is an increased chance for IDUs to be HIV infected in the age of 35 y.o. or with the term of use over 10 years. Though, in 7 out of 17 cities a female gender was also a significant infection factor. We can assume that in these cities the sexual transmission of infection is present together with the collective practices of drug use as a way of HIV transmission.

Significant limitation of this survey is that it has practical aims and doesn't cover all the opportunities of analysis which are possible on the basis of data collected. Objectives of this monitoring are to present to the readership the results of IDUs questioning and their blood samples testing for HIV and syphilis made in 2009 totaling about 270 variables. Analysis object is also to establish the relations between the behavioral variables and social-demographic variables in a easy-understandable form, making conclusions and taking decisions by the experts in health protection and social work on all-national and local levels. This survey is not aimed on the long-term trend analysis, building complete prognostic models for various IDU subgroups and surveying the interaction of various factors (such as term of use and age) which form risky behavior and affect the chances of HIV infection. Resolution of these problems stayed outside the survey due to the necessity of resolving practical preventive objectives and because of lack of corresponding data. Analyses of factors of behavioral risk and changes of some indicators in six cities in 2007–2009 do not claim to be comprehensive but are sufficient to give a representative picture for those who need to do annual HIV prevention work planning.

From the point of view of practicability of this analysis and through the lack of data such significant research objectives stayed outside of this report:

1. Long-term trends survey. Only presence of data collected using RDS method on the sampling in the same cities makes possible analyzing the tendencies that could give the opportunity to speak about the permanent trends of various indicators and their congruence. Analysis of changes developed in 6 cities during two years does not give such opportunity as all the observed tendencies may be only short-term variations.

2. Detaching the changes in the cohorts from the changes linked with the age. Because of lack of comparative data for a significant period of time (10 years) it is not possible to get the answers to the questions whether the observed behavioral variables are really changing with the age for all the IDUs, whether they are the feature of behavioral changes in the new IDU cohorts. For example, it is not possible basing only on the monitoring data of 2009 to answer the question, whether the age of beginning the injection practice increased. We cannot find among IDUs who were 15–19 y.o. in 2009, those who started injections in the age of 20 years and older. Respectively, the start of injections always will be higher in the older age groups than in the younger ones. Only comparing the age of starting injections in the same age groups (for example, 15–19 y.o.), of respondents, for example, in 1999 and 2009 could give the possibility to conclude on generation changes. The same goes for the use of sterile instruments and condoms.

3. Survey of problem of interaction between different social-demographic and behavioral features, namely, term of use and age. Problem lies in distinguishably of effect that aging produces on the behavior and senescence of respondent from the effect of the long-term use of injections. As this survey has a high correlation of IDUs' age and term of injections use – 0.825, the effect of the age on the dependent variables has small difference from the effect of the term of use as one can see from the tables. Their inclusion to the same explanatory model might have caused statistic problem of multicollinearity – instability of statistical models. The authors didn't put to resolve this statistical problem as an objective but only to present behavioral factors and infection risk. So, we didn't examine the complexity of interrelations but the discovery of reliable behavioral factors that are significant for decision-taking. The age and the term are such indicators as they show evident difference in behavior and chances to get HIV-infected. Age is the most visible category to perform preventive strategy, and the term shows the cumulative effect of risk factors linked with injections. The choice stays with those who build the preventive strategy.

The objective of this survey was also to improve the techniques of questioning using recruiting RDS method and developing the databases basing on the results weighting by the network size of the respondent. This procedure allows more precise assessment of confidence intervals for small aggregates that are the IDU-respondents in some cities; it allows more precise analysis basing on the national sampling using the scales imported from the databases of some cities. Though, the development of the methodology of multivariate analysis was not an objective of this report. There exists a lot of methods to analyze the correlations and classifications of features, though, we took a logistic regression as a method producing easy interpretable results and is widely used in the international practice . Namely this international practice recommends choosing the binomial variable "HIV-status" as dependable one in such analysis. Rates received as a result of logistic modeling allow assessing chances or the probability, finding a respondent with specified characteristics among those who have positive HIV test result.

ANNEX 1

SOCIAL-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Table 1. Distribution of IDUs by education, six cities, 2007–2009, percentage

Education	2007 (N=1329)	2009 (N= 1653)
Primary education(undergraduate 9 years)	6.5	5.3
Basic (undergraduate) secondary education (complete 9 years)	19.8	15.7
Complete general secondary education, undergraduate high education	57.9	61.5
Basic high education(university of I,II accred. level, technical school)	12.0	11.5
Compete high education (university of III,IV accreditation level)	3.8	6.1

Table 2. Distribution of IDUs by their family status, six cities, 2007–2009, percentage

Family status	2007 (N=1329)	2009 (N= 1656)
Married or living with a woman/ man	15.3	13.4
Married, but having another sex partner(s)	4.4	3.6
Married, but not living neither with a woman/man nor with another sex partner	6.8	3.5
Officially not married but living with a sex partner	32.3	34.4
Not married, not living with a sex partner	41.1	45.0

Table 3. Distribution of IDUs by their activity type, six cities, 2007–2009, percentage

	2007 (N=1329)		2009 (N=1656)	
Secondary school student	1.5	Surveying – 9%	1.1	Surveying – 4.2%
Vocational school student	1.1		0.9	
Technical school student	1.8		0.6	
University student	4.6		1.6	
Have permanent work	21.8	Working – 52%	18.5	Working – 49.6%
Have odd jobs	30.2		31.1	
Unemployed	29.7	Not working and not surveying – 39%	34.8	Not working and not surveying – 46.2%
House work	5.5		4.6	
Down state (invalid)	3.2		5.7	
Others	0.6		1.1	

ANNEX 2

Table 1. Indicator "The number of respondents who indicated that they used sterile injection instruments during the recent injection", sample and estimation share, confidence intervals and homophilia indicator

City	Sample share	RDS estimation share	RDS confidence intervals	Homophilia
Simferopol	92.9	92.0	87.7–95.9	0.139
Mykolaiv	96.8	95.4	91.8–98.5	0.254
Dnipropetrovsk	85.9	88.5	81.3–93.1	-0.020
Kryvy Rih	91.6	93.1	89.8–97.2	-0.010
Zaporizhya	88.4	85.5	78.7–91.3	0.241
Severodonetsk	94.1	92.1	86.0–96.7	0.233
Kyiv	98.3	100.0	–	–
Vinnytsya	96.8	97.2	94.7–99.1	-0.005
Zhytomyr	58.2	60.9	52.9–68.2	0.039
Cherkasy	90.4	82.6	74.1–90.6	0.589
Chernihiv	93.6	91.8	86.4–96.3	0.288
Chervonograd	92.4	92.0	88.4–96.4	0.033
Uzhgorod	98.0	98.3	95.2– 100	-0.004
Ivano-Frankivsk	90.8	89.7	85.1–93.7	-0.002
Rivne	94.5	94.4	90.4–97.4	0.000
Ternopil	79.2	89.4	78.0 – 94.7	-0.016
Chernivtsi	99.0	98.6	95.6–100	0.268

Table 2. Indicator "Percentage of injection drug users reporting use of a condom during the recent sexual act" , sample and estimation share, confidence intervals and homophilia indicator

City	Sample share	RDS estimation share	RDS confidence intervals	Homophilia
Simferopol	64	64.2	57.3–71.5	0.105
Mykolaiv	65.5	65.4	58.3–73	0.003
Dnipropetrovsk	32.7	24.2	16.5–32.3	0.163
Kryvy Rih	45.1	51	42.5–60.6	0.049
Zaporizhya	35	38.3	29.8– 47.1	-0.054
Severodonetsk	29.5	27	19.3–35.8	0.156
Kyiv	41	41.6	35.5–48.1	-0.038
Vinnytsya	41.1	43.4	33.9–52.3	0.248
Zhytomyr	34.9	36.8	27–44.8	0.078
Cherkasy	63.5	61.7	54–71.1	0.129
Chernihiv	37.4	34.9	25.4–42.4	-0.157
Chervonograd	45.8	47.7	38.3–55.2	-0.032
Uzhgorod	46.8	46.8	31.5–61	0.153
Ivano-Frankivsk	71.5	71.4	64.8–77.4	-0.016
Rivne	49.3	46.3	38.4–53.7	0.124
Ternopil	26.8	30.5	10.8–52.6	0.201
Chernivtsi	59.4	67.8	53.6–78.8	0.033

Table 3. Indicator "Number of injection drug users who during the recent 12 months received an HIV test and know their results", sample and estimation share, confidence intervals and homophilia indicator

City	Sample share	RDS estimation share	RDS confidence intervals	Homophilia
Simferopol	18.7	14.7	9.9–19.7	0.024
Mykolaiv	22.8	19.8	14.1–25.8	0.060
Dnipropetrovsk	42.6	37.7	29.0–46.5	0.030
Kryvy Rih	8	5.4	2.7–8.8	0.068
Zaporizhya	24.5	21.5	14.1–28.1	0.083
Severodonetsk	10.3	8.9	5.0–15.2	0.089
Kyiv	35.4	29.4	23.6–35.9	0.140
Vinnytsya	27.2	22.4	16.1– 29.0	0.129
Zhytomyr	4	1.9	0.60– 3.7	-1.0
Cherkasy	47.8	40	30.4–51.5	0.500
Chernihiv	24.4	22.5	15.2–30.5	0.154
Chervonograd	16.9	11.2	7.3–15.6	0.073
Uzhgorod	24	13.1	3.9–24.2	0.406
Ivano-Frankivsk	59.6	55.9	47.8–65.2	0.315
Rivne	65.7	62.2	54.7–70.9	0.294
Ternopil	20.8	14.3	5.8–26.1	0.327
Chernivtsi	82.2	84.5	73.4 93.4	0.170

Table 4. Indicator "Percentage of HIV-positive IDUs", sample and estimation share, confidence intervals and homophilia indicator

City	Sample share	RDS estimation share	RDS confidence intervals	Homophilia
Simferopol	28.6	23.5	18.1–29.0	0.035
Mykolaiv	55.2	56.4	47.9–64.8	0.121
Dnipropetrovsk	30.9	22.1	15.4–30.2	0.218
Kryvy Rih	42.2	42.2	31.2–53.1	0.125
Zaporizhya	9.2	10.7	4.8–17.5	0.253
Severodonetsk	10.3	6.7	2.4–10.9	0.183
Kyiv	25.6	22.1	16.6–27.9	0.285
Vinnytsya	7.2	4.8	2.2–8.1	0.007
Zhytomyr	30.1	25.3	18.0–32.9	0.222
Cherkasy	16.9	11.1	6.4–16.8	0.197
Chernihiv	31.2	27.2	17.9–37.4	0.251
Chervonograd	11.6	7.1	3.3–11.4	0.184
Uzhgorod	5.0	3.0	0.2–7.3	-1.0
Ivano-Frankivsk	30.0	29.6	22.0–37.6	0.098
Rivne	22.4	22.4	17.5–32.4	0.069
Ternopil	7.9	6.2	1.5–13.5	0.035
Chernivtsi	10.9	6.2	2.5–0.8	-1.0

Table 5. Indicator "Number of injection drug users who answered that they knew where they could have an HIV testing and during the recent 12 months received a needle and condom free-of-charge", sample and estimation share, confidence intervals and homophilia indicator

City	Sample share	RDS estimation share	RDS confidence intervals	Homophilia
Simferopol	80.2	79.3	73.1–84.6	-0.001
Mykolaiv	32.0	23.4	17.5–31.0	0.304
Dnipropetrovsk	51.4	41.5	32–50.1	0.25
Kryvy Rih	45.8	39.1	29.8–48.3	0.351
Zaporizhya	24.7	17.3	10.8–24.1	0.213
Severodonetsk	13.0	13.5	8–20.1	0.052
Kyiv	60.9	50	42.1–57.1	0.339
Vinnytsya	24.8	16.2	10.7–22.8	0.245
Zhytomyr	4.4	1.5	0.6–2.9	-1
Cherkasy	71.5	60	51.1–69.5	0.395
Chernihiv	35.2	31.6	23.8–39.7	-0.001
Chervonograd	17.3	13.1	8.2–18.9	0.137
Uzhgorod	36	30.3	19.6–42.4	0.322
Ivano-Frankivsk	88.4	88	82.5–92.5	0.202
Rivne	68.9	64.1	56.8–71.4	0.146
Ternopil	30.7	20.7	9.4–33.6	0.37
Chernivtsi	93.1	94.5	89.2–98.6	-0.011

Table 6. Indicator "Percentage of those who correctly define the ways of preventing sexual transmission of HIV and know how it is not transmitted among injection drug users", sample and estimation share, confidence intervals and homophilia indicator

City	Sample share	RDS estimation share	RDS confidence intervals	Homophilia
Simferopol	67.5	63.6	56.7–70.1	0.036
Mykolaiv	73.2	63.4	55.5–71.2	0.259
Dnipropetrovsk	54.6	54.5	45.7–63.3	0.090
Kryvy Rih	26.5	25.3	17.1–34.1	0.168
Zaporizhya	60.2	60.0	52.0–68.0	0.051
Severodonetsk	41.5	41.6	33.3–50.2	0.119
Kyiv	61.7	61.1	54.6–67.7	0.007
Vinnytsya	41.6	41.9	33–47.9	0.083
Zhytomyr	54.6	56.5	48.1–63.4	-0.038
Cherkasy	59.4	54.5	46.1–63.1	0.222
Chernihiv	54.8	54.5	44.8–63.1	0.159
Chervonograd	74.3	71.1	62.7–79.3	0.315
Uzhgorod	37.0	33.4	20.3– 46.9	0.231
Ivano-Frankivsk	83.6	79.6	73.3– 85.8	0.255
Rivne	85.8	84.8	78.0–90.0	0.143
Ternopil	58.4	64.0	52.8–79.7	0.166
Chernivtsi	77.2	83.2	71.1–92.2	0.140