

**RISK FACTORS IMPACTING ON THE SPREAD
OF HIV AMONG PREGNANT WOMEN IN THE RUSSIAN FEDERATION**



EUROPE

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OF HIV AMONG PREGNANT WOMEN IN THE RUSSIAN FEDERATION**

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SUMMARY

Key concepts: human immunodeficiency virus (HIV), epidemic, risk groups, risks, behavioural studies, sentinel surveillance, injecting drug users, sex workers (SW), pregnant women.

This work focuses on HIV epidemics among women in five HIV high prevalence areas of the Russian Federation (RF) (St Petersburg, Kaliningrad, Yekaterinburg, Irkutsk, and Tver).

The survey's target group consisted of HIV-positive pregnant women first registered as HIV-positive in July 2004 – July 2006. The total sample size was 758 persons. Participation in the survey was voluntary and anonymous. The completed questionnaires were statistically processed. The basic survey was a specially developed standardized questionnaire aimed at investigating behavioural risks among women before and after HIV diagnosis. A total of 111 questions formed the survey's indicators.

The investigation of socio-demographic and behavioural characteristics showed that the surveyed sample can be classed in terms of HIV infection as a high-risk (IDUs, SWs, IDUs selling sexual services, sexual partners of HIV-positive persons) or low-risk group (IDUs' sexual partners, persons engaging in sexual contacts with non-regular partners, SW's sexual partners). It was found that female vulnerability to HIV varied geographically: while in Saint Petersburg, Yekaterinburg and Kaliningrad HIV risks were largely present in the behaviour of women at the moment of the diagnosis, in Irkutsk and Tver, a much lower number of women reported practicing risk behaviours. In all the cities, many of the respondents' partners represented high and low-risk groups.

Women tended to suggest that they had been infected sexually. In addition, women that were on remission at the time of the diagnosis often did not think it necessary to report past drug use experience. This may have had an impact on the objectiveness of HIV transmission route assessment at primary epidemiological history collection. Some correlation between the subjective assessment of transmission route and behavioural risk factors was only present in the Saint Petersburg cohort (every fourth respondent regarded drug use as the cause of her infection). There is a link between generative behaviour and behavioural HIV risks. Thus the proportion of planned pregnancies as well as the number of patients forgoing antenatal care was reliably low in Kaliningrad and Saint Petersburg. In Saint Petersburg, up to one half of the HIV cases in women were not diagnosed till delivery.

After HIV diagnosis, the total number of respondent's sexual partners dropped, while condom use could either increase or decrease. Much smaller number of women reported practicing drug injection: by two times in Irkutsk and Kaliningrad, by three times in Saint Petersburg and Tver and by seven times in Yekaterinburg. However, no significant changes in injecting equipment use could be identified.

The analysis showed that the involvement of the social environment of high-risk groups in the epidemic occurs at different paces. As the epidemiological assessment of the stages of the HIV epidemic is based on the evaluation of behaviours both in risk groups and within the general population, it is advisable to monitor the behaviours of the general population in the cities studied.

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ABBREVIATIONS AND EXPLANATORY NOTES

AIDS	– acquired immunodeficiency syndrome
ART	– antiretroviral therapy
CIS	– Commonwealth of Independent States
CSP	– commercial sexual partners; partners providing sexual services for money, drugs, etc.
SWs	– sex workers; women providing sexual services for material compensation
Reproductive behaviour	– demographic behaviour related to childbirth
High-risk groups	– IDUs, SWs, MSM
HIV	– human immunodeficiency virus
IDUs	– injecting drug users
low-risk groups	– sexual partners of IDUs, clients of SWs, female partners of MSM, prisoners
MSM	– men having sex with men; men engaging in penetrative sex with male partners
MTCT	– mother-to-child transmission; HIV transmission from the pregnant HIV-positive woman to her fetus/baby at various stages of pregnancy, during delivery and/or breastfeeding
NGO	– non-governmental organization
Non-regular sexual partners	– partners not married to or living with respondents and who do not provide sexual services for money, drugs, etc.
Persons with risk behaviour, vulnerable groups, risk groups	– groups at higher risk of HIV infection due to their behavioural patterns – or socio-economic factors.
Regular sexual partners	– spouses or cohabiters married to or living with respondents
Sexual HIV transmission	– HIV transmission through sexual contact (heterosexual or homosexual)
STI	– sexually transmitted infection
WHO	– World Health Organization

INTRODUCTION

The first HIV case in Russia was registered in 1987. Until 1996, only isolated cases of hetero- or homosexual HIV transmission were registered, predominantly among males.

In 1996-1997, HIV spread explosively among IDUs in several regions. The number of regions involved in the epidemic increased every year. The highest number of new HIV cases officially registered nationwide was documented in 2001 (88,577 cases).

According to the data from the areas with the highest HIV prevalence, parenteral transmission predominated in the first 3-4 years after the onset of the epidemic, which was mainly spreading among men. At a later stage, heterosexual transmission had reached 30–50% in some areas by 2005 (Kaliningrad District, Tver District, Yekaterinburg, Krasnoyarsk Region, etc.).

The increase in the proportion of women in the HIV-positive population (feminization of the epidemic) indicated that the epidemic had expanded and changed. Up to 30% of HIV-positive women are pregnant. Most HIV tests are done and most HIV cases are discovered when women seek antenatal care. The number of new HIV cases among pregnant women per 100,000 patients tested nationwide has grown by 190.3 times between 1996 and 2003, with HIV prevalence in a number of areas during certain times of the year approaching 1% (as per Statistical Form No.4).

According to international criteria based on investigations of epidemics in various continents, pregnant women are regarded as members of the general population and HIV prevalence of above 1% in this group indicates a generalized epidemic. In view of this, some Russian and international authors refer to the HIV epidemic in certain regions of the RF as a “transition to a generalized epidemic”.

However, a number of factors indicate that such classification of the epidemic in Russia may be premature. There are far more reasons to suggest that most infected people can blame their HIV status on belonging to high risk groups (IDUs, SWs) or on their immediate social environment. This assumption rests on the following grounds:

- Drug use, both experimental and regular, is practised by both men and women, but because of stigmatization, women tend to seek specialist drug treatment less frequently than men. Consequently, information about female IDUs is patchy, practically inaccessible for analysis and often not officially registered.
- Some women report contracting HIV from their IDU sexual partners, which means that they may have experimented with drugs and may have been infected parenterally.
- Some women deny both using drugs and the possibility of sexual transmission, suggesting that they may have been infected in medical settings, which can not be proved even after epidemiological tracing.
- Women identified as HIV-positive during pregnancy often mechanically define their transmission route as sexual because they are pregnant.

- The significance of epidemiological tracing (identification of major risks aimed at understanding the causes of infection and implementing anti-epidemic initiatives) has sharply decreased over the past few years due to the complexity of work with the risk groups mentioned above.
- When HIV cases are grouped by transmission route in national statistical documents, 20-30% annually fall into the “Data Unavailable” category, so the probability that parenteral transmission prevails in this group is very high.

Investigation into the HIV epidemic among women is therefore very important if we are to understand the trends of HIV spread in Russia.

PROJECT GOAL:

Identify trends in HIV spread among the female population in several high-prevalence areas in the Russia, through in-depth epidemiological and sociological analysis.

HIV-positive pregnant women were selected as the target group due to the accessibility of this group and its social relevance.

PROJECT TASKS:

1. Investigate behavioural risks among the target group of women at the time of HIV diagnosis (injecting drugs, multiple sexual partners, non-regular sexual partners, commercial sex, use of condoms during intercourse)
2. Estimate the percentage of traditional risk groups (IDUs, SWs’ clients, prisoners, HIV-positives) among sexual partners of women from the target group
3. Evaluate the probable transmission routes among the target group members (sexual transmission, parenteral transmission)
4. Investigate behavioural changes among women living with HIV

1. SURVEY METHODOLOGY

1.1. GENERAL QUESTIONS

The Project's Terms of Reference were developed jointly by the North-West Regional Centre for AIDS Prevention and Control and WHO Regional Office for Europe. The AIDS Centre developed and guided research methods and procedures as well as the technical and financial project documentation. These tasks were co-performed by the Stelit Public Organization for Social Projects. The investigation was carried out in five regions of the Russian Federation in the cities of Yekaterinburg, Irkutsk, Kaliningrad, St Petersburg, and Tver.

Project time frame: 1 November 2005 – 1 August 2006

Within the project framework an introductory workshop was organized in St Petersburg in January 2006 for representatives of the participating regions. The participants delivered presentations on HIV in their respective regions based on traditional surveillance data. In particular, they focused on HIV cases among women (number of cases, trends, transmission routes, proportion of pregnant women). The participants discussed the project concept and developed survey protocols for the project areas.

1.2. SURVEY SAMPLE

The target group was women who were first registered as HIV-positive in 2004-2006 and sought antenatal care at medical facilities (pregnancy monitoring, termination or delivery). The sample size is presented in Table 1.

Table 1

Sample size, by region, %

Region	Sample size	Percentage
St Petersburg	151	19.9
Kaliningrad	150	19.8
Yekaterinburg	153	20.2
Irkutsk	147	19.4
Tver	157	20.7
Total:	758	100.0

1.3. SURVEY TOOLS

The principal document used in the investigation was a specially designed standardized questionnaire based on the recommendations of WHO and Family Health International for sentinel behavioural studies as a part of second-generation epidemiological HIV surveillance in various countries of the world. Most indicators included in the questionnaire had been piloted in prior investigations

conducted by the authors of this report among risk groups in the RF and CIS¹. For the purposes of this survey, they were supplemented by specific indicators relevant to the target group.

The survey questionnaire incorporated a wide range of indicators classified under the following sections (Annex 1):

- General socio-demographic information (6 questions)
- Marriage and cohabitation (3 questions)
- HIV diagnosis (8 questions)
- Sexual behaviour and HIV (43 questions)
- Pregnancy and HIV (12 questions)
- Injecting drugs and HIV (36 questions)
- Opinions and attitudes (3 questions)

Socio-demographic and behavioural indicators of the survey were covered by 111 questions.

1.4. DATA COLLECTION PROCEDURES

Data collection was conducted by specially trained staff from the AIDS Centre and NGOs working with the target group. In every city, collection procedures were reviewed and approved beforehand by the North-West AIDS Centre and the Stellit Public Organization for Social Projects, as well as by the regional working groups.

The St Petersburg working group incorporated the staff of the North-West AIDS Centre and Doctors to Children St Petersburg NGO. The target group was women who were first officially registered as HIV-positive in 2005–2006 while seeking antenatal care (first or subsequent pregnancy). The sub-sample comprised:

- HIV-positive women, pregnant or with infants, followed up by the Mama+² centre of integrated care. Interviews were conducted in the Centre or in respondents' homes.
- Women admitted in labour to maternity homes No.15 and No.16 in St Petersburg³, whose HIV test at delivery was positive. Interviews were conducted in the maternity departments.

¹ "Investigating the efficiency of sentinel serological and behavioural surveys as part of HIV surveillance among injecting drug users (UNAIDS, WHO, North-West AIDS Centre, OO Stellit, 2002); "Sentinel HIV surveillance among risk populations in the Russian Federation, Azerbaijan Republic and Moldova Republic (WHO, North-West AIDS Centre, OO Stellit, 2003-2004); "Developing and introducing sentinel serological and behavioural surveys among risk populations in the system of epidemiological HIV surveillance" (RF MOH, North-West AIDS Centre, 2004); "Monitoring surveys among risk groups in St Petersburg, Orenburg and Irkutsk, Russia" (USAID, FHI, OO Stellit, 2005-2006); et al.

² The Mama+ centre provides HIV-positive women with psychological, social and medical counseling. The services of the Centre are used by 56 HIV-positive mothers with children under 12 months.

³ Maternity hospitals No.15 and No.16 in St Petersburg have observation departments for women who did not receive antenatal care and were not tested for HIV during pregnancy. In 2005, these maternity hospitals registered 118 deliveries among HIV-positive women.

- Pregnant women seeking care at antenatal clinics No.9, No.68, No.8, No. 32 in St Petersburg with positive HIV test results. Interviews were conducted in the Mama+ centre on referrals from gynaecologists, in antenatal clinics or in other convenient places.

The Kaliningrad working group incorporated the staff of Kaliningrad District Centre for AIDS prevention and control. The sub-sample was made up of women from the target group who registered as HIV-positive in July 2004-2006 while seeking care for pregnancy (first or subsequent):

- Women admitted in labour to maternity home No.4 in Kaliningrad, whose HIV test at delivery was positive. Interviews were conducted in a special office.
- HIV-positive women who were told about the project while receiving care from the gynaecologist and paediatrician at the AIDS Centre. Interviews were conducted in the Centre's psychological recreation room or in other convenient places (cafes).

The Yekaterinburg working group incorporated the staff of Yekaterinburg District Centre for AIDS Prevention and Control (manager, epidemiologists, psychologist and nurse). The sub-sample was made up of women from the target group who registered as HIV-positive in July 2004-2006 while seeking antenatal care (first or subsequent pregnancy):

- HIV-positive women registered with the AIDS Centre, including those using the paediatrician's services. Interviews were conducted in the Centre in a separate room.
- Women admitted in labour to the Yekaterinburg observation maternity hospital and whose HIV test at delivery was positive. Interviews were conducted in specially designated settings.
- HIV-positive pregnant women attending a special pregnancy school run by the NGO "Sodruzhestvo -XXI century". Interviews were conducted in the school.

The Irkutsk working group incorporated the staff of Irkutsk District AIDS Centre and the NGO "Anti-HIV Priangarye: Prevention and support". The sub-sample was made up of women from the target group who registered as HIV-positive in July 2004-2006 while seeking antenatal, delivery or postnatal care:

- HIV-positive women registered with the AIDS Centre, including those on ART, as well as women with neonates, followed up by the paediatricians of the Centre. Interviews were conducted in the Centre or in the respondents' homes.
- HIV-positive women admitted to medical facilities and maternity hospitals in Irkutsk. Interviews were conducted in "trust rooms" at those facilities.
- HIV-positive women, pregnant or with infants, followed up by the NGO "Anti-HIV Priangarye: Prevention and support".⁴ Interviews were conducted in the premises of the NGO, in respondents' homes, or in other convenient places.

⁴ NGO "Anti-AIDS-Priangarye: Prevention and support" provides psychological and legal counseling for HIV-positive pregnant women and mothers, supplies baby foods, vitamins, etc.

The Tver working group incorporated the staff of Tver District AIDS Centre, the NGO Lestnitsa, City antenatal clinics and maternity hospitals. The target group included women first officially registered as HIV-positive in 2003–2006 while seeking pregnancy care (childbirth or termination). The sub-sample was made up of:

- HIV-positive women registered with the AIDS Centre. Interviews were conducted in the premises of the AIDS Centre, the NGO Lestnitsa, or in respondents' homes.
- HIV-positive pregnant women seeking care at antenatal clinics and maternity hospitals. Interviews were conducted in appropriate settings within the premises of those medical facilities or the AIDS Centre.

Participation in the survey was voluntary. Respondents were guaranteed full confidentiality. Data collection complied with all ethical requirements applicable to such surveys. Participation was rewarded with gifts (toiletries, foodstuffs, childcare goods, multi-vitamins, etc.).

Most respondents were genuinely interested in the survey and were calm and friendly during the interview. Respondents found some questions uncomfortable, perceiving them as intrusive. The authors consider that this illustrates the need to raise public awareness of HIV-related issues. Respondents also tended to try to frame their answers in a way that they thought might seem more “socially acceptable” – for example, by presenting themselves as victims of circumstances. Interviewers were specifically trained to recognise this potential source of bias and to use non-judgemental interviewing skills to elicit accurate answers.

Completed questionnaires were checked for accuracy by regional working group supervisors and mailed to Stellit in St Petersburg, where they were re-checked before data input.

1.5. STATISTICAL DATA PROCESSING

The statistical data was processed in St Petersburg with Microsoft Excel and SPSS 10.0 for Windows. The primary data processing included the estimation of percentage distributions of characteristics for every city both individually and in total, as well as mean values (\bar{x}) for numerical scales. The secondary processing included estimation of value deviations from the mean value (Δ) in individual cities, evaluation of deviation reliability with the χ^2 test, estimation of the value (Student t-criterion) and the reliability (p , TWilcoxon) of differences in the values of behavioural indicators before and after HIV diagnosis.

All differences described in the text of this report are statistically significant unless stated otherwise.

When discussing sub-samples in this paper, comparisons with the “average” refer to the average of the whole survey population.

2. SURVEY FINDINGS: SOCIO-DEMOGRAPHIC AND BEHAVIOURAL CHARACTERISTICS OF HIV-POSITIVE WOMEN IN THE SELECTED HIGH-PREVALENCE AREAS OF THE RUSSIAN FEDERATION

2.1. ST PETERSBURG

2.1.1. HIV EPIDEMIC

HIV cases have been registered in St Petersburg since 1987. It is among the regions with the highest prevalence in Russia. The total number of officially registered cases was 32,045 at the end of 2005. The cumulative number of HIV-positive people (prevalence 667.5 per 100,000) in St Petersburg is the highest in the RF North-West Region and exceeds the national rate by 2.9 times.

Several stages can be identified in the HIV epidemic in St Petersburg:

1. 1987–1998 – slow spread of HIV, mainly sexual transmission
2. 1999–2001 – epidemic among IDUs, maximum incidence rate in 2001 (205.6 per 100,000)
3. 2002–2006 – epidemic still in progress among IDUs with increasing sexual (heterosexual) transmission

According to WHO criteria, the epidemic in St Petersburg can be regarded as concentrated. Sentinel surveillance data suggest HIV prevalence among IDUs is at least 30%, with the size of the IDU population estimated at 100,000. Our sentinel surveys have shown that in 2003 HIV prevalence among SWs was 48.1%. The 2005 surveys show a high prevalence of drug use among homeless/abandoned street-children, with HIV prevalence at 30.7%.

In 2005, 4,045 new HIV cases were registered in St Petersburg, exceeding the 2004 figure by 356 cases. The proportion of parenteral transmission in 2005 rose to 67% (64.4% in 2004, 54.7% in 2003, 71.9% in 2002, and 97.3% in 2001). The proportion of heterosexual transmission, on the contrary, fell to 7.1% in 2005 (15.6% in 2004). In 24.3% of cases in 2005 transmission routes could not be identified.

Analysis of HIV cases by means of transmission showed that 76.4% cases among men and 47.3% of cases among women were contracted through injecting drugs. Heterosexual transmission accounted for 14.4% of cases among women but only 3.6% among men. The male-to-female ratio among people living with HIV was 2.1:1.

The means of infection could not be identified with 18.6% of men and 36.6% of women, as these patients had not been registered at the AIDS Centre.

Age-distribution of the HIV-positive population: 2.2% aged 15 or younger, 8.1% 16–19, 29.7% 20–24, 32.1% 25–29, 14.5% 30–34, 6.2% 35–39, 3.4% 40–44, 1.9% 45–49, 1.8% over 50.

A total of 1,990 children were born to HIV-positive mothers in St Petersburg between 1987 and 2005 (908 confirmed to be HIV-negative, 45 died, 940 were followed up). Among HIV-positive women, there were 276 pregnancies and 415 deliveries registered in 2005 (Code 109). It is also noteworthy

that every fourth newly diagnosed HIV-positive woman was pregnant. In total, since the beginning of the HIV epidemic in St Petersburg, 97 children have been diagnosed with HIV after prenatal exposure, with 39 of them registered in 2005. 50 HIV-positive women abandoned their children in 2005.

2.1.2. BASIC CHARACTERISTICS OF HIV-POSITIVE WOMEN

2.1.2.1. SOCIO-DEMOGRAPHIC CHARACTERISTICS

The St Petersburg sub-sample had the following age composition: most respondents were women aged 20–24 (45%), followed by women aged 25–29 (31.8%) and 19 or younger (14.6%). A smaller proportion were 30–34 (7.3%). Respondents aged over 35 accounted for 1.3% of the sample.

30.7% of the women had general secondary education; 25.3% had received specialized secondary education, 18% vocational education, 12% incomplete secondary education; 7.3% higher and 5.3% incomplete higher education, 1.3% only primary education.

All respondents of the sub-sample resided in St Petersburg permanently (the highest proportion of permanent residents in the total sample). Only 20.5% of the respondents had not lived in St Petersburg since their birth, coming mostly from CIS (56.3%). This situation is similar in Kaliningrad. In other survey regions, a higher proportion of non-permanent residents came from other regions of Russia. Most women at the time of the survey had lived in St Petersburg for 21–30 years (57%), 20.5% for less than 10 years, 18.5% for 11–20 years, and 4% for over 30 years.

42.4% of women had been married. 59.4% first married at the age of 20–24; 31.3% under 20 years old; 9.4% at the age of 25–29 years.

At the time of the survey, 35.1% of the women were not in registered or common-law marriage and lived alone; 28.5% lived in common-law marriage, 26.5% were in registered marriage and lived with their husbands. An insignificant proportion of women were in registered marriage but lived either alone (6%) or with another male partner (3.3%). The marital status of the interviewed women in the St Petersburg sub-sample at the time of the survey was significantly different from the total sample, with a lower proportion of women in common-law marriage and a larger proportion of women living alone.

2.1.2.2. HIV DIAGNOSIS

45.7% had been diagnosed with HIV 10–18 months before the survey; 27.2% – 5–9 months before; and 15.2% – less than 5 months before (more than in the other sub-samples).

Over 90% of the women were diagnosed with HIV in St Petersburg. Of these, 59.5% were discovered in the antenatal clinic, 20.3% at the AIDS Centre, and 7.2% at the STI clinic.

At the time of diagnosis, 46.4% were aged 20–24 years; 27.2% were 25–29; 19.2% were 19 years old or less; 7.3% were 30 or older. 37.1% of the women were living alone; over half lived with regular sexual partners (27.2% in registered marriage, and about as many in common-law marriage).

87.4% were pregnant at the time of diagnosis – half of them were diagnosed with HIV only during delivery (more in St Petersburg than in the total sample). Only 53.8% had received antenatal care during this period, which is less than in other cities. Only 22.7% were diagnosed within the first 12 weeks of pregnancy; 11.4% during the third trimester or later.

In the St Petersburg sub-sample, 51.7% did not receive either pre- or post-test counselling when they were diagnosed with HIV. This is higher than in the other sub-samples.

Only 22.5% received pre- and post-test counselling. About 15.9% were given only post-test counselling, and 7.9% received only pre-test counselling.

57.6% knew someone HIV-positive before their own diagnosis (more than average). Every fourth woman had an HIV-positive friend; some had HIV-positive relatives.

23.8% were not sure how they became infected with HIV. About half the women thought that they received HIV through an unprotected sexual contact (although that proportion is lower than in the other sub-samples). 25.8% linked their infection with injecting drugs (more than average). A statistically insignificant proportion of women (2%) suggested they were infected in medical settings or through tattoos.

84.1% of the women interviewed in St Petersburg reported that they do not need any medical, social, information or other services (well above average). Only a statistically insignificant number reported being in need of additional medical services, ART, medication or social support. Only a few said they were in need of information about living with HIV, children's health and children's rights, or psychological and legal help.

2.1.3. BEHAVIOURAL CHARACTERISTICS OF HIV-POSITIVE WOMEN BEFORE AND AFTER DIAGNOSIS

2.1.3.1. SEXUAL BEHAVIOUR AND PREVENTION OF SEXUAL TRANSMISSION

All the women interviewed had had penetrative sex before HIV diagnosis. The distribution of age at sexual debut among women in the St Petersburg sub-sample is mostly consistent with mean values. 69.5% first had sex between 15–17 years old; 26.8% at 18–19; 9.3% before 15; 1.3% over 19.

Before diagnosis, 29.8% had 2–4 sexual partners; every fifth woman had 4–10 sexual partners; an insignificant number of women had sex with only with one partner or with more than 10 partners.

92.1% had had regular sexual partners before being diagnosed with HIV. During that period 46.4% of them had 2–4 regular partners (which is higher than average) or one partner (43%). 41% never used condoms during sex with regular partners; 44.6% used condoms occasionally.

Also, 83.4% had had sex with non-regular partners (higher than average). 32.5% were not sure how many non-regular sexual partners they had had during the period before diagnosis. Over half the women reported using condoms at nearly every sexual contact with these partners (28.6% always, 34.9% nearly always).

21.9% of women in the St Petersburg sub-sample before being diagnosed with HIV had had sexual contact with commercial partners. A large proportion of these were not sure how many commercial partners they had had. 27.3% always used condoms during sex with commercial partners; 45.5% – nearly always; (24.2% only occasionally).

There was quite a high proportion of risk group members among their sexual partners.

Fig. 1

Known and suspected risk group members among women’s sexual partners before HIV diagnosis, St Petersburg, %.



43% reported having had sex with prisoners during this period. 29.1% had had sex with persons habitually buying sexual services. 60.9% of women had had IDUs among their sexual partners. 13.9% knew and 30.5% suspected that some of their partners were HIV-positive. These rates are higher than the average across the total sample.

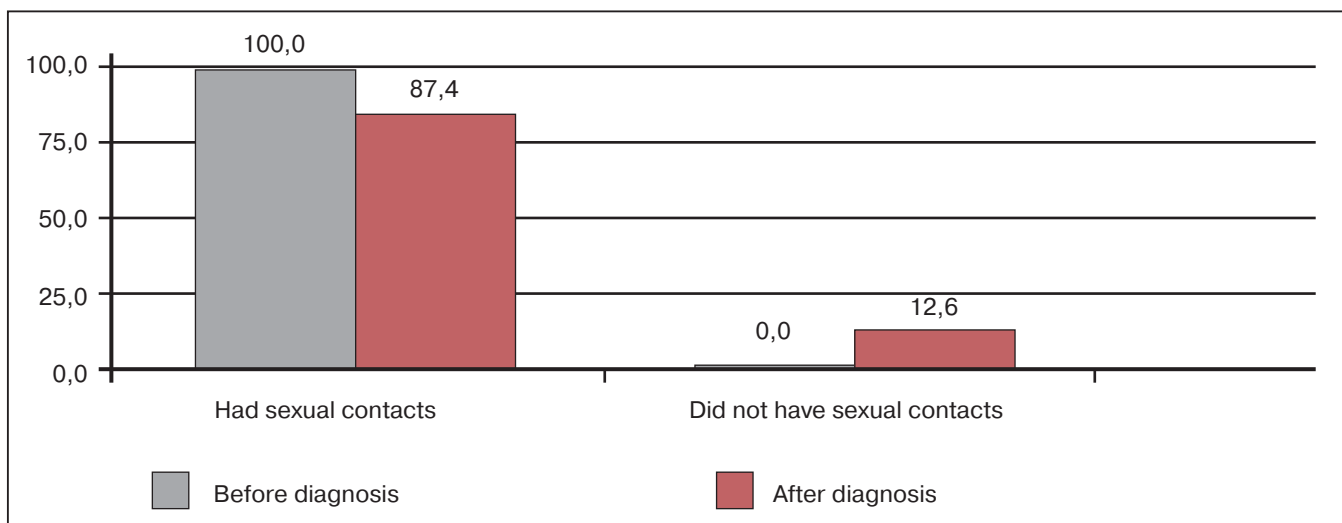
21.2% had experienced sexual violence before HIV diagnosis, i.e. had been made to have sex by force or under threat of force.

29.8% assessed their sexual behaviour before HIV diagnosis as fairly unsafe (more than average); 23.8% as fairly safe. 19.9% had suffered chlamydiosis, and 19.2% trichomoniasis; 14.6% had had gonorrhoea, and 13.9% syphilis.

After HIV diagnosis, there were changes in the interviewees' sexual behaviour⁵. The proportion of women engaging in penetrative sex dropped to 87.4%.

Fig. 2

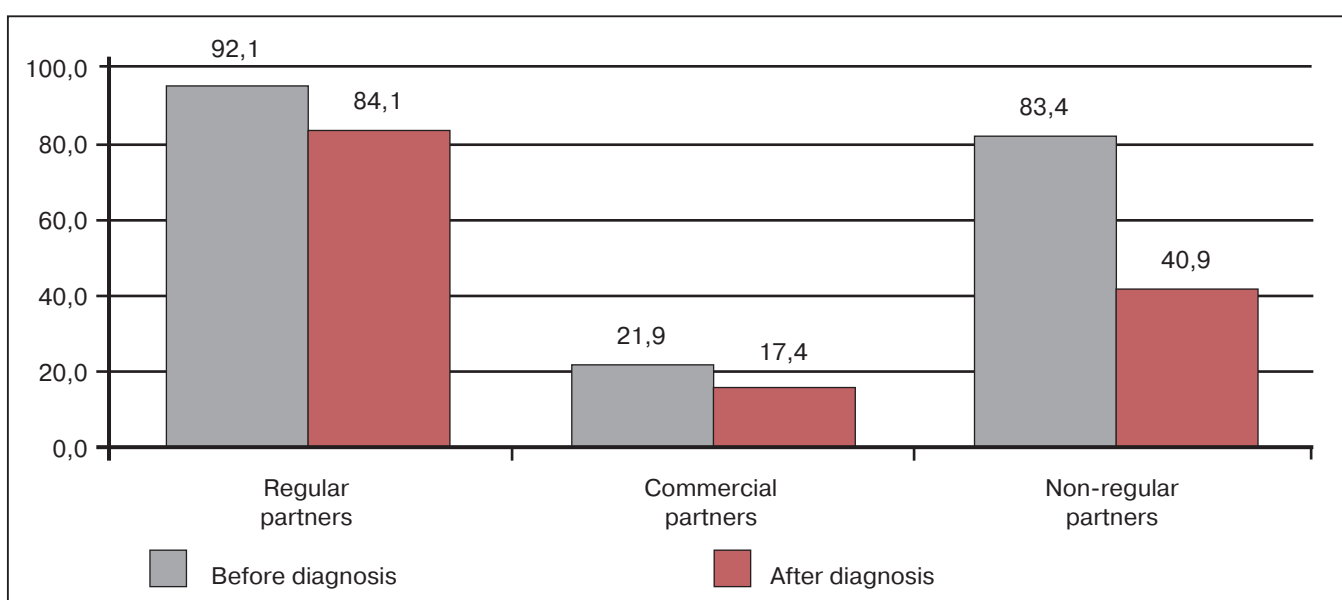
Women's sexual contact before and after HIV diagnosis, St Petersburg, %, $p \leq 0,001$.



Among women continuing an active sex life, the proportion of those with only one partner increased (59.1%), while the proportion of those with 2 or more partners decreased (18.2%). However, 3.8% of women reported having sex with 5 or more partners.

Fig. 3

Types of sexual partners before and after HIV diagnosis, St Petersburg, %



⁵ It should be borne in mind that the period since HIV diagnosis was discovered was quite short (88.1% - under 1.5 years, 42.4% - under 10 months), and that for most of the women this was also a period of pregnancy (87.4%), delivery and infant care.

15.9% of the women did not have regular sexual partners before HIV diagnosis (higher than average). Also, the number of regular partners after HIV diagnosis decreased: 80.3% of women had one regular partner only. The average number of regular sexual partners after HIV diagnosis totalled 0.9, which is nearly two times less than in the previous period. The average number of sexual contacts with regular partners during the month preceding the survey totalled 3.2. About 7.2% of women had had no sexual contact with their regular partner in the last month.

HIV diagnosis had no significant influence on the use of condoms during sex with regular partners. 46.8% of the women reported using condoms with regular partners only occasionally; 20.7% – nearly always. 72.1% did not use condoms during the last sexual contact with their regular partner. In 30% of cases, the partners did not think it was necessary to use condoms, in another 23.8% they did not think about it and in 23.8% of cases the partner objected.

After HIV diagnosis, the proportion of women engaging in sex with non-regular partners dropped; however, it was still rather high (40.9%). 20% had 2–5 non-regular partners.

HIV diagnosis had no significant impact on the use of condoms with non-regular partners. 35.2% of the women reported always and 33.3% nearly always using condoms with non-regular partners. 38.9% did not use condoms during the last sexual contact with a non-regular partner; in 38.1% of cases the partners did not think it was necessary.

15.2% of women in the St Petersburg sub-sample engaged in commercial sex after HIV diagnosis (Fig. 3). The mean number of commercial partners was quite low (0.1). About 30% of women had had 2–30 sexual contacts with commercial partners during this period; 8.7% had had over 30. The mean number of sexual contacts with those partners was 20. About half the women with commercial sexual contacts used condoms nearly always. 78.3% of them used condoms during their last commercial contact, with the partners jointly deciding to use a condom.

There was a drop in the proportion of women experiencing sexual violence after HIV diagnosis (7.6%).

More interviewees evaluated their sexual behaviour after HIV diagnosis as completely safe (8.3%) or very unsafe (10.6%), compared with the period before diagnosis. Also during this period the proportion of women diagnosed with STI decreased (maximum rate candidiasis in 9.1%).

2.1.3.2. ADDICTIVE BEHAVIOUR, DRUG USE AND PREVENTION OF PARENTERAL HIV TRANSMISSION

Before HIV diagnosis, 31.1% of women did not use alcohol (more than average), 29.8% used alcohol several times a month.

About 65.6% of interviewees had used drugs – 76.8% of them by injection (50.3% of all interviewees). 84.2% had had their first drug injection at the age of 15–19. 53.5% had been using drugs for 3–9 years at the time of diagnosis; 30.3% for 1–3 years; 12.1% for over 9 years.

Heroin was the drug most often used. 34.2% injected drugs 2–3 times a week; 20% – practically daily. 18.4% had experimented with injecting drugs.

Only 34.2% of the women with experience of injecting drugs before HIV diagnosis did not use anyone else's injection equipment. 36.8% reported having occasionally used someone else's equipment; 18.4% did so approximately half the time, and 5.3% – in most instances. Half of them cleaned syringes and needles before injection always or in most cases (20% and 30% respectively).

Only 30% of women always used clean needles or syringes for injecting drugs; 40.8% did so in most instances; 27.6% – only occasionally.

Before being diagnosed, over half the women passed their used syringes and needles to other IDUs for injecting drugs, 43.4% did so occasionally, 11.8% in most instances. 68.4% reported always having the opportunity to buy clean syringes.

39.5% of respondents had had experience of injecting the drug from a syringe filled for another person. About 40% occasionally used common containers for preparing the drug; 15.8% in most instances, and 13.2% of respondents always. Only one fifth of the women had never drawn up the drug from a common container; 38.2% did so occasionally; 21.1% in most instances, 14.5% always.

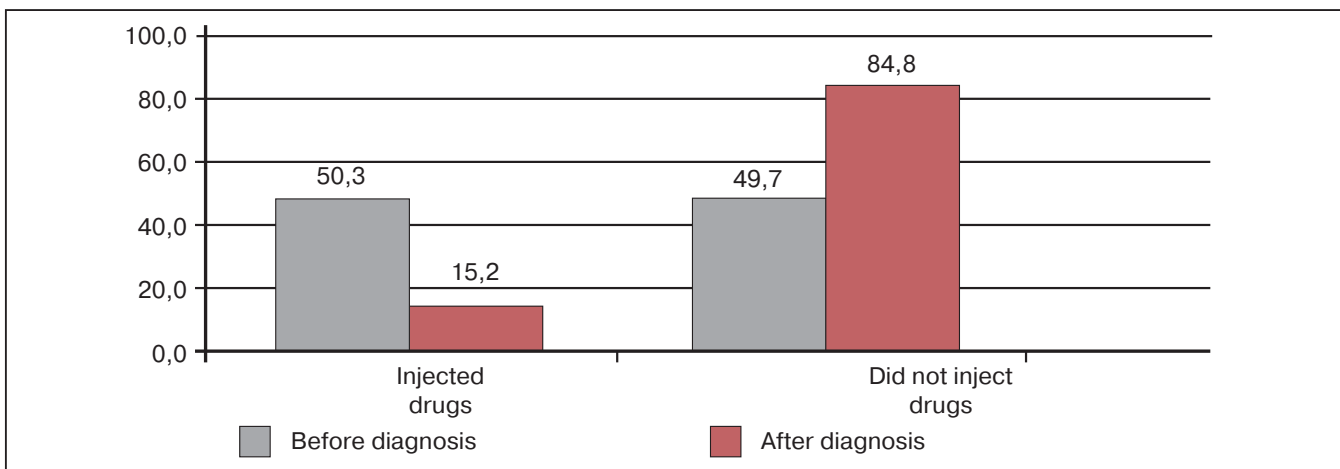
31.6% estimated their drug-using behaviour before being diagnosed with HIV as unsafe rather than safe, 2.6% as very unsafe. 63.2% during this period were diagnosed with hepatitis C (more than average). 22.4% had hepatitis B.

After HIV diagnosis, there were no significant changes in alcohol use among women interviewed in St Petersburg (unlike other cities which tended towards a decrease in use). 42.4% did not use alcohol; 21.2% used alcohol several times a year; 20.5% – several times a month.

The proportion of women injecting drugs decreased after HIV diagnosis. 33.9% had given up injecting drugs before diagnosis and had been in remission for over 3 years. Others had given up injecting drugs 3 years or less before the survey: 68.4% of women stopped injecting drugs immediately after HIV diagnosis, while 30.3% continued to use drugs. At the time of the survey 15.2% of women with experience of injecting drugs in Saint Petersburg sample was still doing so (Fig. 4).

Fig. 4

Drug injection among women before and after HIV diagnosis, St Petersburg, %, $p \leq 0,001$.



The women who continued to inject drugs mainly took heroin (83.3%). However, the proportion of medical and self-made opiates as well as stimulants, soporifics and ephedron decreased.

There were no significant changes in the frequency of injecting drugs after HIV diagnosis: 33.3% of the interviewees used drugs about once a week; 25% – 2–3 times a week, 16.7% – practically daily.

It is worth noting that equipment-sharing became more frequent: 45% of women used someone else's needles and syringes half the time; others did so occasionally or in most cases. There were no significant changes in other characteristics of drug injection: 22.2% of women always cleaned other people's syringes before use; only 13% always used clean needles; 50% occasionally passed their syringes to other people, while 13% of respondents did so in most cases, only 30.4% never drew up drug solution from a common container. 43.5% always had the opportunity to use clean injection equipment.

Women who continued to inject drugs after HIV diagnosis evaluated their drug-taking behaviour as very unsafe (17.4%) or unsafe (52.2%). Within this group, hepatitis C prevalence was 69.6% and hepatitis B 47.8%.

2.1.3.3. REPRODUCTIVE BEHAVIOUR AND PREVENTION OF MOTHER-TO-CHILD HIV TRANSMISSION

87.4% of the interviewees were already pregnant at the time of HIV diagnosis. In 78.8% of cases the pregnancies were not planned (more than in the general sample for the 5 cities studied). 77.3% of the pregnancies ended in childbirth (more than in the general sample). Abortions totalled 12.9% (less than in the general sample). 2.3% of cases ended in miscarriage. In 7.6% of cases the pregnancies were ongoing at the time of the survey (more than in the general sample).

Prevention of mother-to-child HIV transmission (MTCT) among the respondents in the St Petersburg sub-sample with HIV diagnosed during pregnancy had the following characteristics: 20.5% had not received therapy during pregnancy or delivery, which is slightly higher than average in the sample. 54.5% received therapy during delivery; 25% – during pregnancy; 46.4% – after delivery. These rates are lower than in the general sample.

11.3% of interviewees had become pregnant after their diagnosis of HIV had been made. While diagnosis had no significant influence on the proportion of planned pregnancies (88.9% of the pregnancies were not planned), pregnancy outcomes changed: a larger proportion of respondents terminated pregnancy (61.1%) and a smaller proportion of pregnancies ended in childbirth (13.9%). About 19.4% of women were pregnant at the time of the survey. The 46.2% who became pregnant after HIV diagnosis received chemoprophylaxis for MTCT.

2.2. KALININGRAD

2.2.1. HIV EPIDEMIC

The Russian HIV epidemic with high growth rates among IDUs started in 1996 in Kaliningrad. Incidence peaked in 1997 (198.3 per 100,000). In the following two years, the epidemic growth rate decreased. Since 1999, it has relatively stabilized. The highest incidence since then was in 2001 (51.8 per 100,000), and the lowest incidence in 2003 (36.2). In 2005, 414 HIV cases were diagnosed, which equates to 43.8 per 100,000.

Kaliningrad region has a very high HIV prevalence and has consistently ranked seventh or eighth highest among Russian regions over the past four years. 5,103 HIV cases were registered in the region at 1 January 2006, corresponding to a prevalence of 402.3 per 100,000 (excluding deaths).

During all these years, Kaliningrad remained the focus of the epidemic, where 69.4% of all registered HIV cases in Russia are concentrated (prevalence rate 545.4).

In 2005, a total of 404 cases were identified. The distribution of cases by transmission routes is as follows: 41.3% through parenteral transmission (injecting drugs), 30.4% through heterosexual contact, 0.7% through perinatal contact, and unknown in 26.8% of cases.

Among the known HIV cases, men became infected parenterally in 55.1% of cases, women in 30.3% of cases. The proportion of heterosexual transmission is 40.1% among men, 67.7% among women. The male-to-female ratio among all HIV cases is 1.6:1, while in previous years it was 4.4:1 in 1996; 3.6:1 in 1997, 2.7:1 in 1999, 1.5:1 in 2000.

In 2005, the under-15 age group accounted for 1.2% of the HIV-positive population; the 15–19 group for 8.2%; the 20–24 group for 22.7%; the 25–29 group for 25.6%; the 30–34 group for 18.4%; the 35–39 group for 10.6; the 40–44 group for 6.8%; and the 45–49 group for 3.6%.

The proportion of women infected sexually is increasing, as demonstrated by the rising number of HIV cases identified in women tested during pregnancy (Code 109): from 2.1 HIV cases per 100,000 in 1995 to 138.2 in 2004 and 105.2 in 2005 in the region. The rates for Kaliningrad City were higher than the regional average except for 2000 – 2001. This suggests that rural residents are very much involved in the epidemic.

During the observation period, 1,189 pregnancies were registered among HIV-positive women, 32.8% of which ended in childbirth. A total of 394 children were born (five sets of twins), including seven stillborn children.

Since the beginning of the epidemic, AIDS has been diagnosed in 164 patients (17.3 cases per 100,000 residents of the region), accounting for 9.1% (112 cases) of all registered deaths (1,240), as compared to 12.2% in 2005 (33 cases).

In Kaliningrad region, therefore, the proportion of sexual transmission is increasing, combined with a growth in the number of HIV-positive people in older age groups.

2.2.2. BASIC CHARACTERISTICS OF HIV-POSITIVE WOMEN

2.2.2.1. SOCIO-DEMOGRAPHIC CHARACTERISTICS

The age composition of the Kaliningrad sub-sample was as follows: 20–24 years – 34%; 25–29 years – 29.3%; 30–34 years – 12.7%. 10.7% were under 20 years old. 13.3% of women in this sub-sample were aged 35 or above – a significant proportion compared with the general sample. The mean age in the sample was 26.4 years.

29.2% of the women had received general secondary education and 27.2% – specialized secondary education; 14.4% – incomplete secondary education, 12.1% – vocational education, 8.6% – higher education, and 7.8% – incomplete higher education.

The vast majority of interviewees were permanent residents of Kaliningrad. Among the women who came to Kaliningrad from other areas (8%), 54.5% were from the CIS (apart from Russia) and others were from Russia itself.

55.3% of the women had been married, which is slightly more than in the general sample. 57.8% first married at the age of 20–24; 36.1% at less than 20.

At the time of the survey, 44% of the women lived with a male partner in common-law marriage; 27.3% were in registered marriage and lived with their husbands (more than the general sample average); 18% of women lived on their own (less than in the general sample).

2.2.2.2. HIV DIAGNOSIS

In the Kaliningrad sub-sample, the time period between HIV diagnosis and the survey was longer than in the general sample. 68.7% had been diagnosed more than 1.5 years before the survey; 12.7% from 10 months to 1.5 years before; 14% from 5–9 months before, 4.7% less than 5 months before the survey.

39.3% in the Kaliningrad sample were diagnosed with HIV at the age of 20–24; 21.4% at the age of 30 or above (higher than in the general sample). 20.7% were 15–19, and 18.7% were 25–29 years old.

At the time of the diagnosis, 35.3% of women were in registered marriage and lived with their husbands; 37.3% were in common-law marriage.

46% were diagnosed at the Centre for the Prevention and Control of AIDS; 30% at antenatal clinic; an insignificant proportion at other facilities (8% at STI clinic, 5% at hospital, and 5% at an anonymous reception, clinic or drug clinic).

85.3% were pregnant at the time of HIV diagnosis, with 66.4% of them receiving regular antenatal care.

It should be noted that HIV in pregnant women from the Kaliningrad sub-sample was diagnosed at an earlier stage compared with the general sample. Thus, HIV was discovered during the first

trimester of pregnancy in 57.8% of cases; during the second trimester in 29.7%. Only 7% of HIV cases were diagnosed during delivery.

55.3% had received both pre- and post-test counselling (higher than in the general sample); 28.7% had received only post-test counselling; 0.7% only pre-test counselling; 14.0% of women did not receive either pre- or post-test counselling (lower than in the general sample).

Before being diagnosed with HIV, 44.7% of women knew someone infected with HIV. 32% had HIV-positive friends; 20.7% had HIV-positive relatives (higher than in the general sample).

83.3% believed they had been infected with HIV sexually. Only 9.3% linked HIV with injecting drugs; very few (0.7%) with medical interventions or tattoos.

Less than 40% of women reported being in need of some medical, social, information or other services. The most requested services included social support – baby food, employment, etc. (12%, more than in the general sample), psychological help (8%), and drug care (5.3%). 6.7% stated that HIV/AIDS-related issues should receive more media coverage (more than in the general sample).

2.2.3. BEHAVIOURAL CHARACTERISTICS OF HIV-POSITIVE WOMEN BEFORE AND AFTER DIAGNOSIS

2.2.3.1. SEXUAL BEHAVIOUR AND PREVENTION OF SEXUAL TRANSMISSION

All the women interviewed had had penetrative sex before HIV diagnosis. The age at sexual debut in the Kaliningrad sub-sample is statistically consistent with the summary data for the five areas: 66% of women first had sex between 15–17 years old; 22.7% at 18–19; 6% at 14; and 5.3% after 19 years of age.

Before diagnosis, 39.5% of women had had 2–4 sexual partners, 25.2% 5–9 partners, and 20.4% 10–19 partners. The Kaliningrad sub-sample differs from the general sample in terms of the number of partners: there were more women that had had over 20 and fewer women that had had only one sexual partner (3.4%).

Before diagnosis 94% of the women had had regular sexual partners; 60.7% of these had 2 or more regular sexual partners. Nearly 42.6% of them never used condoms during sex with these partners; 41.8% used condoms only occasionally.

68% of the interviewees had had non-regular sexual partners before being diagnosed with HIV. 21.3% had had 2–4 such partners; 18.7% had had 5–9 partners; 15.4% – more than 10 partners. Only 27.5% reported always using condoms during sex with non-regular partners, 5.9% of women never used condoms during sex with non-regular partners.

Before being diagnosed with HIV, 11.3% of the women in the Kaliningrad sub-sample had had sex with commercial partners. About 4% of all women had had one such partner, 5.4% had had 2 or more. 23.5% reported always using condoms during commercial sex; 41.2% nearly always and 11.8% never.

A large proportion of the Kaliningrad sub-sample reported having risk group members among their sexual partners before HIV diagnosis.

Fig. 5

Known and suspected members of high-risk groups among sexual partners of women before HIV diagnosis, Kaliningrad, %



43.3% reported that some of their sexual partners in that period were prisoners. 30.7% were sure that some of their partners engaged in buying sexual services; another 31.3% suspected as much. 31.3% were sure that some of their sexual partners injected drugs (which is less than the summary data for the five cities). In addition, 6% of women were sure that some of their partners were men engaging in sex with men (higher compared with the general sample). Only 28% were sure that there had been no HIV-positive people among their sexual partners (lower rate compared with the summary data for the five cities) and 28.7% were sure they had had such partners.

Before being diagnosed with HIV, 20% had experienced sexual violence, i.e. had been compelled to have sex by force or under threat of force.

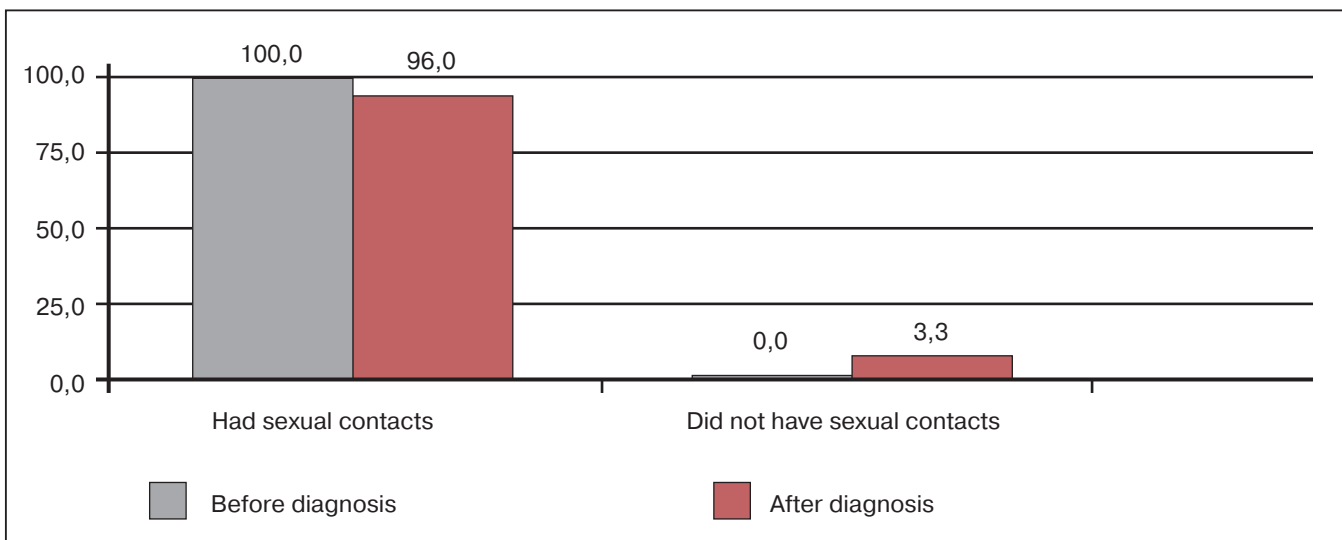
22.7% assessed their sexual behaviour before HIV diagnosis as safe rather than unsafe; 42.7% had difficulties in evaluating the degree of risk for their sexual behaviour. However, 28% during that period was diagnosed with trichomoniasis; 26.7% with chlamydia; 20% with genital herpes; and 16.7% with syphilis. The proportion of women with a history of these STIs was higher than in the general sample.

After HIV diagnosis, women's sexual behaviour changed according to a number of indicators⁶. First of all, the proportion of women living an active sex life decreased: 4.0% of women had not had sexual contact after diagnosis (however, this rate is lower than in the general sample).

⁶ It should be borne in mind that for most women this was a period of pregnancy, delivery and infant care.

Fig. 6

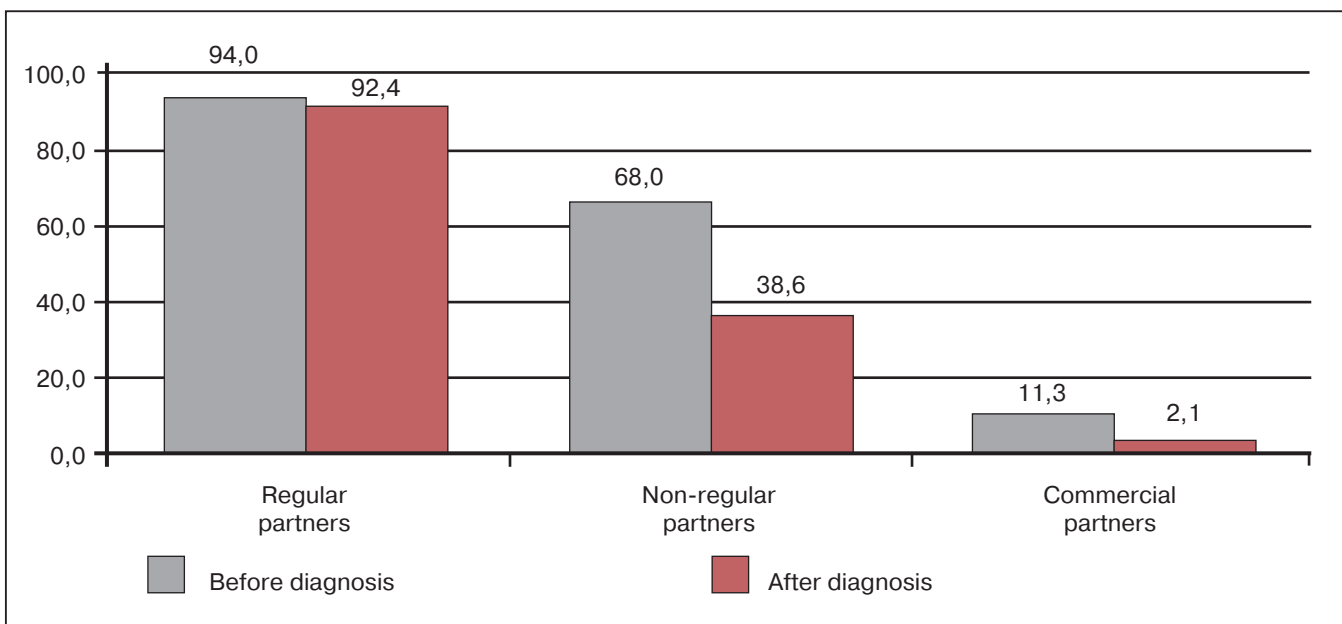
Women’s sexual contact before and after HIV diagnosis, Kaliningrad, %, $p \leq 0,05$



The number of sexual partners after HIV diagnosis also decreased: 46.2% during that period had had only one partner, 33.8% – 2–4 partners. However, the Kaliningrad sub-sample had a larger proportion of women with 5–9 partners (9%) and 10 or more partners (9.7%) compared with the general sample⁷.

Fig. 7

Types of sexual partner before and after HIV diagnosis, Kaliningrad, %



⁷ In the Kaliningrad sub-sample, the interval between diagnosis and survey is significantly longer than in the general sample.

92.4% of the women after HIV diagnosis had had contact with regular sexual partner(s), with 72.4% having only one such partner (this contributed to a reduction in the number of regular sexual partners during this period). The mean number of regular sexual partners totalled 1.2 (more than in the general sample), while the mean number of sexual contacts with them during the month preceding the survey equalled 12.2. About 13.5% of women had not had sex with their regular partners within the past month.

It should be noted that women opted for safer behaviour during sex with their regular partners: there was a slight increase in the proportion using condoms always (10.4%) or nearly always (18.7%), while the proportion of women never using condoms dropped by nearly two times (26.1%).

However, 67.7% of the women in the Kaliningrad sub-sample did not use condoms during the last sexual contact with a regular partner, normally because they did not think it was necessary (36.7%). Condoms were used by joint decision (74.4%) or at the women's initiative (23.3%).

After HIV diagnosis, the proportion of women that had non-regular sexual partners decreased (38.6%); however, 41.1% had had no contact with such partners during the month preceding the survey; approximately the same number had had 2–5 sexual contacts with such partners. The frequency of condom use during sex with non-regular partners did not change significantly: condoms were always used in 23.2% of cases, nearly always in 26.8% of cases. Use of condoms during the last non-regular contact was 58.9% of cases, and usually the joint decision of both partners (63.6%). In 40.9% of all cases, condoms were not used because they were not available at the required time.

After diagnosis, the proportion of women engaging in commercial sex dropped. Only 2.1% of women had commercial partners during that period. Most of them did not use condoms during the last sexual contact with such partners, which was due to other methods of contraception being used or the objections of partners.

About 5.5% of women had experienced sexual violence after HIV diagnosis, which is less than in the previous period.

After diagnosis, the proportion of women that perceived their sexual behaviour as completely safe increased (40.7%). Also during this period the diagnosis of some STIs such as trichomoniasis (2.1%), gonorrhoea (0%) and syphilis (0.7%) dropped, while more mycoplasmosis (14.5%), ureaplasmosis (20.7%) and candidiasis (41.4%) were diagnosed.

2.2.3.2. ADDICTIVE BEHAVIOUR, DRUG USE AND PREVENTION OF PARENTERAL HIV TRANSMISSION

Before HIV diagnosis, women interviewed in the Kaliningrad region used alcohol more often compared with the general sample. 35.3% used alcohol several times a month; 34.7% (twice more than the summary value for the sample) used alcohol several times a week, and 8% – practically every day (which is nearly three times more than in the general sample).

20% had used drugs before HIV diagnosis. In most cases, drugs were first taken 3–9 years before diagnosis (40%) or 1–3 years before (33.3%). 10% first took drugs more than 9 years before; and 10% less than a year before diagnosis.

70% of the women that had experienced drug use or 14.7 of the whole Kaliningrad subsample had injected drugs intravenously, with the time period between the first injection and HIV diagnosis practically equal to that between the first drug use and HIV diagnosis. This means that in most cases the first use of drugs was quickly followed by the first drug injection. 57.1% of the interviewees first used drugs by injection at the age of 15–19 years; 28.6% at 20–24 years; 9.5% at the age of 12–14.

The Kaliningrad sub-sample displays a fairly wide range of drugs taken intravenously. The drug most often injected was heroin (81.8%); however, 27.3% had some experience of using domestically prepared opiates and 27.3% – opiates for medical use, while 22.7% had tried cocaine (nearly six times more than in the general sample), stimulants (22.7%), ephedron (18.2%) and soporifics (18.2%). Apparently, this characteristic reflects the drug market in the area.

Before HIV diagnosis, 50% of women injected drugs about once a week; 18.2% – 2–3 times a week. 9% injected drugs one to several times a day, and 4.5% had experimented only once.

36.4% never used other persons' equipment for injecting drugs. Others did so at least occasionally, with only 7.1% always cleaning other persons' equipment before use. Only 31.8% always used "clean" equipment for injecting drugs.

50% of those who had injected drugs never passed their "dirty" needles and syringes to other people to use. 59.1% always had opportunity to buy "clean" injection equipment.

About 40.9% of female IDUs never filled their syringes from the syringe of another person. Only 31.8% never used common containers for preparing drug solutions, and 40.9% of women never drew up from a common container.

31.8% of those with experience of injecting drugs before HIV diagnosis perceived their pre-diagnosis behaviour as unsafe rather than safe, while 18.2% as completely safe. In 2 out of 3 cases hepatitis C (31.8%) and/or hepatitis B (31.8%) had been diagnosed before the diagnosis of HIV was made.

Both before and after HIV diagnosis, respondents from Kaliningrad used alcohol more often than the respondents from other cities. Over half the women used alcohol several times a month or several times a week; 8.7% used alcohol almost daily.

After HIV diagnosis, alcohol use in the Kaliningrad sub-sample decreased though remaining fairly high compared with the general sample. Thus, the proportion of women not using alcohol (up to 17.3%) grew four times compared with the previous period.

Only 54.5% of the women that had used drugs intravenously continued to inject drugs after HIV diagnosis (significant decrease).

The range of drugs used after HIV diagnosis did not change significantly: heroin was still the predominant drug (84.6%), with injected cocaine (30.8%) and soporifics (15.4%) also occasionally used. However, the use of medical opiates dropped from 27.3 to 7.7%, which mainly reflects changes in supply in the drug market.

On the whole, the characteristics of drug injection in the Kaliningrad sub-sample did not change. 53.8% injected drugs approximately once a week, with only 40% never using other persons' equipment after HIV diagnosis, and the others doing so in half or most cases. Half the women cleaned other persons' needles and syringes before use – 25% always and 25% in most cases. Only 15.4% injecting drugs always used “clean” equipment, while 38.5% passed their used needles and syringes to other persons at least occasionally. Only 7.7% did not have opportunity to buy “clean” injection equipment. Only 46.2% never filled their syringe from that of another person, while 38.5% never drew up from a common container.

Approximately every third woman perceived her injection behavioural patterns after HIV diagnosis as unsafe rather than safe (15.4%) or as very unsafe (15.4%). Hepatitis in this sub-sample was diagnosed twice as often after the diagnosis of HIV had been made (69.2% for hepatitis C and 76.9% for hepatitis B, nearly twice the level found in the general sample).

2.2.3.3. REPRODUCTIVE BEHAVIOUR AND PREVENTION OF MOTHER-TO-CHILD HIV TRANSMISSION

Most interviewees in the Kaliningrad sub-sample (85.3%) at the time of HIV diagnosis were pregnant, with pregnancies being unplanned in 59.4% of cases. Termination was more typical in this sub-sample than in the general sample of the five cities: 50% had abortions. 32.8% of pregnancies ended in childbirth. 14.1% of the women were pregnant at the time of the survey. In isolated cases pregnancy ended in miscarriage.

About 65% of women received medication to prevent MTCT during pregnancy at the time of the diagnosis, 51.7% of women after delivery. Only 15% did not receive medication while pregnant or during/after delivery.

15.6% of the women interviewed had become pregnant after their diagnosis of HIV had been made. In 71.4% the pregnancy was unplanned, which is an indicator of unsafe sexual practices in terms of infection/re-infection. In nearly 23.8% of these women pregnancy was in progress at the time of the survey.

66.7% of the women received ART during pregnancy after HIV diagnosis.

2.3. YEKATERINBURG

2.3.1. HIV EPIDEMIC

In Sverdlovsk region the HIV epidemic is considered very serious. On 1 January 2006 there were 26,364 HIV cases registered in the region, 10,685 of them in Yekaterinburg, the administrative cen-

tre. The prevalence in the region is 584.2 per 100,000, 2.5 times the national average. Prevalence in Yekaterinburg City is 799.0 per 100,000.

The epidemic in the region started explosively in 2000 with the maximum incidence of 197.7 per 100,000 in 2001, followed by 67.1 in 2005.

The epidemic involved all social and age groups, with the 18–29 age band being most affected. In Yekaterinburg City incidence within the 18–19 age group decreased from 1,198.7 in 2001 to 209.3 in 2005; in the 20–29 group from 887.8 to 483.2. Cumulative prevalence in these groups in Yekaterinburg totalled 3,720 per 100,000 in the 18–19 group, and 3,400 in the 20–29 group as at 01.01.2005.

The proportion of parenteral transmission in the region totalled 65.2% in 2005 (63.4% in 2004, 74.1% in 2003, 80.8% in 2002, 90.9% in 2001). During the past four years the proportion of sexual transmission has intensified, amounting to 30.7% in 2005 (31.8 in 2004, 23.5% in 2003). Sexual transmission in 2005 accounted for 60.6 % of cases among women and 11.9% among men.

The male-to-female ratio among the HIV-positive population was 1.2:1.

The proportion of new cases identified among pregnant women (Code 109) in Yekaterinburg starting from 2002 has been close to 1%: 2002 – 0.94%, 2003 – 0.98%, 2004 – 0.86%, 2005 – 0.79%.

As of 1 January 2006, 2,932 children were born to HIV-positive mothers in Sverdlovsk region (1,322 of them in Yekaterinburg). 157 of them (4.8%) were diagnosed with HIV.

In 2005, 470 HIV-positive pregnant women received care at Yekaterinburg City AIDS Centre. Figures for 333 of them (70.8%) show that the pregnancy ended in: childbirth in 304 cases (91.2%) and abortion in 29 cases (8.7%). Preventive ART during pregnancy was provided to 126 (41.5%) women; others received ART during delivery.

In 2005, 43.1% of pregnant HIV-positive women had some gynaecological pathology. Viral diseases were the most frequent, representing 33.6%; followed by mycotic diseases – 23.4%; bacterial infections – 15.8%; STI diseases accounted for 2.1%.

In 2003–4, the number of pregnancies among HIV-positive women practically equalled the number of deliveries. There were women with repeated pregnancies wishing to keep the children.

2.3.2. BASIC CHARACTERISTICS OF HIV-POSITIVE WOMEN

2.3.2.1. SOCIO-DEMOGRAPHIC CHARACTERISTICS

The age distribution in the Yekaterinburg sub-sample was as follows: 46.4% were aged 20–24, 28.1% were 25–29 years old. Other age groups were represented insignificantly. The mean age in the sample was 24.7 years

At the time of the survey, 47% had general secondary education; 19.2% had received incomplete secondary education; the proportion of women with incomplete or complete higher education did not exceed 9%. These rates differed from the general sample; i.e. women in Yekaterinburg had lower levels of education.

96.7% of interviewees were Yekaterinburg residents. 18.3% came from elsewhere, mostly from other regions of Russia. The proportion of women living in the region for less than 10 years was 11.8%.

Only 30.7% had been married, which is less than in the summary sample for the five cities. 46.8% first married at the age of 20–24; 36.2% at younger than 20 years old.

The marital status of Yekaterinburg women at the time of the survey was as follows. 55.6% lived in common-law marriage with a male partner (more than in the general sample); 24.8% lived alone; and 18.3% were in registered marriage and lived with their husbands (less than in the general sample).

2.3.2.2. HIV DIAGNOSIS

In the Yekaterinburg sub-sample, the time between HIV diagnosis and the survey did not differ significantly from the general sample. About 39.9% of women were diagnosed with HIV 1.5–2.5 years before the survey; 30.1% more than 9 months but less than 1.5 years before; 25.5% 5–9 months before; and an insignificant proportion was diagnosed less than 4 months or over 2.5 years before the survey.

49% at the time of diagnosis was aged 20–24; 25.5% was aged 25–29; 16.3% was aged 19 or less; 9.2% was aged 30 or over.

96.3% of women were diagnosed with HIV in Yekaterinburg. An insignificant number of women (3.7%, less than in the general sample) were diagnosed in other areas of Russia. 59.5% were diagnosed at antenatal clinics; 20.3% at the AIDS Centre; and 7.2% (more than in the general sample) at the STI clinic.

At the time of diagnosis, 75.2% were pregnant and 91.3% of these were receiving care at antenatal clinics (more than in the general sample). 48.7% were in the first trimester of pregnancy; 35.7% in the second; and 10.4% in the third.

63.4% (more than in the general sample) at the time of diagnosis had received only post-test counselling; 24.2% had not received counselling at any stage of testing. Only 12.4% of women had received both pre-test and post-test counselling, this rate being three times lower than in the general sample.

37.9% of the women knew someone infected with HIV before their own diagnosis. 20.9% had HIV-positive friends, 3.3% had HIV-positive close relatives.

74.5% of women in the Yekaterinburg sub-sample tended to believe they had been infected sexually. 15.7% linked HIV with injecting drugs. 2% thought they had been infected through violence (not expressed at any other of the survey sites).

54.2% were in need of some medical, social, information or other services. Most requested services or information about children's health and rights (13.7%, twice more than in the general sample); medical services (11.1%, twice more than in the general sample); information about living with HIV (9.8%); and psychological help (8.5%).

2.3.3. BEHAVIOURAL CHARACTERISTICS OF HIV-POSITIVE WOMEN BEFORE AND AFTER DIAGNOSIS

2.3.3.1. SEXUAL BEHAVIOUR AND PREVENTION OF SEXUAL TRANSMISSION

All the women interviewed had had penetrative sex before HIV diagnosis. The distribution of age at sexual debut among women in the Yekaterinburg sub-sample is mostly consistent with the mean values. 69.5% first had sex between 15–17 years old; 26.8% at 18–19, 9.3% before 15, 1.3% over 19 years old.

The number of sexual partners the women in Yekaterinburg had had before diagnosis was higher than in the general sample. 35.3% had had 2–4 partners; 26.1% – 4–9 partners; 22.2% (more than in the general sample) 10–19 partners; 9.2% had had only one partner; and 5.9% (more than in the general sample) over 20 partners.

98% of women had regular sexual partners. 61.4% during this period had had 2–4 regular sexual partners; 30.1% had one. Condom use during sex with regular partners in the Yekaterinburg sub-sample before HIV diagnosis is on the whole consistent with the data for the general sample: 53.3% never used condoms at such contact; 37.3% used them only occasionally.

Before diagnosis, 73.9% had had non-regular sexual partners, which is higher than in the general sample. 33.3% (more than in the general sample) had had 2–4 such partners; 19.6% had had 5–9, and 9.8% had had 10–19 non-regular partners. 22.1% never used condoms during sex with non-regular partners.

Only 4.6% of women reported having had commercial sex partners before HIV diagnosis. The number of such partners in most cases did not exceed 4, i.e. on the whole commercial sex in the Yekaterinburg sub-sample was represented by isolated cases. 57.1% of the women who had had contact with commercial sex partners nearly always used condoms.

Before being diagnosed with HIV, the women had had sexual contact with risk group members.

Fig. 8

Known and suspected members of high-risk groups among sexual partners of women before HIV diagnosis, Yekaterinburg, %



38.6% during that period had had prisoners among their sexual partners. 13.1% had had sex with partners habitually buying sexual services. 57.5% (higher than in the general sample) had had sex with persons who injected drugs. 8.5% (two times less than in the general sample) had had sex with HIV-positive partners.

22.2% had experienced sexual violence before HIV diagnosis.

26.8% of the Yekaterinburg women interviewed tended to perceive their sexual behaviour before HIV diagnosis as fairly safe, and 23.5% as fairly unsafe; 9.8% considered their sexual behaviour completely safe.

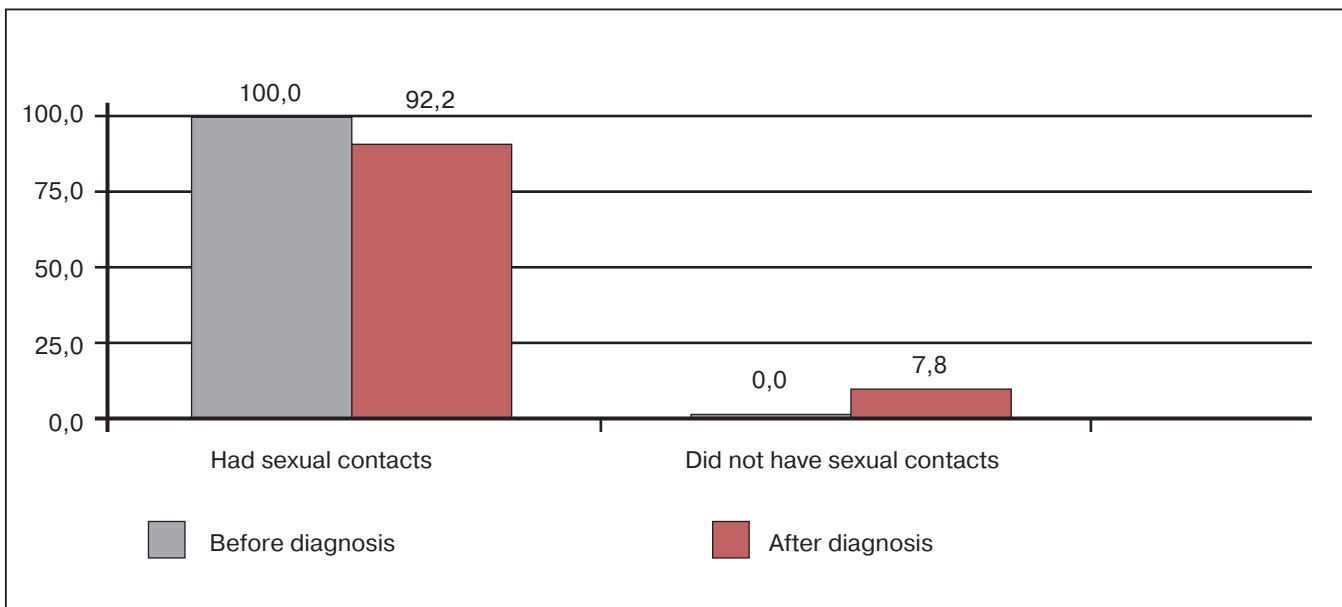
In the Yekaterinburg group, the most widespread STIs found before HIV diagnosis were candidiasis (19.6%), gonorrhoea (11.8%) and trichomoniasis (11.1%). Other STIs were present within the 2-6.5% interval. Syphilis was diagnosed three times less often than in the general sample (3.3%), chlamydia, 2 times less (6.5%).

After HIV diagnosis there were some changes in the sexual behaviour of Yekaterinburg women⁸. The proportion with an active sex life dropped: 92.2% of women had had penetrative sex, i.e. nearly every tenth woman had not had sex in the period since diagnosis.

⁸ It should be borne in mind that the period since HIV diagnosis here is quite short (60% under 6 months), and that for most of the women this was also a period of pregnancy (75.2%), delivery and infant care

Fig. 9

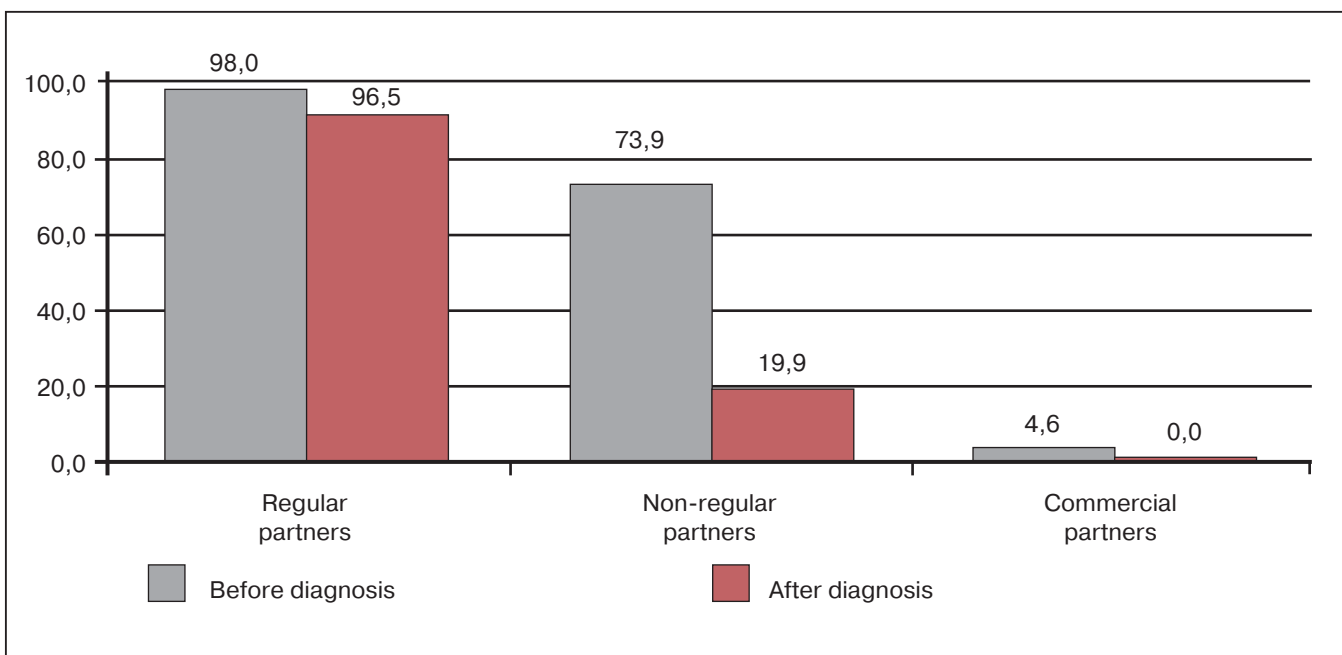
Women’s sexual contact before and after HIV diagnosis, Yekaterinburg, %, p ≤ 0,01



The number of sexual partners also decreased: after HIV diagnosis 76.6% had only one sexual partner; 19.9% had 2–4 partners.

Fig. 10

Types of sexual partner before and after HIV diagnosis, Yekaterinburg, %



After HIV diagnosis, 96.5% had regular sexual partners. The number of partners decreased: 90.8% of women had only one such partner. The number of sexual contacts with regular partners within the month preceding the survey totalled 10 on average. About 14% of women, despite having regular partners, had not had sex with them for a month.

After HIV diagnosis, there was also a growth in condom use during sex with regular partners: 21.3% used condoms always (more than in the general sample; prior to HIV diagnosis, this rate was less than 1%). However, 44.1% still never used condoms during sex with regular partners.

During the last sexual contact with regular partners, 64% did not use condoms, in most cases because they did not think it was necessary (60.9%, more than in the general sample). However, 24.1% did not use condoms because partners objected. When condoms were used, this was more by joint decision of both partners (55.1%) than at the initiative of the women (42.9%).

After diagnosis, the proportion of women having non-regular sexual partners decreased by 3.5 times and was 19.9%. The number of partners also decreased, 0.4 on average. Within the month preceding the survey, 17.9% of women had had such contact 2–5 times; 10.7% once. Condom use during sex with non-regular partners also increased: the vast majority of women used them always (46.4%) or nearly always (39.3%). During the last sexual contact with such partners, 75% of women used condoms (in most cases, on their initiative).

None of the women in the Yekaterinburg sub-sample had commercial sex partners after HIV diagnosis.

These interviewees were less subject to sexual violence after HIV diagnosis. While every fifth woman had experienced sexual violence before the diagnosis, no such cases were reported after diagnosis.

46.8% of the women (more than in the general sample) perceived their sexual behaviour after HIV diagnosis as absolutely safe, which is 5 times more frequent than before.

After HIV diagnosis, STIs were also less often diagnosed: trichomoniasis dropped by 3.5 times (2.8%), chlamydiosis by 9.5 (0.7%); no syphilis or gonorrhoea cases were diagnosed.

2.3.3.2 ADDICTIVE BEHAVIOUR, DRUG USE AND PREVENTION OF PARENTERAL HIV TRANSMISSION

Before HIV diagnosis, alcohol was used by Yekaterinburg women on the same scale as in the general sample: 42.5% of women used alcohol several times a month; 28.8% several times per year; 20.3% several times a week.

Before diagnosis 37.3% had had experience of drug use. 61.4% had tried drugs 3-9 years before the diagnosis; 17.5% more than 1 year but less than 3 years before; 17.5% more than 9 years before.

75.4% of women with experience of drugs had injected drugs. In 60.5% of cases the first injection had taken place 3-9 years before diagnosis; in 23.3% – over 1 year but less than 3 years before; in 11.6% – over 9 years before (i.e. on the whole, the first use of drugs was also the first drug injection). 55.8% first injected drugs at the age of 15–19; 20.9% at 20–24; 14% at 12-14.

The predominant drug injected was heroin (88.1%). Other injected drugs included domestically prepared opiates (26.2%) and medical opiates (also 26.2%, more compared with the general sample). 26.2% injected drugs almost daily (more compared with the general sample) and 23.8% – 2–3 times a day; only 4.8% of women had injected drugs only 2 or 3 times.

Only 31% had never used other people's equipment for injection before HIV diagnosis. About 7.1% of women had used other people's needles and syringes in most instances; 9.5% in half of the instances. 55.2% always cleaned other people's equipment before use. 45.2% injected drugs with clean equipment in most instances; 26.2% – always; and 23.8% – occasionally. 45.2% occasionally lent their used injecting equipment to other people; 40.5% never did. 38.1% of women always had the opportunity to buy clean needles and syringes when necessary.

45.2% before HIV diagnosis occasionally filled their syringe with drug solution from the syringe of another person. 45.2% always used a common container to prepare drugs.

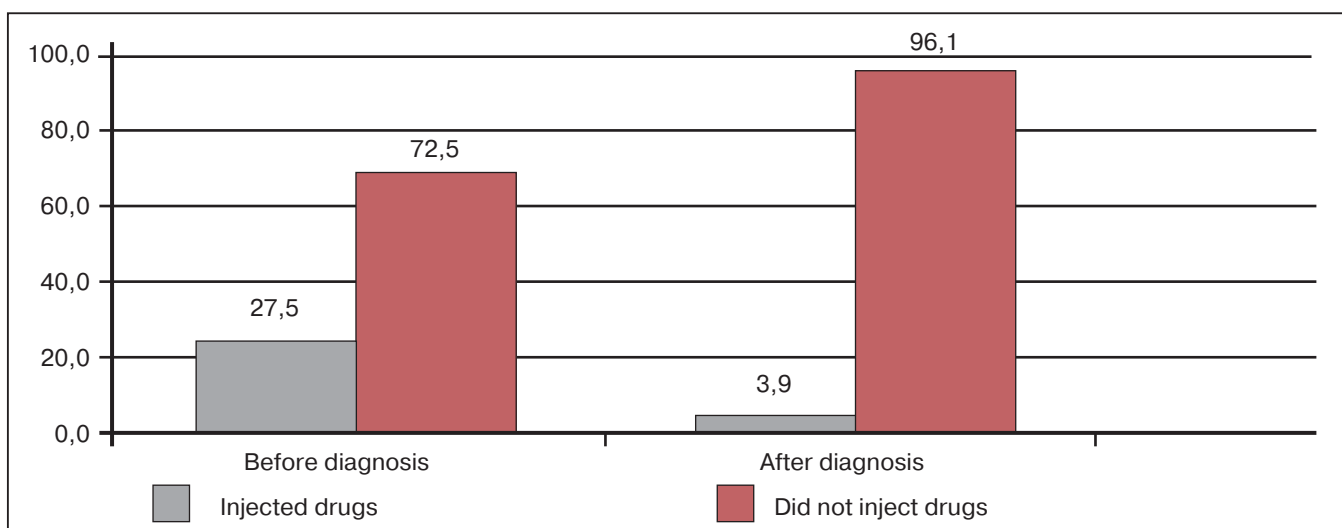
26.2% considered their injecting behaviour as very unsafe (twice as many as in the general sample). However, hepatitis was less often detected in the Yekaterinburg sub-sample (11.9% hepatitis B, 16.7% hepatitis C, nearly 2.5 times less than in the general sample).

There were changes in addictive behaviour in the Yekaterinburg sub-sample after HIV diagnosis. The frequency of alcohol use decreased: 35.3% of women during this period used alcohol several times a year; 28.8% did not use alcohol; and 28.1% used alcohol several times a month.

The proportion of women injecting drugs also decreased after HIV diagnosis: only 16.3% continued to inject drugs. 47.4% at the time of the survey had been in remission for 3–8 years; 34.2% for over 1 year but less than 3 years; 10.5% less than a year. At the time of the survey, 11.6% of women with previous experience of drug use continued to take drugs. In this last group of women, there were no significant changes in behavioural patterns after HIV diagnosis.

Fig. 11

Drug injection among women before and after HIV diagnosis, Yekaterinburg, %, $p \leq 0,001$



For most women who continued to inject drugs, heroin remained the predominant choice (87.5%); with 12.5% injecting stimulants. 62.5% injected drugs one or several times a week. A large proportion periodically used other people's equipment; 3 out of 4 did not clean shared equipment before use. 12% occasionally lent their used syringes and needles to other people. Nevertheless, all of them had the opportunity to buy "clean" injection equipment if necessary. About 62.5% of IDUs drew up the drug from a common container; 37.5% used common containers for preparing drugs.

At the same time, the proportion of female IDUs considering their injection behaviour as safe rather than unsafe increased after HIV diagnosis (37.5%).

There were no significant changes in the hepatitis diagnosis rate after HIV diagnosis (12.5% for hepatitis B and C).

2.3.3.3. REPRODUCTIVE BEHAVIOUR AND PREVENTION OF MOTHER-TO-CHILD HIV TRANSMISSION

75.2% of the women were already pregnant at the time of HIV diagnosis. For 56.5% the pregnancy was unplanned. 54.8% of all pregnancies ended in childbirth; 20% in abortion; pregnancy was still in progress in 21.7% at the time of the survey.

About 64.8% of women took ART to prevent MTCT during pregnancy; 63.6% during delivery; and 68.2% after delivery. 9.1% of women did not receive ART.

15.7% had become pregnant some time after their diagnosis of HIV. As in the previous period, in 61.1% of cases pregnancy were not planned. The diagnosis had no impact on the distribution of pregnancy outcomes: pregnancy ended in childbirth for 33.3% of women; 31.5% terminated their pregnancy; 35.2% were still pregnant at the time of the survey.

About 51.4% of the women took ART to prevent MTCT: 48.6% during delivery; 48.6% after delivery. 40.5% of pregnant women did not receive ART at any stage.

2.4. IRKUTSK

2.4.1. HIV EPIDEMIC

The HIV epidemic in Irkutsk region had three stages.

1. 1991 – 1998 – sporadic incidence, isolated cases.
2. 1999 – 2000 – explosive HIV epidemic among IDUs. Maximum incidence for Irkutsk region (484 per 100,000) registered in 2000.
3. 2001 – 2005 – decrease in incidence

On 1 January 2006 there were 19,429 HIV cases registered among residents of Irkutsk region, with 8,726 of them in Irkutsk City. Prevalence in the region was 805.8 per 100,000, which is 3.5 times higher than the national average.

Irkutsk City has the region's highest prevalence. At 1 January 2006, the rate in Irkutsk was 1,497.9 per 100,000 which is 1.9 times higher than the region's average. In 2005, 795 cases were registered, with incidence per 100,000 reaching 136.5, which is 1.6 times higher than the region's average.

In 2002, according to sentinel sero-epidemiological and behavioural surveys conducted in Irkutsk, prevalence among "street-based" IDUs was 64.5%.

The 18-30 age group predominates among the HIV-positive population in Irkutsk. Prevalence among men in this group (2,140.3 per 100,000) exceeds prevalence among women (940.3 per 100,000) by 2.3 times. In 2005, the male-to-female ratio was 1.9:1.

By the end of 2005, sexual (46.1%) and parenteral transmission (45.4%) in Irkutsk region were practically equal.

Since 2001, high HIV prevalence has been recorded among pregnant women in Irkutsk; in 2000 it was 1.02%; in 2005 it dropped to 0.77%.

A total of 1,044 HIV-positive children had been born in Irkutsk City by the end of 2005, which accounts for 56.9% of the children (1,834) born to HIV-positive mothers in the region.

2.4.2. BASIC CHARACTERISTICS OF HIV-POSITIVE WOMEN

2.4.2.1. SOCIO-DEMOGRAPHIC CHARACTERISTICS

The age distribution of women in the Irkutsk sub-sample was as follows: 55.8% belonged to the 20–24 age group; 22.4% were aged 25–29; 16.3% were 15–19; 5.5% were 30 or over. The mean age in the Irkutsk sub-sample was 22.9 years.

Distribution by education within the Irkutsk sub-sample differed from the general sample as more women had secondary specialized education (38.9%) and fewer had received general secondary education (20.4%). 16.5% had received incomplete or complete higher education.

All the women in the Irkutsk sub-sample are residents, which is higher than in the general sample. 68.7% of them had lived in Irkutsk for 21–30 years and 27.9% for 11–20 years. (The proportion of non-residents (mainly from other regions in Russia) was insignificant.

46.3% of the women had been married, with 48.5% of them first married at the age of 20–24; 42.6% at 15–19 years old. At the time of the survey, 39.5% lived with their partners in registered marriage (more than in the general sample) and 38.8% in common-law marriage. 21.1% were not married and lived alone, without a partner.

2.4.2.2. HIV DIAGNOSIS

The period between the HIV diagnosis and the survey in the Irkutsk sub-sample was less than in the general sample. 44.2% of the interviewees had been diagnosed with HIV 10-18 months before the survey; 34.7% – 5–9 months before; 15% less than five months before the survey.

46.9% were diagnosed with HIV at the age of 20–24; 26.5% at less than 19; 22.4% at 25–29 years old.

65.3% of HIV cases (higher than in the general sample) were identified at antenatal clinics; 12.9% at the AIDS Centre; the rest at other medical facilities (polyclinic, hospital, STI clinic, anonymous reception).

92.5% were pregnant at the time of diagnosis. 76.5% of them received pregnancy care at antenatal clinics. Compared with the general sample, in Irkutsk, HIV was diagnosed in pregnant women more often in the second trimester of pregnancy (12-24 weeks, 36.3%) and third trimester (24-36 weeks, 22.2%), and less often during the first trimester (under 12 weeks, 27.4%) or during delivery (8.1%).

45.6% had received pre-test and post-test counselling; 23.8% post-test counselling only; 3.4% pre-test counselling only, and 21.8% had not received either.

Before being diagnosed with HIV, 24.5% of women in the Irkutsk sub-sample knew someone infected with HIV (1.5 times less than in the general sample). 15% had HIV-positive friends; 4.1% had close relatives who were HIV-positive.

76.2% tended to think they had been infected sexually; 9.5% linked their infection with injecting drugs; 13.6% were not sure about their route of infection. Only 43.5% of women in Irkutsk reported being in need of some medical, social, information or other services. The most requested services were psychological support (12.2%), social help – baby foods, employment, vitamins, etc. (8.2%), information on children's rights and health (6.1%), medical care (5.4%), and information on living with HIV (4.1%).

2.4.3. BEHAVIOURAL CHARACTERISTICS OF HIV-POSITIVE WOMEN BEFORE AND AFTER DIAGNOSIS

2.4.3.1. SEXUAL BEHAVIOUR AND PREVENTION OF SEXUAL TRANSMISSION

All the women interviewed in the Irkutsk sub-sample had had penetrative sex before HIV diagnosis. The age of sexual debut is on the whole consistent with the values for the general sample: 56.5% first had sex between 15–17 years old; 27.2% at 18–19 years; 6.1% before 14, and 9.5% after 20 years of age.

The number of sexual partners for Irkutsk women before the diagnosis was lower than in the general sample. 49.7% had had sex with 2–4 partners; 23.1% (half the level in the general sample) with one partner; 17.7% with 5-10 partners; 6.8% with over ten partners.

99.3% had had regular sexual partners. 38.1% before diagnosis had had one regular sexual partner; 50.3% had had 2–4 partners; 9.6% with more than 5. Condom use during sex with regular partners in the Irkutsk sub-sample before HIV diagnosis was largely consistent with the data for the general sample: 45.9% used condoms occasionally; 40.4% never used condoms with regular partners.

25.2% had had non-regular sexual partners, which is 2.5 times less than in the general sample. About 6.1% of them had only one non-regular sexual partner; 7.5% had 5–9 partners, 11.6% had 2–4 partners. 24.3% always used condoms during sex with non-regular partners; 35.1% occasionally.

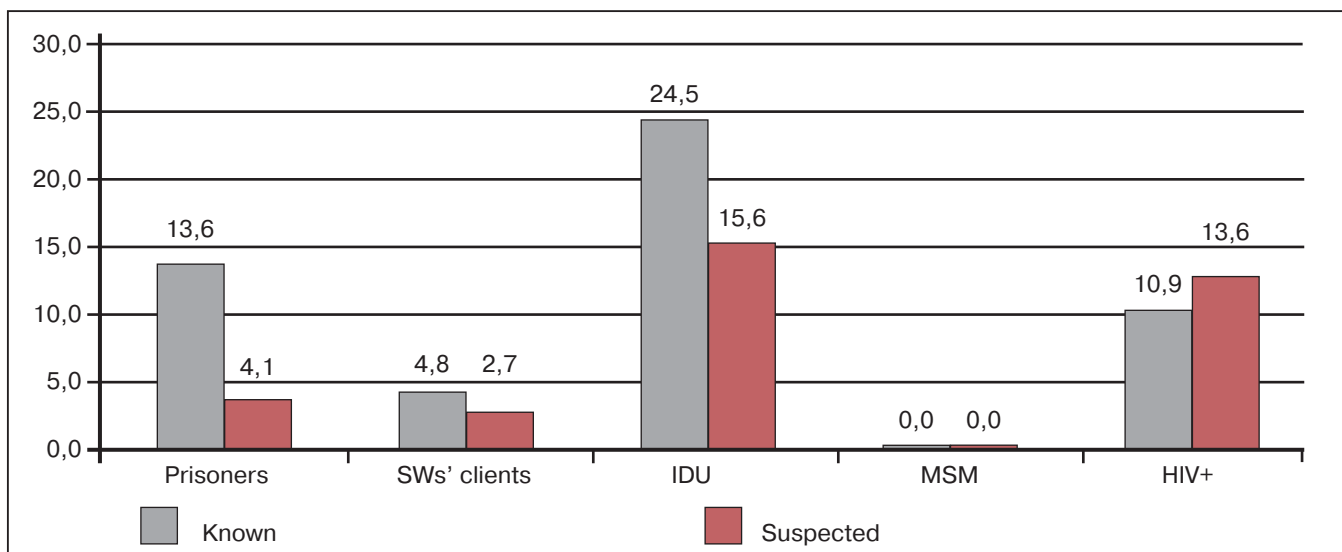
Only 2% of women reported having had commercial sexual partners before diagnosis (four times less than in the general sample), 33.3% of them always used condoms during sex with these partners.

Before being diagnosed with HIV, interviewees had had sexual contact with members of risk groups; however, their proportion is lower than in the general sample.

13.6% had had prisoners as sexual partners. 4.8% had had contact with partners habitually buying commercial sexual services. 24.5% had had sex with persons known to have had experience of injecting drugs. 10.9% had had sex with partners known to be HIV-positive.

Fig. 12

Known and suspected members of high-risk groups among sexual partners of women before HIV diagnosis, Irkutsk, %.



Before HIV diagnosis, 7.5% of women had experienced sexual violence, i.e. had been compelled to have sex by force or under threat of force (half the level in the general sample).

On the whole, compared with the general sample, women in the Irkutsk sub-sample perceived their sexual behaviour before HIV diagnosis as more safe. 25.9% considered their sexual behaviour as absolutely safe, 41.5% as safe rather than unsafe; only 10.9% as fairly unsafe and 4.8% as very unsafe.

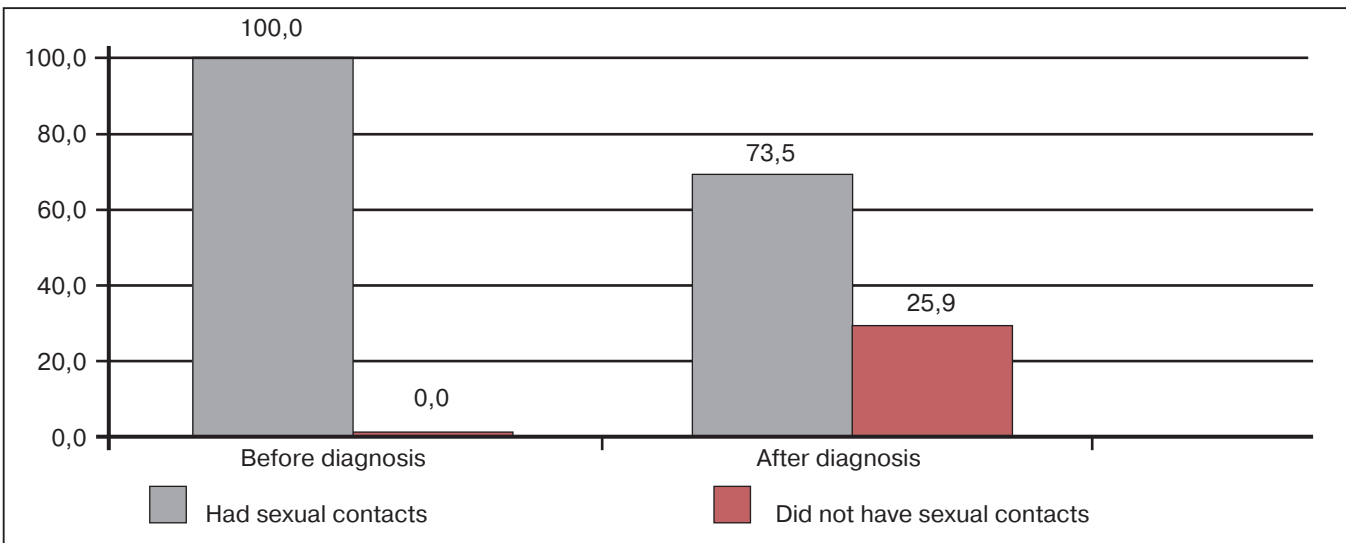
The data on STI prevalence before HIV diagnosis confirms that relatively safer sexual behaviour was practised by women in the Irkutsk sub-sample. The most frequent STI was candidiasis (12.2%):

other STIs ranged from 1.4% to 6.8%, with trichomoniasis, chlamydiosis, syphilis and ureaplasmosis being nearly two times less frequent than in the general sample.

After HIV diagnosis, the sexual behaviour of women in the Irkutsk sub-sample significantly changed as demonstrated by a number of indicators⁹. First of all, the proportion of women engaging in penetrative sex dropped sharply (to 73.5%, less than in the general sample).

Fig. 13

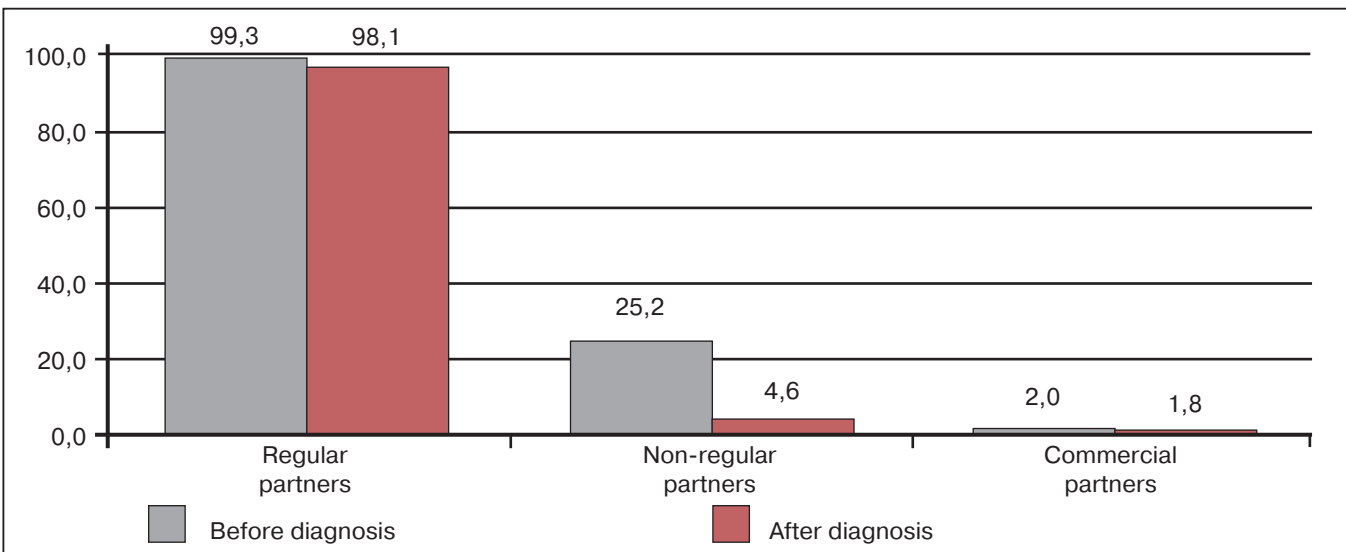
Women’s sexual contact before and after HIV diagnosis, Irkutsk, %, p ≤ 0,001



There was a decrease in the number of sexual partners after HIV diagnosis. 93.6% of women (more than in the general sample) had only one partner.

Fig. 14

Types of sexual partner before and after HIV diagnosis, Irkutsk, %



⁹ It should be borne in mind that the period since HIV diagnosis was quite short (93.9% under 1.5 years, 49.7% under 9 months) and that for most of the women (92.5%) this was also a period of pregnancy, delivery and infant care.

98.1% of women who had had sexual contact in the period since diagnosis, had a regular partner(s). About 94.5% of them had only one regular partner (two times more than before HIV diagnosis, as well as more than in the general sample for the five cities). 14.2% of women had not had any sexual contact with their regular partner during the month preceding the survey.

There was a tendency towards polarization of behaviour among Irkutsk women with respect to condom use during sex with regular partners after diagnosis. On the one hand, the proportion of women using condoms always, or nearly always, grew to 15%, but on the other hand, the proportion of women never using condoms grew by more than 10% (52.8%, notably higher than in the general sample). Only the Irkutsk sub-sample produced this latter statistic, which may be due to stronger family bonds (more women were married and lived with their husbands).

During the last sexual contact with their regular partners, 64.2% of the women in the Irkutsk sub-sample (more than in the general sample) did not use condoms. In 54.4% of cases, partners did not think it was necessary to use condoms. In 31.6% of cases, condoms were used by the joint decision of both partners.

After diagnosis, only 4.6% (five times less than before diagnosis) had non-regular sexual partners. The number of such partners did not change significantly.

Only 1.8% of women in the Irkutsk sub-sample reported having had commercial sexual partners after diagnosis. There were no changes reported in behaviour with commercial partners.

2.8% of Irkutsk women after diagnosis had experienced sexual violence; i.e. had been compelled to have sex by force or under threat of force.

The proportion of women considering their sexual behaviour after HIV diagnosis as completely safe increased (37.6%). There was some growth in the proportion of women diagnosed with candidiasis (15.6%) during this period; however, the diagnosis of other STI decreased to almost nothing.

2.4.3.3. ADDICTIVE BEHAVIOUR, DRUG USE AND PREVENTION OF PARENTERAL HIV TRANSMISSION

Remarkably, before HIV diagnosis, women in Irkutsk, used alcohol less often compared with the general sample. 51% used alcohol several times per year (1.5 times more than in the general sample); 31.3% – several times per month.

Before diagnosis, 15% of women in the sub-sample (two times less than in the general sample) had experience of using drugs. 59.1% had first tried drugs 3-9 years before HIV diagnosis.

All women with experience of drug use had injected drugs. The first drug injection occurred at about the same time as the first use of drugs. 59.1% had their first drug injection at the age of 15–19 years; it should be noted that approximately every tenth female IDU first used drugs intravenously at a very young (12–14 years) or older age (after 30 years), which is distinctive of the Irkutsk sub-sample. 95.5% used heroin; 50%, prepared opiates domestically (twice more than in the general sample).

Before HIV diagnosis, 45.4% injected drugs 1–3 times a week; 22.7% almost daily. Only 4.5% of the women had injected drugs only once.

63.6% occasionally “shared” injection equipment before HIV diagnosis (58.8% of them always cleaned used needles and syringes). Only 22.7% never shared equipment for injecting drugs after HIV diagnosis. 59.1% reported using “clean” equipment to inject drugs in most cases. 50% never passed their used needles and/or syringes for use to other IDUs. About 40.9% always had the opportunity to buy “clean” equipment.

54.5% of the women at least occasionally filled their syringes from the syringe of another IDU. 63.6% at least occasionally used common containers to prepare the drug solution. 77.3% at least occasionally drew up the drug solution from a common container (twice more than in the general sample).

18.2% perceived their injecting behaviour at the time of HIV diagnosis as very unsafe and 22.7% as unsafe rather than safe. However, hepatitis cases in the Irkutsk sub-sample were less frequent than in the general sample: hepatitis C was diagnosed in 13.6% of women, hepatitis B in 9.1%.

After diagnosis, alcohol use in the Irkutsk sub-sample decreased compared with the general sample and with the period before diagnosis. This was due to the growth in the proportion of women using alcohol several times per year (38.8%) as well as those who did not use alcohol at all (49.7%, nearly five times more than in the previous period).

54.5% of women previously using drugs gave up injecting drugs after HIV diagnosis. For those who continued to inject (6.8%), heroin was the predominant drug. There were no significant changes in the frequency of injecting drugs (half the women used drugs practically on a daily basis). The frequency of equipment sharing increased: most women who continued taking drugs used other people’s needles and syringes in approximately half the cases. Half the women always cleaned shared equipment before use. The majority never lent their used needles and syringes to others but did, at least occasionally, use drug solution from other people’s syringes, as well as preparing the solution and drawing up drugs from a common container.

About half the women who continued to inject drugs considered their injecting behaviour as safe rather than unsafe.

There was no significant difference in hepatitis prevalence among respondents who continued to inject drugs and those who didn’t. Nearly half the female IDUs were found to have hepatitis C after HIV diagnosis.

2.4.3.4. REPRODUCTIVE BEHAVIOUR AND PREVENTION OF MOTHER-TO-CHILD HIV TRANSMISSION

92.5% of the women in the Irkutsk sub-sample were already pregnant at the time of HIV diagnosis. In 61% of cases the pregnancy was planned (1.5 times more often than in the general sample). In more 64.7% of cases the pregnancy ended in childbirth (more than in the general sample).

About 64.5% of women took ART to prevent MTCT during pregnancy, 66.1% during delivery, about as many after delivery. Only 12.1% did not receive ART to prevent MTCT.

1.5% of the women became pregnant after the diagnosis of HIV. For most women, pregnancy was planned and ended in delivery. A large proportion of women after HIV diagnosis received ART at various stages of pregnancy, during and after delivery.

More women in Irkutsk than in the general sample had received ART both before and after HIV diagnosis to prevent mother-to-child transmission¹⁰.

2.5. TVER

2.5.1. HIV EPIDEMIC

Isolated HIV cases in the region have been registered since 1987. The epidemic among IDUs in Tver started in 1997, the year of maximum incidence (103.7 per 100,000), which dropped to 39.6 by 2005. A total of 4,561 cases were registered in the region at 1 January 2006, with 2,346 of them in Tver. Regional prevalence totals 315.9 per 100,000 and exceeds the national average by 1.4 times. Prevalence in Tver City is 576.0 per 100,000.

As in the other Russian regions, it is the 21–30 age group which is most involved in the epidemic. The largest female group was aged 21–24 accounting for 30.9% of the sample. Among men, 46.1% belonged to the 25–30 age group.

The proportion of parenteral transmission in the region was 44.8% in 2005, compared to 72.5% in 2001. Sexual transmission by 2005 had increased, reaching 50.4%, compared to 26.5% in 2001.

The male-to-female ratio among all HIV cases at 1 January 2006 was 1:1.

The proportion of new cases among pregnant women (Code 109) in the region was 0.2% at 1 January 2006.

In 2005, approximately equal proportions of women ended pregnancy with childbirth as with abortion; For the first time, a group emerged of HIV-positive pregnant women deciding to continue their pregnancy and receive antenatal care at medical facilities.

There were 479 children born to HIV-positive mothers in the region at 1 January 2006, with 239 of them in the city of Tver.

In 2002, sentinel sero-epidemiological and behavioural surveys were conducted among IDUs in Tver. The prevalence rate among “street-based” IDUs was 55.4%.

¹⁰ During the past few years, “Mother and Child” international project procured ART medication for the prevention of perinatal HIV transmission in children born to HIV-positive mothers. This made possible a considerable extension of MTCT prevention in the region.

2.5.2. BASIC CHARACTERISTICS OF HIV-POSITIVE WOMEN

2.5.2.1 . SOCIO-DEMOGRAPHIC CHARACTERISTICS

The age composition of the Tver sub-sample was largely consistent with the data for the general sample and had the following distribution: 48.4 % were women aged 20–24; 28.7% were 25–29; 11.5% were aged 19 or younger; 8.9% were 30–34 years old. The mean age in the sub-sample was 24.1 years.

33.3% had received specialised secondary education; 20.9% general secondary; 15% incomplete secondary; 14.4% incomplete higher; and 7.2% higher education. Distribution by education in the Tver sample differs from the general sample due to a smaller proportion of women with vocational education and a larger proportion of women with incomplete higher education.

80.3% were permanent residents of Tver (lower than in the general sample). At the time of the survey 59.9% had lived there for 21–30 years; 22.3% for 11–20 years; and 10.8% for less than 10 years. 70.8% of non-residents had come from other regions of Russia; others from CIS.

45.9% had been married. 55.6% first married at the age of 20–24; 31.9% at the age of 15–19; 12.5% at 25–29 years old.

Distribution by marital status in the Tver sample at the time of the survey differed from the general sample: 33.8% were in registered marriage and lived with their husbands; 36.3% lived in unregistered marriage with a partner; 28.7% lived alone.

2.5.2.2. HIV DIAGNOSIS

In the Tver sample, the period between diagnosis and the survey largely corresponded to the general sample. 37.6% of the interviewees were diagnosed 1.5–2.5 years before the survey; 27.4% – 10–18 months before; and 8.9% about 3 years before the survey.

45.2 % were diagnosed with HIV at the age of 20–24; 23.6% at 15–19; and 24.8% at 25–29 years of age.

69.6% of the women (less than in the general sample) were diagnosed with HIV in Tver or Tver region; 30.4% elsewhere in the Russian Federation.

69.4% were diagnosed at an antenatal clinic when they sought pregnancy care (more than in the general sample); 14.6% at a hospital (twice more than in the general sample); only 7.6% at the AIDS Centre (two times less than in the general sample).

89.8% were pregnant at the time of HIV diagnosis. 82.4% of them attended antenatal clinics. 52.8% of HIV cases among pregnant women in Tver were diagnosed during the first trimester of pregnancy (under 12 weeks, more than in the general sample); 31% during the second trimester (12–24 weeks); 12% during the third trimester (24–36 weeks). The proportion of

women diagnosed with HIV during delivery was 2.1%, which is seven times less than in the general sample.

50.3% of women in the Tver sample had received both pre-test and post-test counselling at HIV testing (1.5 times more than in the general sample); 36.9% had received only post-test counselling.

Before HIV diagnosis, 35.7% knew someone infected with HIV. 17.8% of women had HIV-positive friends. 2.5% of women had close relatives who were HIV-positive.

83.4% tended to think they had been HIV-positive sexually; 7% linked their infection to injecting drugs; and 9.6% were not sure.

79.6% reported not being in need of some medical, social, information or other services (more than in the general sample). Among the small number of women requesting services and information, 8.9% needed medical care, 5.1% information on children's health and rights, 2.5% psychological support, and 2.5% information about living with HIV/AIDS.

2.5.3. BEHAVIOURAL CHARACTERISTICS OF HIV-POSITIVE WOMEN BEFORE AND AFTER DIAGNOSIS

2.5.3.1. SEXUAL BEHAVIOUR AND PREVENTION OF SEXUAL TRANSMISSION

All the women interviewed had had penetrative sex before HIV diagnosis. Age at sexual debut in the Tver sample was largely consistent with the data for the general sample. 61.1% first had sex between 15–17 years old; 19.1% at 18–19 years; others at a younger (under 14 years, 11.5%) or older age (over 19 years of age, 8.3%).

Before HIV diagnosis, 47.1% had had 2–4 sexual partners; 27.4% had had 5–9 sexual partners; 12.7% only one sexual partner. About 9% of women in the Tver sub-sample during this period had had contact with over 10 sexual partners, which is less than the general sample.

99.4% had regular sexual partners (more than in the general sample). 61.8% during this period had 2–4 regular partners; 33.1% had one regular partner. Condom use during sex with regular partners in the Tver sample is largely consistent with the data for the general sample: 54.5% never used condoms; 42.9% used condoms only occasionally.

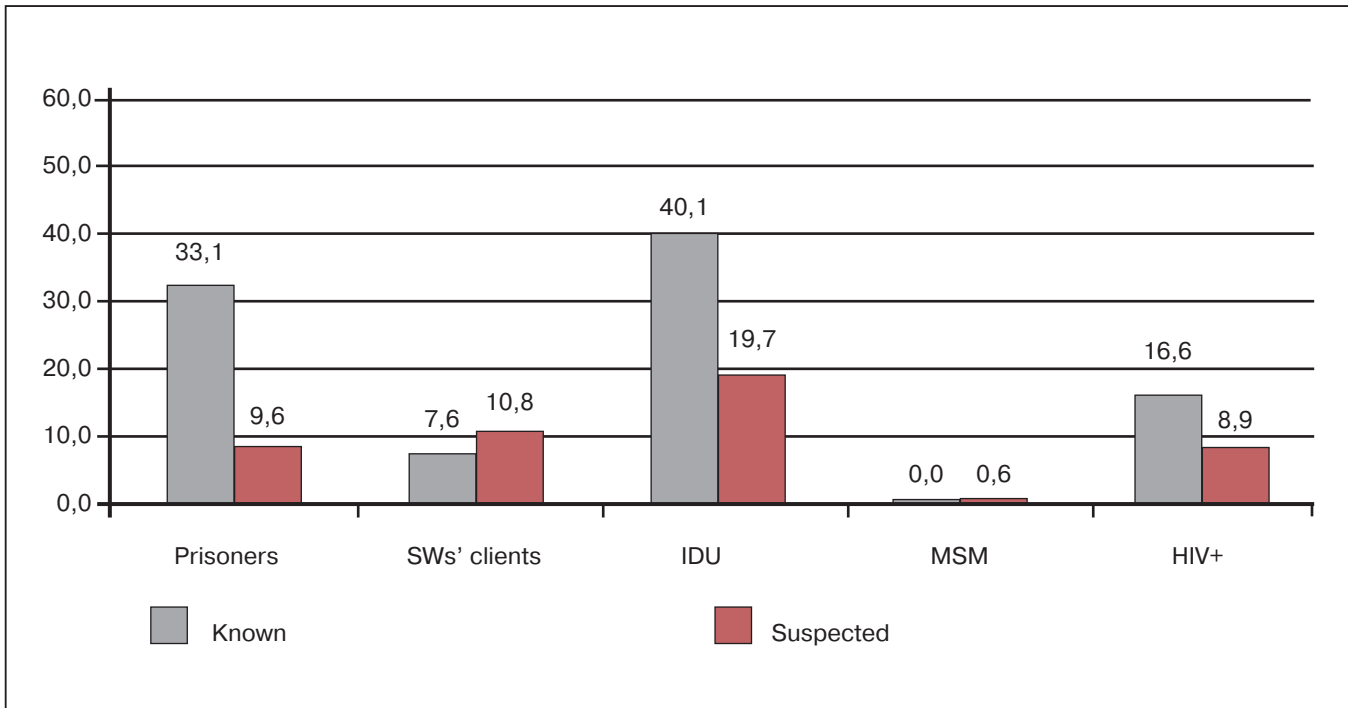
Before diagnosis 61.8% had had non-regular sexual partners. 32.5% had had 2–4 such partners; 11.5% had had 5–9 such partners; and 8.9% had had only one. 40.2% never used condoms during sex with non-regular partners (twice more than in the general sample); only 16.5% always used condoms with these partners.

Only 3.2% of women in the Tver sample had had sexual contact with commercial partners before HIV diagnosis (2.5 times less than in the general sample). 60% of them never used condoms with these partners.

Before being diagnosed with HIV, the interviewees had had sexual contact with members of risk groups.

Fig. 15

Known and suspected members of high-risk groups among sexual partners of women before HIV diagnosis, Tver, %



33.1% of the women had had prisoners among their sexual partners. About 7.6% had had sex with persons habitually buying sexual services (half the level in the general sample). 40.1% had had sex with partners who were IDUs. 16.6% had had sex with partners known to be HIV-positive.

8.9%, before HIV diagnosis, had experienced sexual violence.

22.3% tended to consider their sexual behaviour before diagnosis as fairly safe; 20.4% as fairly unsafe. Only 6.4% perceived their sexual behaviour as completely safe (two times less than in the general sample).

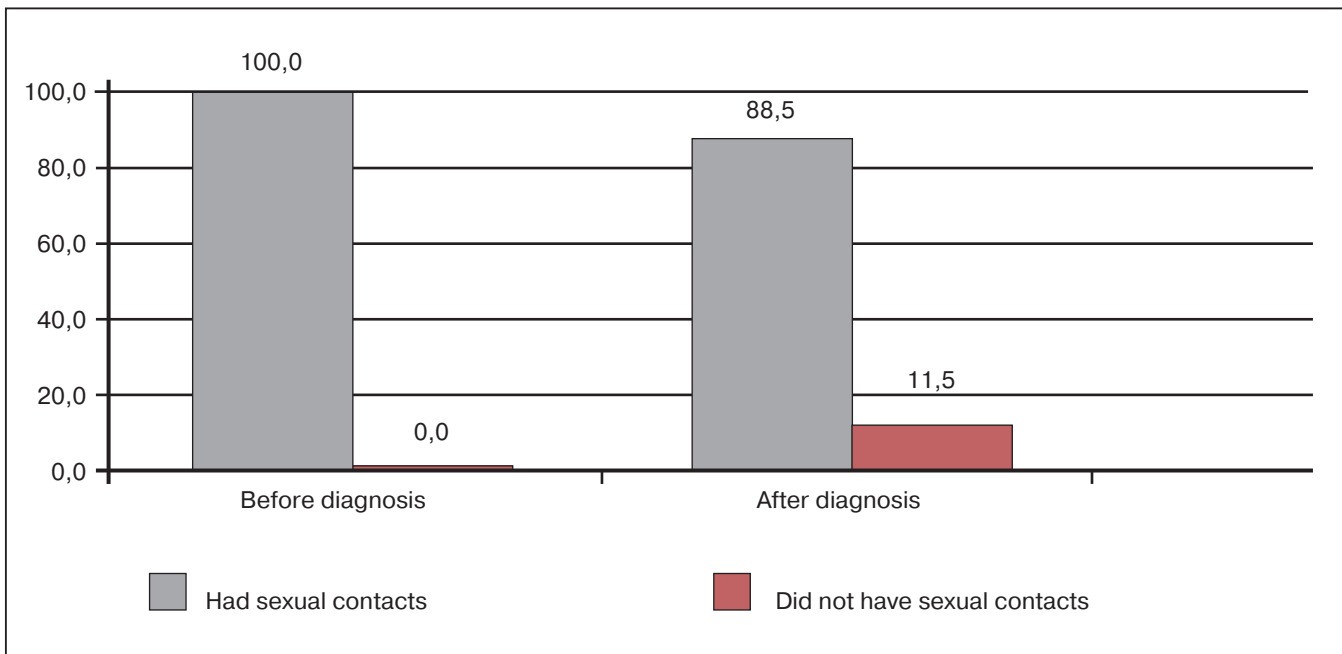
On the whole, the STI prevalence in the Tver sample was lower than in the general sample. 22.3% were diagnosed with candidiasis; 7% with trichomoniasis or syphilis; and 3.2% with gonorrhoea or chlamydiosis.

After HIV diagnosis, there were changes in some aspects of sexual behaviour among women in Tver¹¹. The proportion of women with an active sex life decreased: 88.5% of women engaged in penetrative sex, i.e. every tenth woman had not had sexual contact during this period.

¹¹ It should be taken into consideration that the period between the diagnosis and the survey was fairly short and that for most of the interviewed women this was also a period of pregnancy, delivery and infant care.

Fig. 16

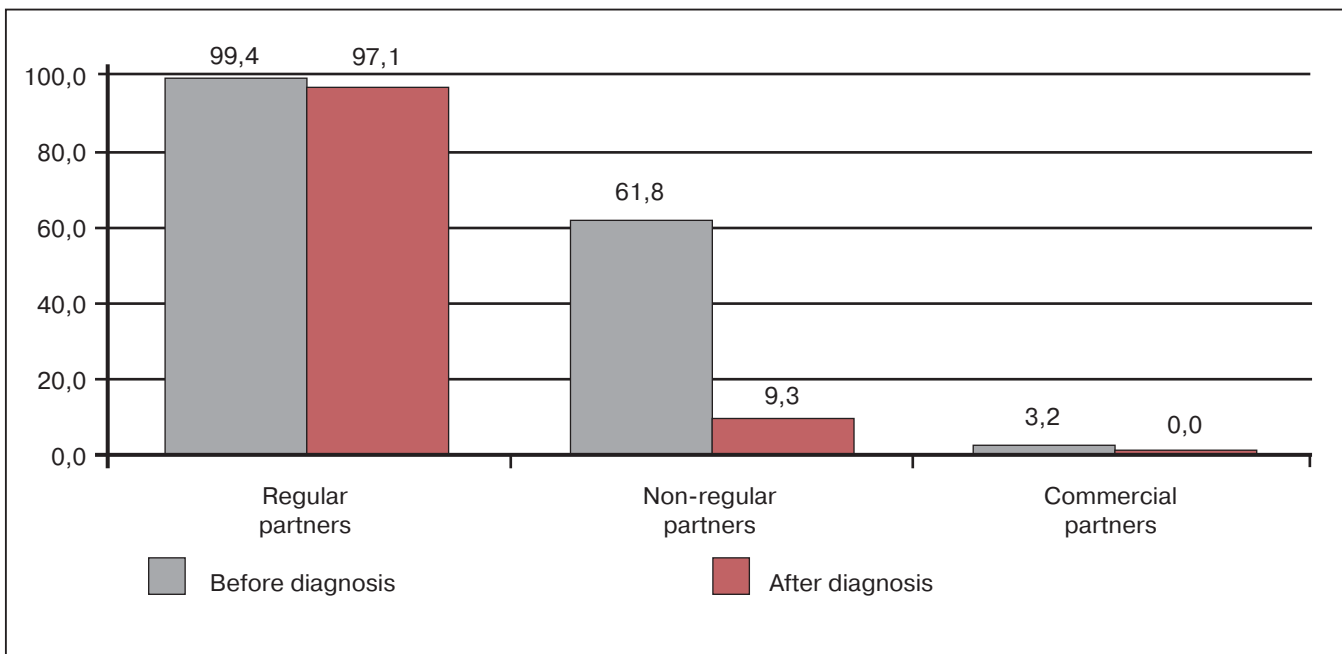
Women’s sexual contact before and after HIV diagnosis, Tver, %, $p \leq 0,001$



After HIV diagnosis, 90.6% of women in the Tver sample had only one sexual partner (which is nearly four times higher than in the general sample).

Fig. 17

Types of sexual partner before and after HIV diagnosis, Tver, %



After diagnosis, 97.1% had a regular sexual partner(s). 95.7% of them had only one regular partner (nearly three times more than in the previous period). The number of sexual contacts with regular partners during the month preceding the survey totalled 2.8 on average (which is three times less than in the general sample). About 7.4% of women had regular partners but had not had sex with them within the month preceding the survey.

The use of condoms during sex with regular partners also grew after HIV diagnosis: 23% used condoms always (more than in the general sample; before diagnosis, this rate did not exceed 1%). However, the proportion of women that never used condoms with regular partners still remained fairly high (29.6%).

46.6% (more than in the general sample) used condoms at their last sexual contact with a regular partner – generally, on their own initiative (46%) or following a joint decision with their partners (47.6%). In 41.2% of cases when condoms were not used, the women did not think it was necessary; in 30.9% the partner had objected.

After diagnosis, the proportion of women (9.3%) that had non-regular sexual partners decreased by nearly seven times.

The number of non-regular partners also decreased, reaching an average of 0.2. During the month preceding the survey, 38.5% had had only one sexual contact with a non-regular partner. Condom use with non-regular partners also grew: every second woman that had such partners always used condoms; however, every seventh never used condoms. During the last sexual contact with a non-regular partner, 54.5% used condoms, all of them on their own initiative.

None of the women in the Tver sample had commercial sexual partners after HIV diagnosis.

Only 0.7% of women had experienced sexual violence after HIV diagnosis (nearly a 13-fold decrease compared with the pre-diagnosis period).

After diagnosis, there was a growth in the proportion of women who perceived their sexual behaviour as completely safe (30.2%) or as fairly safe (33.1%).

The proportion of women diagnosed with STI also dropped: 7.1% had candidiasis, while other STIs were found in less than 1%. Fewer STI cases were diagnosed among women in the Tver sample compared with the general sample.

2.5.3.2. ADDICTIVE BEHAVIOUR, DRUG USE AND PREVENTION OF PARENTERAL HIV TRANSMISSION

Before HIV diagnosis, the frequency of alcohol use by women in Tver was somewhat higher than in the general sample: 55.4% used alcohol several times a month; 29.3% several times a year; and 12.1% several times a week; only 3.2% (3.5 times less than in the general sample) did not use alcohol.

20.4% had had experience of drugs before diagnosis (less than in the general sample). In 68.8% of cases the first experience had taken place 3-9 years before HIV diagnosis.

Of all women with experience of drugs, 70.5% had injected drugs (15.3% of the Tver sub-sample). In 70.8% of cases the first injection had taken place 3-9 years before HIV diagnosis; in 25% of cases – 1-3 years before. 79.2% had first had a drug injection aged 15-19; 12.5% at less than 15 years old; and 8.3% at the age of 20-24.

Most women injected heroin (91.7%); 20.8% took ephedron; and 12.5% used self-made opiates. 25% injected drugs 2-3 times a week; 20.8% about once a week; 16.7% daily. About 20% had injected drugs only 1-3 times before HIV diagnosis.

Before diagnosis, every second female IDU in the Tver sample had used someone else's injection equipment: 25% occasionally; 25% approximately half the time. 28.6% always cleaned before use the needles or syringes they shared. 37.5% of women always used "clean" injection equipment; 33.3% in most cases; and 20.8% only occasionally. 29.2% passed their injection equipment to other people occasionally; and 8.3% in most instances.

75% never experienced difficulty in buying clean needles and syringes.

About half the female IDUs in the Tver sample used drugs from a syringe filled for another person: 12.5% nearly always, 37.5% occasionally. Practically all had used a common container for preparing drug solutions: 29.2% always, 33.3% in most cases, and 33.3% occasionally. Also 33.3% always drew up the drug from a common container; 41.7% did so in most instances.

37.5% considered their drug injecting behaviour before HIV diagnosis as safe rather than unsafe; 25% as fairly unsafe. Only 4.2% of female IDUs perceived their behaviour as very unsafe. 33.3% during that period was diagnosed with hepatitis C.

After HIV diagnosis, the frequency of alcohol use in the Tver sample decreased while remaining fairly high compared with the general sample: 41.4% of women used alcohol several times a month, 32.5% several times a year.

Most female IDUs in Tver did not inject drugs after HIV diagnosis. Injectors accounted only 5.1% of the interviewees in Tver. At the time of the survey, only 4.2% of them continued injecting drugs. 62.5% immediately gave up injecting drugs after diagnosis. At the time of the survey, 26% had been in remission for up to 6 months; 13% for 7-12 months.

There were no significant differences in injecting-drug behaviour after HIV diagnosis. Most women who continued using drugs took heroin, most of them occasionally. Nearly all of them shared injection equipment and only a few occasionally cleaned syringes and needles before use. Over half never passed their injection equipment to other people after they learned about their HIV status. Practically all had the opportunity to buy clean needles and syringes.

After diagnosis, most women never used the syringes of other persons; however, occasionally they used common containers for preparing drugs and also drew up from common containers.

Every second woman who continued injecting drugs after diagnosis considered her behaviour as safe rather than unsafe.

Every fifth female IDU after HIV diagnosis was diagnosed with hepatitis B; every tenth with hepatitis C.

2.5.3.3. REPRODUCTIVE BEHAVIOUR AND PREVENTION OF MOTHER-TO-CHILD HIV TRANSMISSION

89.8% of women in the Tver sample were already pregnant at the time of HIV diagnosis. Only 47.9% of the pregnancies were planned. 47.9% ended in childbirth; 29.6% in abortion.

Compared with the other cities, more women in Tver received therapy to prevent MTCT: 66.7% during pregnancy, 65.6% during delivery, 67.8% after delivery. A very small number of women (4.4%) did not receive ART at any stage.

7.7% of women became pregnant after HIV diagnosis and only every third pregnancy was planned. 25% of pregnancies during this period ended in childbirth; and 29.2% in abortion. 37.5% of pregnancies were in progress at the time of the survey. Nearly every second woman (46.7%) received ART to prevent MTCT during pregnancy, 33.3% during delivery.

CONCLUSION

According to official statistics and sentinel sero-epidemiological studies, the five regions selected for the survey (St Petersburg, Kaliningrad, Yekaterinburg, Irkutsk, and Tver) are among the areas with the highest HIV prevalence in the RF, with spread among IDUs fuelling the epidemics there.

In terms of prevalence per 100,000 at 1 January 2006, these areas can be ranked in the following way:

Irkutsk region – 805.8, St Petersburg – 667.5, Yekaterinburg region – 584.2, Kaliningrad region – 402.3, Tver region – 320.1.

In two of the five areas, the epidemic among IDUs started in 1996–1997 (Kaliningrad and Tver). In the other three areas (St Petersburg, Yekaterinburg, Irkutsk) it began in 1999–2000.

In every region, after maximum incidence rates were reached in 1997–2001, there has been a trend towards an increase in sexual transmission and the involvement of women in the HIV epidemic. Women are actively involved in the epidemic as drug injectors, sellers of sexual services (often in exchange for drugs) and as sexual partners of HIV-positive persons, IDUs, clients of sex workers and prisoners. HIV behavioural risks among women in the surveyed cities have much in common, however, they may differ geographically, as do the manifestations of the HIV epidemic.

St PETERSBURG

The HIV-positive group in St Petersburg includes young women of reproductive age (mean age 23.9 years), with secondary education (general or specialized), and unmarried. The mean age at sexual debut was 16.3 years.

Before HIV diagnosis, the women had an active sex life (with an average of 5.9 partners each), characterized by a frequent change of regular partner (mean number 1.7) and contact with non-regular partners (mean number 4.0). The ratio of protected to unprotected contacts is about 1:6 with regular partners and 4:1 with non-regular partners. Importantly, every fourth woman had had sexual contact with commercial partners before HIV diagnosis; the ratio of protected to unprotected contacts with such partners is about 4:1. Every fifth woman had experienced sexual violence before diagnosis.

The high-risk sexual behaviour among women can be indirectly confirmed by STI prevalence rates (every fifth woman had chlamydia or trichomoniasis, every seventh had gonorrhoea or syphilis), as well as by high numbers of unplanned pregnancies (about 2 out of 3).

In addition to respondents practising high-risk sexual behaviour before HIV diagnosis, their partners also belonged to various high-risk groups. Thus, every second woman reported having had sexual

contact with known IDUs, every third with known SW clients, every seventh with known HIV-positive partners.

About every second woman injected drugs before HIV diagnosis; with high-risk behaviour. Only 1 in 3 female IDUs had never shared injecting equipment and every second one passed her needles and syringes to other people for use.

There were behavioural changes among HIV-positive women after diagnosis: the number of persons engaging in penetrative sex decreased (-13%), as well as the total number of sexual partners (3.7 times), which could be attributed to pregnancy, childbirth and care of infants. The proportion of women engaging in sex with non-regular partners halved, but remained quite high (40.9%). However, the proportion of women practicing commercial sex (every sixth one) remained fairly high. The ratio of protected to non-protected sexual contacts is approximately 1:3 with regular partners, 2:1 with non-regular partners, and 3:1 with commercial partners.

After diagnosis, every fourth female IDU continued to inject drugs, with the use of someone else's injecting equipment becoming more frequent, and every second female IDU passed her used needles and syringes to other people. High-risk drug injecting behaviour after HIV diagnosis is confirmed by hepatitis rates: hepatitis C prevalence remained about the same (every third female IDU) and the prevalence of hepatitis B grew significantly (found in every second female IDU).

Thus, the investigation into the socio-demographic and behavioural status of women at the time of HIV diagnosis showed that HIV-positive women in St Petersburg largely represent the traditional HIV risk groups: every second was an IDU, every third a SW, practically all of them engaged in sex with non-regular partners. Half the women had sexual partners from other high-risk groups. Almost half the women were diagnosed as HIV-positive only during delivery, i.e. they had not received antenatal care during pregnancy, which is indirect evidence that women of reproductive age constitute a risk group for HIV.

After diagnosis, the total number of sexual partners normally decreased; some of these partners were regular, some non-regular, and some commercial; the frequency of condom use with non-regular and commercial partners dropped.

To sum up, there is a high risk of further spread of HIV in St Petersburg, both by parenteral and sexual routes.

KALININGRAD

The HIV-positive group in Kaliningrad includes young women of reproductive age (mean age 26.4 years), with secondary education (general or specialized), in registered or common-law marriage. The mean age at sexual debut was 16.9 years.

Before HIV diagnosis, the women had an active sex life (mean number of partners was 9.8). About 2 out of 3 women frequently changed their regular partner (mean number 2.3) and engaged in sex with non-regular partners (mean number 5.8). The ratio of protected to unprotected sexual contacts is approximately 1:1 with regular partners and 4:1 with non-regular partners. Every tenth woman had commercial sex partners before HIV diagnosis; the ratio of protected to unprotected contacts with these partners was about 4:1. Every fifth woman had experienced sexual violence before diagnosis.

The high-risk sexual behaviour among women can be indirectly confirmed by STI diagnoses (every third woman had had trichomoniasis, every fourth had had chlamydiosis, every fifth genital herpes, every sixth had suffered syphilis before HIV diagnosis), as well as by the number of unplanned pregnancies (approximately half).

Before being diagnosed with HIV, every third woman had had sexual contact with known IDUs, known clients of SWs or known HIV-positive partners; in addition, 43.3% of women had had sex with former prisoners. A large proportion of the women (14-31%) had had sex with people they suspected to be members of these groups.

About every sixth woman in the Kaliningrad study had injected drugs before HIV diagnosis, with behaviour in this area displaying a high degree of HIV risk. Only 1 in 3 female IDUs had never used anyone else's injecting equipment, every second IDU passed her needles and syringes to other people.

There were some changes in sexual behaviour among HIV-positive women after diagnosis: the number of persons engaging in penetrative sex slightly decreased, the proportion of women with non-regular partners fell by 1.5, the proportion of women practicing commercial sex dropped by six times. The ratio of protected to non-protected sexual contacts became approximately 1:2 with regular partners and 1:3 with non-regular partners.

After diagnosis, only every second female IDU continued to inject drugs; only every sixth always used clean injecting equipment, and every third passed her used needles and syringes to other people at least occasionally. High-risk drug-injecting behaviour after HIV diagnosis is confirmed by hepatitis diagnosis: hepatitis C doubled. (Almost 2 out of 3 female IDUs is infected.)

Thus, the investigation into the socio-demographic and behavioural status of women at the time of HIV diagnosis showed that every sixth HIV-positive woman in Kaliningrad was an IDU, every tenth a SW. Practically half the women engaged in sex with non-regular partners and had partners from other high-risk groups. There was an increase in the number of unprotected sexual contacts both with regular and non-regular partners after HIV diagnosis. Women who continued using drugs also engaged in risky injecting behaviour.

To sum up, there is a high risk of further spread of HIV in Kaliningrad, first and foremost by parenteral routes.

YEKATERINBURG

The HIV-positive group in Yekaterinburg includes young women of reproductive age (mean age 24.7 years), with general secondary education, in common-law marriage. The mean age at sexual debut was 16.9 years.

Before HIV diagnosis, the women had an active sex life and a large number of sexual partners (7.7 on average). About every second woman had changed regular partners (mean number 2.2), 2 out of 3 had had sex with non-regular partners (mean number 5.0). The ratio of protected to unprotected sexual contacts was approximately 1:1 with regular partners and 1:5 with non-regular partners. The proportion of women that had had commercial sex partners before being diagnosed is insignificant (approximately every twentieth); the ratio of protected to unprotected sexual contacts with these partners was about 1:1. Every fifth woman had experienced sexual violence before being diagnosed with HIV.

Before diagnosis, every fifth woman had suffered candidiasis; every tenth had had gonorrhoea or trichomoniasis; and other STI were fairly infrequent. Every second pregnancy at the time of HIV diagnosis was unplanned.

Before being diagnosed with HIV, nearly 2 out of 3 women had had sex with known IDUs; only every tenth one with known clients of SWs.

About every fourth woman in the Yekaterinburg survey injected drugs before diagnosis. Only 1 in 3 female IDUs had never used anyone else's injecting equipment, and every second one passed her needles and syringes to other people for use.

There were some changes in sexual behaviour among HIV-positive women after diagnosis: the proportion engaging in penetrative sex slightly decreased (which could be attributed to pregnancy, childbirth and care of infants); the total number of sexual partners decreased (3 out of 4 women in the period after diagnosis had only one partner); the proportion of women engaging in sex with non-regular partners fell by 3.5 times; commercial sexual contact stopped completely. The ratio of protected to non-protected sexual contacts became approximately 1:1 with both regular and non-regular partners.

Only every sixth female IDU continued injecting drugs after being diagnosed; a large proportion of them occasionally used someone else's injection equipment, and every tenth lent her used needles and syringes to other people. The relatively low risk injecting behaviour after diagnosis is indirectly confirmed by hepatitis diagnoses which did not display any upward trend: only every tenth female IDU had hepatitis C or B.

Thus, the investigation into the socio-demographic and behavioural status of women at the time of HIV diagnosis showed that every fourth HIV-positive woman was an IDU, every twentieth a SW. Two thirds engaged in sex with non-regular partners and also had partners from other high-risk groups. It is noteworthy that many of the women at the time of diagnosis had received antenatal care; in half the cases the sero-positive status was identified within the first 12 weeks (12 pregnancies).

After HIV diagnosis, there were marked positive behavioural changes among women with respect to HIV infection/transmission.

To sum up, there is relatively small risk of further spread of HIV in Yekaterinburg, from the women surveyed, mainly through casual sexual contacts.

IRKUTSK

The HIV-positive group in Irkutsk includes young women of reproductive age (mean age 22.9 years), with secondary vocational education, in registered or common-law marriage. The mean age at sexual debut was 17.1 years.

Before being diagnosed with HIV, the mean number of sexual partners was relatively low: 3.4. Every third woman had only one regular partner; only every fourth had non-regular partners (mean number 1.0). The ratio of protected to unprotected sexual contacts was approximately 1:1 with regular partners and 1:4 with non-regular partners. The proportion of women engaging in sex with commercial partners is insignificant (approximately every fiftieth); the ratio of protected to unprotected sexual contact with these partners is about 1:2. Very few had experienced sexual violence before being diagnosed with HIV.

The insignificant risk in sexual behaviour among these women is indirectly confirmed by the STI diagnoses (only every eighth woman during the period prior to HIV diagnosis had candidiasis; other STI is infrequent). A large proportion of pregnancies at the time of HIV diagnosis were planned.

Before being diagnosed, only every fourth woman had had sexual contact with known IDUs, however, every tenth woman had had partners known to be HIV-positive.

About every seventh woman in the Irkutsk group had injected drugs before HIV diagnosis. Over half the female IDUs had used someone else's injecting equipment at least occasionally; every second one passed her needles and syringes to other people for use.

There were some changes in sexual behaviour among HIV-positive women after diagnosis. The proportion of persons engaging in penetrative sex decreased (which could be attributed to pregnancy, childbirth and care of infants) and so did the total number of sexual partners (practically all had only one partner). The proportion of women engaging in sex with non-regular partners fell by five times. Commercial sexual contact stopped almost completely. The proportion of women who "always" and "never" used condoms increased.

Every second female IDU continued injecting drugs after diagnosis, with equipment-sharing becoming more frequent. High-risk drug-injecting behaviour after HIV diagnosis is confirmed by the fact that hepatitis C was discovered in every second female IDU.

Thus, the investigation into the socio-demographic and behavioural status of women at the time of diagnosis showed that every seventh HIV-positive woman in Irkutsk was an IDU, every fourth had

sexual partners who were IDUs, and every tenth had HIV-positive partners. Compared with other cities, a large proportion of the target group in Irkutsk was more conservative in its behaviour, which is evidenced by the fact that most of them at the time of diagnosis had received antenatal care, and in half the cases the sero-positive status was identified within the first or second trimester of pregnancy.

After diagnosis, there were marked positive behavioural changes among women with respect to the number of partners. However, the number of protected sexual contacts (condom use) decreased, and every second female IDU continued her risky behaviour.

TVER

The HIV-positive group in Tver includes young women of reproductive age (mean age 24.1 years), with secondary education (general or specialized), and in registered marriage. The mean age at sexual debut was 16.7 years.

Before being diagnosed with HIV, the women had an active sex life (mean number of partners was 5.2). Every second woman had had sex with non-regular partners (mean number 2.6). The ratio of protected to unprotected sexual contacts with regular and non-regular partners were approximately 1:1.

Very few had engaged in commercial sex before being diagnosed with HIV; the ratio of protected to unprotected sexual contact with these partners was about 1:1. Before being diagnosed with HIV, every tenth woman had experienced sexual violence.

Every fifth woman had had candidiasis in the period before HIV diagnosis; other STIs were infrequent.

Every second pregnancy at the time of diagnosis was planned.

Before diagnosis, nearly every second woman had had known IDUs among her sexual partners. Every sixth had had sex with persons known to be HIV-positive.

About every seventh woman in the Tver survey injected drugs before HIV diagnosis. 2 out of 3 female IDUs at least occasionally used someone else's injecting equipment; nearly half passed their needles or syringes to other people for use.

There were some changes in the sexual behaviour of HIV-positive women after diagnosis. The proportion of women engaging in penetrative sex decreased (which could be attributed to pregnancy, childbirth and care of infants), as well as the number of sexual partners (practically all women had had only one partner during that period). The proportion of women engaging in sex with non-regular partners fell by six times. Commercial sexual contact stopped completely.

Only an insignificant proportion of female IDUs reported occasionally injecting drugs after being diagnosed with HIV. Only isolated hepatitis cases were identified.

The investigation into the socio-demographic and behavioural status of women at the time of diagnosis showed that every seventh HIV-positive woman in Tver was an IDU, every second had sexual partners who were IDUs, and every sixth had HIV-positive sexual partners. Most of the target group at the time of diagnosis were receiving antenatal care; in every second case the sero-positive status was identified within the first trimester of pregnancy. After HIV diagnosis, there were marked positive behavioural changes with respect to HIV infection/transmission.

GENERAL CONCLUSIONS

1. The voluntary anonymous survey of the socio-demographic and behavioural characteristics of HIV-positive pregnant women living in five high-prevalence regions of Russia (St Petersburg, Kaliningrad, Yekaterinburg, Irkutsk, and Tver) has shown that the sample can be regarded both as a high-risk (sexual partners of HIV-positive persons, IDUs, SWs, IDUs selling sexual services) and as a low-risk but related to high-risk (IDUs' sexual partners, persons engaged in multiple sexual contacts with non-regular partners, sexual partners of prisoners) groups. It proves that the HIV epidemic in these areas is still confined to risk groups and their immediate social environment (concentrated epidemic stage).
2. The vulnerability of women to HIV varies geographically. In St Petersburg, Yekaterinburg and Kaliningrad, at the time of diagnosis the women practised high-risk behaviour. In Saint Petersburg 50.3% women were IDUs, 21.9% were sex workers, 60.9% had sexual contacts with IDUs, 83.4% had non-regular sexual partners, 29.1% had sexual contacts with partners of sex workers, 43.0% with prisoners. In Yekaterinburg 27.5% women were IDUs, 57.5% had sexual contacts with IDUs, 73.9% with non-regular partners, 36.8% with prisoners. In Kaliningrad 14.7% women were IDUs, 28.7% had sexual contacts with HIV-positive persons, 31.3% had sexual contacts with IDUs, 68.0% with non-regular partners, 30.7% with clients of SWs, 43.3% with prisoners. In Irkutsk and Tver many fewer women reported high-risk behaviour at the time of diagnosis. In both cities only 15% reported injecting drugs, 2–3% had commercial sexual partners. However, 25% women in Irkutsk and 61.8% in Tver were engaged in non-regular sexual contacts. Some reported having had sexual contacts with IDUs, clients of SWs, HIV-positive people and prisoners (known or suspected).
3. Despite being IDUs, the vast majority of women (74% – 83%) thought they had contracted HIV sexually. This allows to suggest that some of them could have assessed their HIV transmission route as sexual when epidemiological history was being taken at the time of the HIV diagnosis. Some correlation between subjective perceptions of transmission routes and behavioural risks was detected only among women in St Petersburg (every fourth woman thought she had been infected through injecting drugs).
4. There is a link between reproductive behaviour and HIV risk. The proportion of planned pregnancies is lower in St Petersburg (20.5%), and Kaliningrad (39.8%); these cities also have the highest number of women who did not receive antenatal care (33.6% in Kaliningrad, 45.5% in St Petersburg). In St Petersburg 49.2% of the HIV cases were diagnosed during delivery.
5. After diagnosis, some of the women shifted to less risky behaviour. Thus, drug injection decreased by 7 times in Yekaterinburg (from 27.5% to 3.9%), 3 times in Saint Petersburg (from 50.3% to 15.2%) and Tver (from 15.3% to 5.1%), 2 times in Irkutsk (from 15.0% to 6.8%) and Kaliningrad (from 14.7% to 8.0%). The total number of sexual partners in all of the cities studied also dropped. However, the data on condom use during sexual intercourse with various partners were contra-

dictory (both increase and decrease in the frequency of condom use were reported). Preference of less-risky behaviours could be due to both HIV diagnosis and childcare concerns during the post-natal period. In view of the fact that some HIV-positive women continue engaging in risk behaviours, secondary prevention among HIV-positive persons becomes a matter of great importance.

6. The spread of HIV from population practicing high-risk behavior, particularly IDUs, into their immediate social environment may vary from region to region. Thus, in 2005 in Saint Petersburg sexual transmission accounted for less than 10 % of HIV cases, which means that the epidemic is concentrated in the IDU population. The spread of HIV in Irkutsk and Yekaterinburg goes through sexual transmission in 50% cases. This is comparable with Tver and Kaliningrad, where the epidemic among IDUs started 3 years earlier.
7. This survey has shown the need for more efficient and accurate collection of epidemiological history in newly identified HIV patients, which helps to understand the epidemic patterns and to identify the key populations involved in HIV spread.
8. The current stage of the HIV epidemic in the cities surveyed require regular screening and monitoring of behavior in general population in order to follow the epidemic patterns and ensure timely response to any changes.

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