

# Epidemiological Knowledge on HIV Infection as a Basic for Programme of Prophylactic Measures

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## ABSTRACT

The pandemic of HIV infection causes enormous economic damage, destabilizes the socio-political situation in many countries of the world and hinders to achievement of aims for the development of millennium, both in the area of health protection and in other spheres. An epidemic can be stopped and even compelled to step back, if to conduct adequate and comprehensive prophylactic measures in the proper time. In the Novgorod region an epidemic situation on HIV infection is estimated as one of most strained one. The basic indexes and tempos of their growth in a region are higher in relation to average federal data. The prophylactic measures, directed on the groups of population, which can be infected or can distribute HIV with the utmost probability must be the most priority.

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**Keywords:** HIV infection, Sickness rate, Distribution rate, Prophylactic measures

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## Introduction

The epidemic of HIV infection already during the first years, in 80-90-s years of the last century, seriously guarded the mankind, making it to look on the problem and comprehend it from different positions. There were all bases for this purpose, as a number of people, which live with HIV, steadily increases that potentially threatens to the society and its further development [1].

According to the estimation data of UNO the general quantity of HIV infected people in the world made 33-35 mln [2]. In the range of countries it led to reduction of the expected duration of life more than for 10 years.

The prophylaxis of HIV infection must be conducted taking into account the dynamics of sickness rate and changes, which take place in the epidemic process [2]. In spite that the epidemic of HIV infection covered almost all the globe, its development in different regions have own specific peculiarities and differences, which modern detection, study and recognition can play very substantial role in the choice of the right approach and execution of the effective resistance of epidemic distribution [2, 3].

The aim of this study is determination of the character and peculiarities of epidemic of HIV infection distribution in the Novgorod region and study of the principles of its prophylaxis organization.

## Method

With the purpose of estimation, detailed analysis and exposure of features for the development of HIV infection epidemic the indicators of sickness rate for 24 summer period (1990-2013) were studied, the prevailing ways of transmission, age structure and basic death reason of people with HIV infection living in Novgorod region were determined.

In work, the materials of the official statistical data conducted by the Federal scientific-methodical center on a prophylaxis and fight against AIDS were used. The statistical data on the analysis of character, epidemiological and clinical peculiarities of distribution of HIV infection in the Novgorod region are represented on the basis of data of GOBUZ «Novgorod Center on prophylaxis and fight with AIDS and the infectious diseases «Helper».

## Basic Part

Presently in Russia, the distribution of HIV infection among population and increase of the cumulative number of infected people is still continuing. According to the data of the Federal scientific-methodological center on prophylaxis and fight with AIDS, the whole situation on HIV infection in Russia can be acknowledged as steadily

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aggravating [4].

Presently in Novgorod area, the absolute quality of HIV-positive inhabitants enter into the group of unfavourable regions of North-West Russia (Table 1). The data about results of testing of antibodies to HIV in the North-West Federal region of the Russian Federation in 2012).

On 31<sup>st</sup> December 2013, in Novgorod 2288 cases of HIV infection were registered. The analysis of the epidemic department showed fluctuation in the ways of transmission and domination of different age groups of population in the structure of sickness rate. Presently, the essential increase of significance of the reproductive tract transmission takes place that replaced the injection infecting in drug users. For the analyzed years, the infection by sexual way is met more than in 4 times. Totally for the whole period of observance (since 1990) 41.4% of the infected people became infected by the parenteral way, 51.6% by sexual way. Drug-addiction still remains the second moving force of HIV distribution after sexual transmission [5].

In the age structure of patients the subjects younger 30 years old prevail (on the date of diagnosing), which part includes 61.1%. Recently, the part of HIV infected people older than 30 years with simultaneous reduction of indicators of sickness rate in the groups of younger age is increased.

There is the tendency of active inclusion of women into the epidemic. The involvement of women in an epidemiological process and increase of the number of infected people is connected with the parallel growth of sexual way of transmission; according to the data

infecting of women happened from HIV infected consumers of the injection drugs. Approximately, 90% HIV infected women in the childbearing age that involves the problem of HIV infection distribution from mother to child during pregnancy and delivery.

Since 2007, the increase of HIV infection frequency is observed among pregnant women, and the number of children, born from HIV infected mother grows. Perinatal HIV infection that is one of the basic reasons of child AIDS became actual one in our country upon the extent of growth of the number of deliveries in this category of women (Figure 1). The quantity of children born by HIV infected women.).

The prophylaxis of the perinatal transmission of HIV is a multi-stage, multi-profile process, including the access of women to the early pre-delivery observance, receipt of knowledge about infection, advising on the questions of HIV transmission and its prophylaxis, prescription of ART to women and children, control over the drug administration, and also social-psychological support for patients and their families [6]. Many pregnant women arrive for delivery with undetected HIV-status. As a rule, they relate to the social unfavourable people. As a result among these women the high risk of HIV transmission is observed and the big number of rates of mothers' refuses from children.

Since 1998 until presently, the detection rate of HIV among pregnant women raised in 100 times, the quantity of deliveries and born children from HIV-positive mothers considerably increased. The situation is aggravated by that averagely 22% of women have pre-delivery

**Table 1:** The data about results of testing of antibodies to HIV in the North-West Federal region of the Russian Federation in 2012.

North-West Federal region	Blood serum testing	HIV+	The number of antibody-positive examined blood serums for 100 000
Republic of Karelia	89434	161	180.0
Republic of Komi	189167	203	107.3
Arkhangelsk region	228601	105	45.9
Nenets autonomous district	6925	0	0.0
Volgograd region	216077	195	90.2
Kaliningrad region	127228	434	341.1
Leningrad region	201106	1122	557.9
Murmansk region	150850	350	232.0
Novgorod region	102110	378	370.2
Pskov region	101006	100	99.0
Saint-Petersburg	629307	3308	525.7

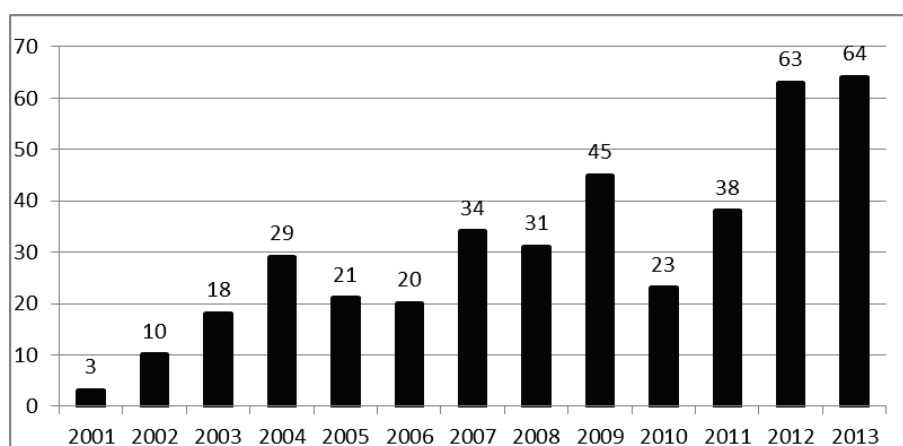


Figure 1. The quantity of children born by HIV infected women.

observance and drug addiction in this group of pregnant women is distributed 3 times more, from them 77.6% consume drugs during pregnancy [7]. The unfavourable social status of HIV-positive mother and absence of pre-delivery observation reduce the coverage of perinatal prophylaxis, promoting to the support of virus level in the blood, and are the basic factors of risk of HIV transmission from mother to child, and form the low devotion to the following dispensary observation.

In the region enough high frequency of HIV infection transmission is kept. For 12 months in 2013, 64 children were born. Prophylaxis of the vertical way of transmission was conducted in 90.3% cases (three-staged – in 46 cases, in deliveries + child – 5 cases, only to a child – 11 cases, was not conducted at all – 2 cases). The risk of perinatal HIV transmission for the whole period of observation made 8%. For comparison: in the European countries this indicator doesn't exceed 1% [8].

These circumstances require further intensification of complex measures and improvement of the work with HIV infected women on the level of mass media, in youth welfare centers, in women welfare centers in the period of pregnancy and maternity hospitals with compulsory conduction of the necessary course of chemotherapy that prevent virus infecting of children.

Annually the number of persons with progressing stages of HIV infection frequently with severe secondary diseases and infection requiring more active clinical examination, hospitalization, proper diagnostics, prescription of the antiretroviral therapy and longer treatment in increased. Totally in Novgorod region 420 HIV infected patients died, from them 139 in the stage of AIDS.

For stopping the epidemic of HIV infection it is necessary to conduct immediate prophylactic measures, which give notable effect. Without application of modern methods of management of this work it will be impossible to

receive necessary results [9].

The world history of HIV infection prophylaxis shows that the epidemic can be stopped and even force to step back, if timely to conduct adequate and comprehensible prophylactic measures. The prophylactic measures, directed on the groups of population, which can be infected and distribute HIV with utmost probability must be the priority. The detection of the infected people in the group of risk is extremely important task of any national programme [10].

The distribution of HIV can be slowed down due to the changes of social behavior of population: reduction of the quantity of sexual partners and partners on intravenous drug injection, the usage of contraceptives during the sexual act, and application the sterilized instruments for intravenous injections. The most effective way of epidemic limitation in the conditions of vaccine absence is the reduction of risk behavior.

At organization of the work upon prophylaxis of HIV infection it is necessary to use principles of the public health system, directed on improvement of the health and prevention of the disease both on the local and national level, using the public health workers, specialists on the public health, sanitary-educational work, educators, teachers, scientific workers, representatives of public community and political figures.

All prophylactic programmes must be based upon the objective estimation of situation according to the data of diseases and results of sociological studies, conducted in different social groups of population. It is very important to take into account the peculiarities of the Russian mentality, traditions with predominance of spiritual categories, specific relation to the high feelings, exclusive value of family relation with the aim of exclusion of the negative reaction of the part of society, giving response to the propaganda of safe sex as "corruption" of youth.

## Conclusion

In the Novgorod Center on prophylaxis and fight with AIDS and infectious diseases "Helper" the following methods of prophylactic works are implemented: conduction of the educational seminars on the issues of epidemiology, prophylaxis, treatment and social aspect of HIV infection; conduction of lectures, debates, round tables, discussions on the issues of HIV infection among pupils of senior forms of the secondary schools, professional-technical schools, technical schools, higher educational establishments; training of volunteers for prophylactic work, involvement of youth leaders, idols, former drug addicts to HIV problem; preparation of prophylaxis, based upon the principle of equality, or "peer-to-peer education"; conduction of tele- and radio-transmissions for population on HIV infection prophylaxis among different groups of population; preparation of information material on the different aspects of HIV infection problem and their distribution in the computer network.

The basic instrument of resistance to HIV epidemic in Russia presently is the priority national project "Health" in 2009-2012.

In Novgorod region the epidemic rise of HIV infection sickness rate, connected with the rapid HIV infection distribution among people using drugs, is still continuing. More frequently the HIV infection affects young people in the age from 15 to 30 years old, and in the last 2-3 years the increase of detection of patients of older age is observed.

The transit of epidemic into the new phase is observed – generalization: distribution in the socially favourable groups of population with activation of the sexual way of transmission, the increase of infecting the women and correspondingly the increase of children, born from HIV infected mothers is observed. The majority of these women have in anamnesis the injection drug addiction that leads to creation of the unfavourable families and big rate of abandoned children, deterioration of clinical examination and increase of the children's infection. In Novgorod region enough high frequency of HIV infection transmission from mother to child is observed, which as a result of intensification of the prophylactic work in this region, is essentially lower the indicators of the Russian Federation, but prevails such one in the countries of the Western Europe.

For reduction of HIV infection distribution in the Russian Federation it is necessary to implement prophylactic measures, giving the notable effect. The prophylactic measures, directed on the groups of population, which can be infected or can distribute HIV with the utmost

probability must be the most priority.

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