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MAIN TRENDS OF HIV MORBIDITY, DISABILITY AND MORTALITY IN THE IRKUTSK REGION

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Purpose of the study: assessment of the trend of changes in the incidence of HIV infection, mortality from HIV infection, as well as disability of the adult population from HIV infection in a region with a high prevalence of the population.

Materials and methods of research. A retrospective descriptive-epidemiological study was carried out using continuous samples of statistical data for the Irkutsk region for 2010-2019. The pairwise Spearman correlation coefficient was used to assess the degree of relationship between mortality and HIV incidence over the years. Statistical processing of the results was carried out using the MS Excel 2010 package. Spearman's correlation coefficient, regression equations and χ^2 were calculated using the EpiInfo program.

Results and discussion. In the Irkutsk region, since 2018, there has been a decrease in the incidence of HIV infection in the total population. In recent years, the main risk group is represented by the age group of 30-39 years; the role of women and the heterosexual transmission pathway has significantly increased. Against the background of a decrease in the total mortality of the population from 1544.2 per 100 thousand in 2000 to 1317.7 in 2019 ($p < 0.01$), the mortality rate for the class "Some infectious and parasitic diseases" for the analyzed period, on the contrary, increased; the increase was 155.3%. The dynamics of the death rate from HIV infection had a steady upward trend, the Tpr. amounted to 6.31%. During the follow-up period, the rate of primary disability of the adult population due to HIV infection increased by 2.2 times from 1.3 to 2.9 per 10,000 population. Among the subjects of the Russian Federation, the Irkutsk Region ranked first in terms of primary disability of the adult population due to HIV infection in 2010 and second in 2019. Among the adult population recognized as disabled for the first time due to HIV infection, people of working age predominate – 98.6% in 2019.

Conclusion: Despite the decrease in the incidence of HIV infection, the stabilization of the mortality rate from HIV infection and disability of the population due to HIV infection in the Irkutsk region, these indicators significantly exceed the national ones, which indicates an unfavorable situation in general and requires additional measures to optimize preventive programs and epidemiological supervision.

Keywords: HIV infection, morbidity, mortality, disability.

Introduction. The HIV pandemic remains the world's leading global problem. The social and economic significance of HIV infection is due to a number of indicators: a high incidence and prevalence rate, a long course of the disease, damage to a predominantly working-age population, and, despite the success of antiretroviral therapy, a high mortality rate [2, 8]. In the Russian Federation, the decline in the incidence of HIV infection con-

tinued in 2019. Against the background of increasing testing of the population, the incidence rate was 66.2 per 100,000 population. HIV is actively spreading in the general population, more than half of the patients diagnosed for the first time in 2019 were infected during sexual intercourse (63.9%). In recent years, age groups at risk are represented by persons 30–35 years of age and older [11]. Against the background of an increase in the total number of HIV-infected patients, the number of deaths from this disease is also increasing. Accordingly, the share of HIV infection in the mortality structure of the population of the Russian Federation is increasing. It is HIV infection that today is the leading cause of death of young people from infectious and parasitic diseases. Recently, HIV infection is increasingly the cause of primary disability in the adult population [5, 6].

For a number of years, the Irkutsk region has been one of the regions, unfavorable in terms of the incidence and prevalence of HIV-infected population. Mortality rates from HIV infection and disability from HIV infection in the region exceed those in the Russian Federation [1, 3, 4].

Purpose of the study: assessment of the trend of changes in the incidence of HIV infection, mortality from HIV infection, as well as disability of the adult population from HIV infection in a region with a high prevalence of the population.

Materials and methods of research.

A retrospective epidemiological analysis was carried out according to the data of the state statistical reporting forms: No. 2, 7-social security and C52 for 2010-2019, statistical collections "The main indicators of primary disability in the adult population in the Russian Federation" Center for the Fight against AIDS FBUN "Central Research Institute of Epidemiology" Rospotrebnadzor RF (<http://www.hivruussia.info>).

Assessment of the relationship of indicators is calculated using the pairwise Spearman correlation coefficient. Statistical processing of the results was carried out using the MS Excel 2010 package. Spearman's correlation coefficient, regression equations and χ^2 were calculated using the EpiInfo program.

Results and discussion. For a long time, the Russian Federation was one of the territories where the increase in the incidence of HIV continued. Since 2018, the number of newly diagnosed cases of diseases has stabilized [6, 8].

In the Irkutsk region, HIV infection began to be registered in the early 1990s. In 1999, an epidemic rise in the incidence was registered; in 2000, the number of registered new cases was the maximum [10]. Until 2017, the incidence of HIV infection tends to grow, the average annual growth rate was 2.16%. Since 2018, there has been a decrease in the incidence rate, as well as in the Russian

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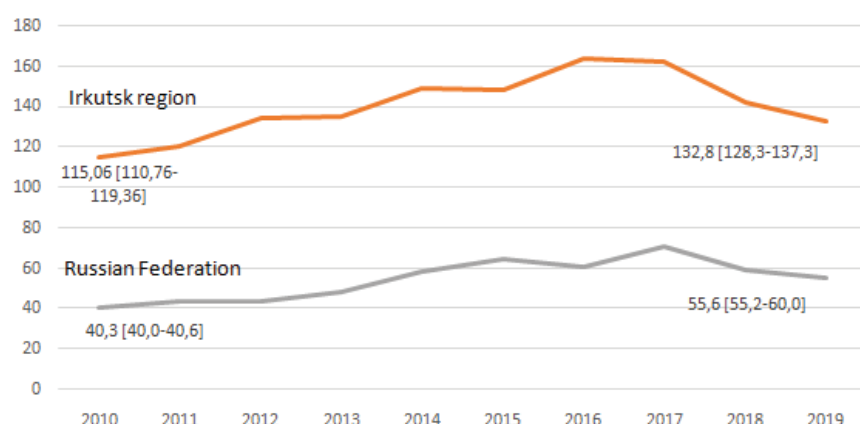


Fig. 1. The incidence of HIV infection among the population of the Irkutsk region and the Russian Federation in dynamics for 2010-2019. (per 100 thousand population)

Federation as a whole. For the analyzed period, the incidence rates in the Irkutsk region are significantly higher than the average for Russia (Fig. 1).

The structure of the incidence of HIV infection on the scale of the epidemic has undergone significant changes: an increase in the proportion of women, the proportion of older age groups and heterosexual transmission.

Infectious diseases are still one of the main causes of death, and to the extent this is due to HIV infection. The spread of HIV infection has a significant impact on the level and nature of mortality in the population. In the Russian Federation, the mortality rate is assessed by a number of authors as unfavorable [6, 8, 9].

In the Irkutsk region, since the beginning of registration of HIV infection, the mortality rate in the class "Some infectious and parasitic diseases" has increased, the increase was 155.3%. These changes took place against the background of a decrease in overall mortality. There was a marked positive correlation with the prevalence of HIV infection, $r = 0.83$, $p < 0.01$.

When comparing the mortality rates of the population from infectious and parasitic diseases with mortality from HIV infection, a relationship between these indicators was noted, $r = 0.81$, $p < 0.01$.

In total, more than 30 thousand people died in the region in 2019, 995 of them from HIV infection, which amounted to 3.1% of the total number of deaths and 60.0% of the number of deaths from infectious and parasitic infections (Table 1).

During the analyzed period, the dynamics of the mortality rate from HIV infection in the Irkutsk region, as well as in the Russian Federation in relation to growth trends [12], an increase of 6.31% and 5.29%, respectively. Over the past three years (2017-2019), the mortality

rate in the Russian Federation has stabilized. In the Irkutsk region in 2019, there was a slight decrease in the mortality rate, the average annual rate of decline was -1.83%. The indicators of the HIV epidemic in the region are higher than the average for Russia (Fig. 2). In 2019, the region in terms of mortality from HIV infection was ranked II among 85 subjects with an indicator of 41.6 (per 100 thousand population), exceeding the national level by 3 times.

By 2024, the Government has set the task of reducing mortality rates [7], however, in the structure of mortality, the share of HIV infection is increasing and is the leading cause of death in people of working age [6, 8, 12, 13].

Among the constituent entities of the Russian Federation, the Irkutsk Region took 1st place in terms of the level of primary disability of the adult population due to HIV infection in 2010 and II - in 2019 (after the Sverdlovsk Region). During the observation period, the indicator of primary disability of the adult population due to HIV infection in the Irkutsk region increased 2.2 times from 1.3 to 2.9 per 10,000 population, and since 2016 this indicator has stabilized for the period 2016-2018. the maximum level was recorded - 3.2 per 10,000 population with a subsequent decrease in 2019. In the Russian Federation, the level of primary disability continues to grow, the average annual growth rate was 6.23%. The level of primary disability of the adult population in the region was higher than the national average (Fig. 3).

Among the adult population, for the first time recognized as disabled due to "HIV infection", persons of working age prevail - 98.6% in 2019 (of which 18-

Table 1

Causes of death of the population of the Irkutsk region in 2000 and 2019 (according to Irkutskstat data)

Cause of death	2000 r.			2019 r.			χ^2	p
	absolute number	%	per 100 thousand	absolute number	%	absolute number		
All causes	40829	100	1544.2	31553	100	1317.7	449.9	<0.001
Infectious and parasitic diseases	1112	2.7	42.1	1657	5.2	65.4	285.5	<0.001
HIV infection	1	0.002	0.036	995	3.1	41.5	1262.1	<0.001

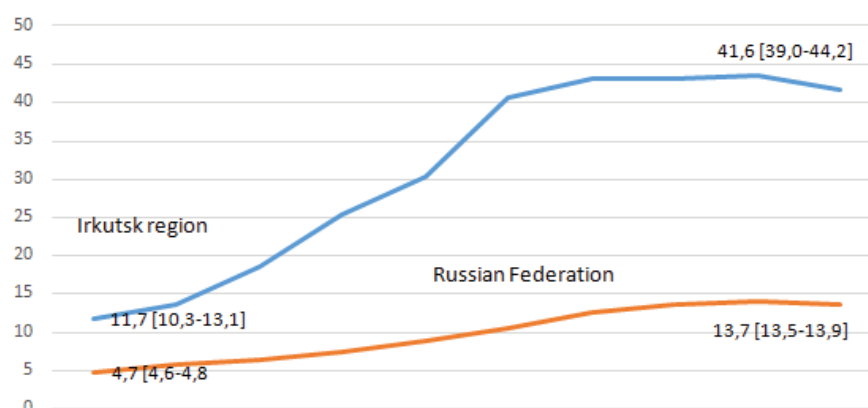


Fig. 2. Mortality from HIV infection of the entire population of the Irkutsk region and the Russian Federation in dynamics for 2010-2019. (per 100 thousand population)

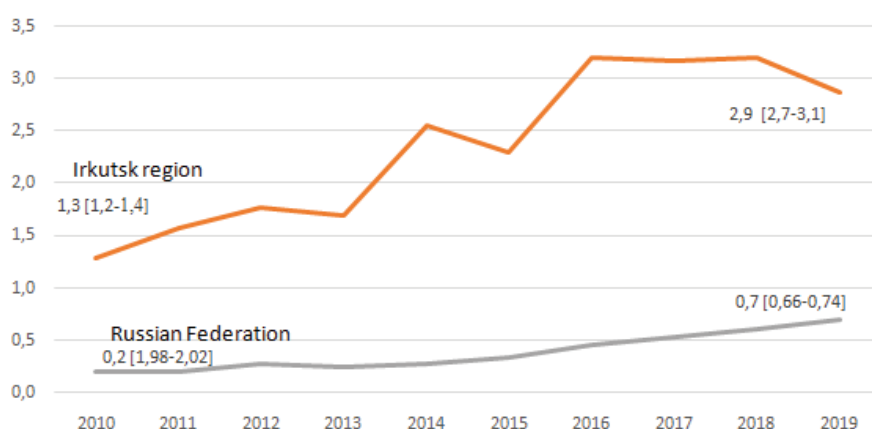


Fig. 3. The level of primary disability due to HIV infection among the adult population of the Irkutsk region and the Russian Federation in dynamics for 2010-2019. (per 10 thousand adults)

44 years - 87.6%). During the analyzed period, the indicators of primary disability among the population aged 18-44 increased from 2.2 to 4.7 per 10,000 people, among women 45-54 years old and men 45-59 years old - from 0.4 to 2.5 per 10,000. 10,000 people. (Table 2). The registered age indicators of primary disability due to HIV infection in the region exceed those in the Russian Federation.

In the structure of the contingent, for the first time recognized as disabled due to HIV infection during the observation period, disabled people of group II prevail

(Table 3). the share of disabled persons of group I in the Irkutsk region practically did not change, and in the Russian Federation increased from 9.9 to 14.8%.

Conclusion: Despite the decrease in the incidence of HIV infection, the stabilization of the mortality rate from HIV infection and disability of the population due to HIV infection in the Irkutsk region, these indicators significantly exceed the national ones, which indicates an unfavorable situation in general and requires additional measures to optimize preventive programs and epidemiological supervision:

Table 2

Primary disability of the adult population of the Irkutsk region and the Russian Federation from diseases caused by HIV, taking into account age (absolute number, level per 10 thousand people of the corresponding age)

Years	Territory	Indicators by age group					
		absolute number			indicator for 10 thousand		
			45-54(f) и 45-59(m)	ст.55(f) и ст.60(m)	18-44	45-54(f) и 45-59(m)	ст.55(f) и ст.60(m)
2010	Irkutsk region	228	17	0	2.2	0.4	0.0
	Russian Federation	1835	231	29	0.3	0.1	0.0
2019	Irkutsk region	426	90	6	4.7	2.5	0.1
	Russian Federation	6211	1564	154	1.1	0.7	0.0

Table 3

Primary disability of the population of the Irkutsk region and the Russian Federation due to diseases caused by HIV, taking into account the disability group (absolute number, %)

Years	Territory	Indicators by disability group					
		absolute number			%		
		I group	II group	III group	I group	II group	III group
2010	Irkutsk region	24	158	63	9.8	64.5	25.7
	Russian Federation	207	1050	838	9.9	50.1	40.0
2019	Irkutsk region	50	310	162	9.6	59.4	31.0
	Russian Federation	1176	4079	2674	14.8	51.4	33.7

1. Increase in population screening for antibodies to HIV, including those not belonging to key groups.

2. Timely identification and treatment of secondary and concomitant diseases that are the causes of death and early disability.

3. Increase in funding for prevention programs (including information and educational activities) among different age groups of the population.

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EVALUATION OF PHYSICAL DEVELOPMENT OF CHILDREN AND ADOLESCENTS OF DIFFERENT ETHICAL GROUPS, LIVING IN THE REPUBLIC OF SAKHA (YAKUTIA)

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To justify the use of regional standards for the physical development of children living in the Republic of Sakha (Yakutia) on the basis of their ethnic predisposition the data were analysed obtained during preventive examinations in 2019-2020 in the territory of the republic. The evaluation of the physical development of children aged 3 months up to 17 years was conducted as well as the comparative analysis of the compliance of centile tables CDC, WHO and regional normative scales of physical development. It was found that the regional compliance standards most adequately reflect indicators of the physical development of children in the studied populations.

Keywords: physical development, centile corridor, anthropometry, Sakha, indigenous peoples of the north (ipoten), Russians.

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Introduction. As it is known, the physical development of a child is understood as the dynamic process of growth (increase in body length and weight, development of organs and body systems) and biological maturation of the child as he grows up. The physical development of children is tightly connected with cognitive and social development, and is one of the indications of social wellness of the population [1,5,6].

Negative factors that affect the prenatal period and early childhood can disrupt the sequence of growth and development of the body, in some cases causing irreversible changes [4].

External factors, such as nutritional conditions, upbringing, the presence of diseases, social and other factors during the period of intensive growth and development of a child, can have a great influence on the characteristics of physical development [5,7]. The share of physi-

cal development, inherited and acquired in programming, has been the subject of discussion over the past several decades. [8,9,10,11,12]. The variability of the share of inherited factors in the determinants of the final growth of an individual is 45 - 85%, and this share is largely determined by the assessment method and is associated, in particular, with race and ethnicity [11].

In recent years, a tendency towards disharmonious development of children has been observed everywhere, mainly due to the widespread prevalence of both overweight and underweight [3,5].

The known polygenicity of the peoples inhabiting the Republic of Sakha (Yakutia), and the lifestyle of the indigenous population formed in the course of biocultural adaptation to harsh climatic conditions, suggest the presence of a peculiarity of the anthropometric characteristics of the population, which are