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ANALYSIS OF THE MEDICAL AND DEMOGRAPHIC SITUATION IN THE REPUBLIC OF SAKHA (YAKUTIA) IN THE CONTEXT OF HEALTH THREATS DUE TO THE COVID-19 PANDEMIC

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The analysis of fertility, morbidity (primary and general) and mortality in the Republic of Sakha (Yakutia), in dynamics, over a 10-year period (2013-2022). Differences in the structure of morbidity in the Republic of Sakha (Yakutia) and in the Russian Federation as a whole were revealed. The peak of mortality rates of the urban and rural population of the Republic of Sakha (Yakutia), caused by the COVID-19 pandemic, has been determined. Problematic aspects of rural health care have been identified, as well as diseases complicated by the pandemic that require rehabilitation. The results of the study should be taken into account by health authorities and institutions for management decisions on countering challenges and threats to the health of the population of the Republic of Sakha (Yakutia) caused by a new coronavirus infection.

Keywords: Republic of Sakha (Yakutia), health threats, morbidity of the population, rural health, COVID-19.

Introduction. The geopolitical and demographic situation in Russia and its territories necessitates the development of a promising model of medical and demographic policy [8, 9, 11, 13].

Inequality in the provision of medical care to the population of Russia is associated with geographic, climatic and national characteristics, as well as the territorial accessibility of medical care to rural residents [5]. The Republic of Sakha (Yakutia) (RS(Y)) is part of the Far Eastern Federal District (FEFD), which is the largest in the Asia-Pacific region [6, 12]. The COVID-19 pandemic has worsened the medical and demographic situation in the Russian Federation and its regions, including the Far Eastern Federal District and the Republic of Sakha (Yakutia) [1, 2, 4, 7].

The purpose of the study: to provide an analysis of the medical and demographic situation and newly identified morbidity among the population, including rural ones, in the Republic of Sakha (Yakutia) during the COVID-19 pandemic and to develop proposals for management decisions in healthcare at the regional and municipal levels.

Materials and methods of research: statistical and analytical. Materials from Rosstat, data from official state statistics of the Ministry of Health of Russia and the Republic of Sakha (Yakutia) were used.

Results and discussion. The Republic of Sakha (Yakutia) belongs to the Arctic territories of the Russian Federation, including the Arkhangelsk region, Krasnoyarsk region, Murmansk region, Chukotka, Nenets, Yamalo-Nenets autonomous districts, the Republic of Karelia, Komi. The Arctic zone of the Republic of Sakha (Yakutia) includes Anabarsky, Abyysky, Allaikhovsky, Bulunsky, Vernoyansky, Verkhnekolymsky, Srednekolymsky, Eveno-Bytantaysky and Ust-Yansky national uluses, Zhigansky, Momsky, Nizhnekolymsky, Oleneksky national districts. About 68 thousand people live here. (6.9% of the total population of the republic).

The Republic of Sakha (Yakutia) is a large administrative territory and ranks 8th in the world in terms of area (more than 3 million km2). The permanent population as of January 1, 2023 amounted to more than 997.6 thousand people, while the population density in the republic is tens of times lower than in the central part of Russia. The share of the urban population is 67.2%, the rural population is 32.8%, in the Russian Federation the share of the rural population is 36.9%.

Over 10 years of study in the Republic of Sakha (Yakutia), the mortality rate by 2021 increased from 8.7 to 10.7‰0 due to COVID-19; in 2022, the rate dropped sharply and amounted to (8.3‰). The birth rate in the Republic of Sakha (Yakutia) over the 10 years of analysis decreased from 17.5 to 11.8‰. In the Russian Federation, the mortality rate was (in 2022): mortality 12.9‰, birth rate 8.8‰.

The mortality rates of the rural population in the Republic of Sakha (Yakutia) for all years of analysis are significantly higher than those of the urban population; in 2022 the indicator was 9.5, urban -7.7 per 1000 of the corresponding population (Fig. 1). In the Russian Federation, these figures are 13.8 and 12.6‰, respectively.

A comparative analysis of the main causes of death in the RS(Y) and in the Russian Federation in 2022 showed that in the RS(Y) the indicators for all main causes of death were lower than in the RF. Mortality in the Republic of Sakha (Yakutia) is lower than in the Russian Federation: due to diseases of the digestive system (46%), some infectious and parasitic diseases (39), diseases of the circulatory system (36), neoplasms (36), diseases of the respiratory system (25%). Mortality from injuries, poisoning and some other consequences of external causes in the Republic of Sakha (Yakutia) is 12% higher than in the Russian Federation.

The average life expectancy at birth (number of years) in the Republic of Sakha (Yakutia) in 2022 was 72.7 years for the entire population (men 67.7, women 77.6). In rural areas for men this figure is low – 66.7 years.

During the study, an analysis was carried out of the newly identified morbidity in the Republic of Sakha (Yakutia) in pre-Covid 2019 and subsequent, so-called Covid years (2020-2022). In the covid year of 2020, compared to the pre-covid year of 2019, in the Republic of Sakha (Yakutia), the primary incidence decreased by 12.5%, from 103291.2‰$_{00}$ to 90425.5‰$_{00}$, which was the result of a decrease in preventive and dispensary work in the republic, as well as quarantine restrictions, which reduced the number of patients.

In the next 2021-2022. indicators began to increase and in 2022 the primary incidence rate was 123709.1‰$_{00}$, which is 19.8% higher than in pre-Covid 2019 (103291.2‰$_{00}$). This indicates the strengthening of preventive and clinical work with the population in the Republic of Sakha (Yakutia) at the regional and municipal levels.

During covid years 2020-2022. In the Republic of Sakha (Yakutia), there has been an increase in morbidity complicated by the COVID-19 pandemic. In 2022, compared to the pre-Covid year (2019), the incidence of diseases detected for the first time in the class of musculoskeletal and connective tissue diseases increased by 21.1% (from 2625.6 to 3178.8‰$_{00}$), this is mainly arthropathy, determining dorsopathies, rheumatoid arthritis, etc.

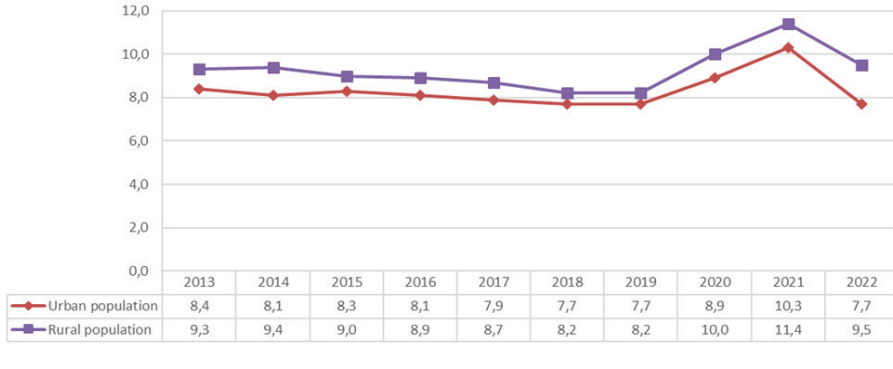
The COVID-19 pandemic has further aggravated the unfavorable situation with respiratory diseases in the republic, which is an Arctic region with a low population density. In the class of “respiratory diseases” in 2022, newly diagnosed morbidity increased by 13.7% compared to 2019 - from 57978.5 to 65916.2‰$_{00}$, this was mainly due to an increase in lesions of the upper respiratory tract. At the same time, the coronavirus determined the increase in clinical manifestations of pneumonia caused by the high tropism of the SARS-COV-2 virus to lung tissue with subsequent severe complications.

The noted increase in morbidity (primary) over the years of our analysis in the class “diseases of the blood, hematopoietic organs and individual disorders involving the immune mechanism” (by 4.3%) was associated mainly with anemia (which accounted for 88% in this class of diseases) and bleeding disorders, purpura, other hemorrhagic conditions (2.7%), etc.

The analysis indicates the need for an in-depth study of morbidities complicated by the pandemic at the municipal and regional levels, as well as the introduction of patient rehabilitation programs and the development of management decisions to enhance treatment and recreational activities for the population of the Republic of Sakha (Yakutia).

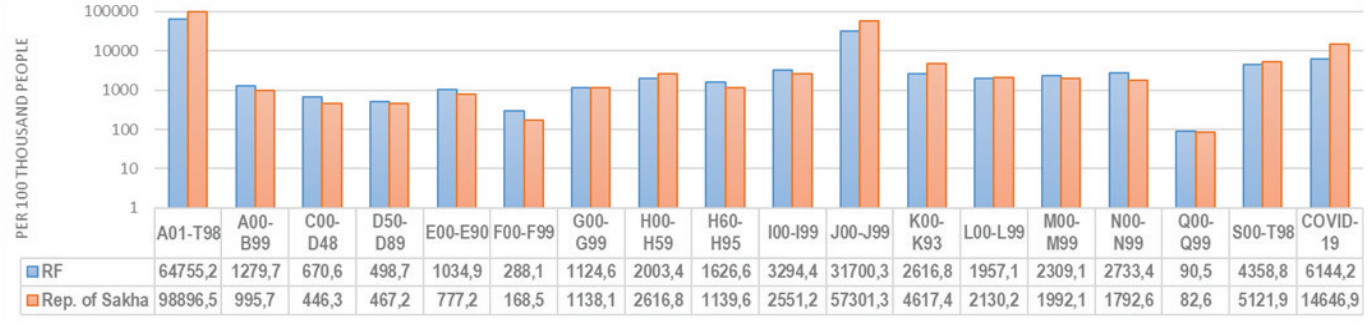
It should be noted that the incidence of COVID-19 in the Republic of Sakha (Yakutia) in 2020 was 4806.7‰00, in 2021 it increased to 9323.1‰$_{00}$, in 2022 the figure increased further to 17196.6‰$_{00}$, which is 3.6 times higher than in 2020. In the Russian Federation, this figure was respectively 3391.1; 8063.4 and 8538.0‰$_{00}$.

Fluctuations in the incidence of COVID-19 in the constituent entities of the Russian Federation amounted to 15.8 times, from 1089.3‰$_{00}$ in the Chechen Republic to 17195.6 in the Republic of Karelia. This is to a certain extent the result of the ambiguity in the coding of this pathology. It should be noted that the mortality rate from COVID-19 in the Republic of Sakha (Yakutia) was significantly lower (47.1‰$_{00}$) than in the Russian Federation as a whole (94.9‰$_{00}$), which indicates the effectiveness of the response of bodies and institutions to the pandemic situation healthcare in the republic.



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Urban population	8,4	8,1	8,3	8,1	7,9	7,7	7,7	8,9	10,3	7,7
Rural population	9,3	9,4	9,0	8,9	8,7	8,2	8,2	10,0	11,4	9,5

Fig. 1. Mortality rates for the urban and rural population of the Republic of Sakha (Yakutia) in 2013-2022. (per 1000 of the corresponding population). Source: Sakha (Yakutia) stat



	A01-T98	A00-B99	C00-D48	D50-D89	E00-E90	F00-F99	G00-G99	H00-H59	H60-H95	I00-I99	J00-J99	K00-K93	L00-L99	M00-M99	N00-N99	Q00-Q99	S00-T98	COVID-19
RF	64755,2	1279,7	670,6	498,7	1034,9	288,1	1124,6	2003,4	1626,6	3294,4	31700,3	2616,8	1957,1	2309,1	2733,4	90,5	4358,8	6144,2
Rep. of Sakha	98896,5	995,7	446,3	467,2	777,2	168,5	1138,1	2616,8	1139,6	2551,2	57301,3	4617,4	2130,2	1992,1	1792,6	82,6	5121,9	14646,9

Name and code of disease classes according to ICD-10:
A01 - T98. Total diseases, including: A00-B99 Some infectious and parasitic diseases;
C00-D48 Neoplasms; D50-D89 Diseases of the blood, hematopoietic organs and certain disorders involving the immune mechanism; E00-E90 Diseases of the endocrine system, nutritional disorders and metabolic disorders; F00-F99 Mental and behavioral disorders; G00-G99 Diseases of the nervous system; H00-H59 Diseases of the eye and its adnexa; H60-H95 Diseases of the ear and mastoid I00-I99 Diseases of the circulatory system; J00-J99 Respiratory diseases; K00-K93 Diseases of the digestive system; L00-L99 Diseases of the skin and subcutaneous tissue; M00-M99 Diseases of the musculoskeletal system and connective tissue; N00-N99 Diseases of the genitourinary system; Q00-Q99 Congenital anomalies [malformations], deformations and chromosomal disorders; S00-T98 Injuries, poisoning and certain other consequences of external causes

Fig. 2. Morbidity rates (primary) for the rural population in the Russian Federation and in the Republic of Sakha (Yakutia) (2022) depending on the class of diseases (ICD-10) (per 100,000 of the corresponding population) [10]

Taking into account the climatic and geographical features of the Arctic zone of the Republic of Sakha (Yakutia), we analyzed the indicators of newly identified morbidity among the rural population in the Republic of Sakha (Yakutia) in comparison with the Russian Federation (2022), which made it possible to identify problematic aspects of providing medical care to rural residents.

The analysis established that, in general, the primary morbidity rate of rural residents in the RS(Y) is almost 1.5 times higher than in the Russian Federation (the indicator is 98896.5 and 64755.2‰$_{00}$, respectively). In the Republic of Sakha (Yakutia), higher rates were noted in the following classes: "diseases of the respiratory system" (80.8% higher), "diseases of the digestive system" (76.5), "diseases of the eye and its appendages" (up 30.6), "injuries, poisoning and some other consequences of external causes" (by 17.5%), etc. (Fig. 2).

At the same time, rural residents in the Republic of Sakha (Yakutia) showed lower rates of primary morbidity in the following classes than in the Russian Federation: "mental disorders and behavioral disorders" (by 41.5%), "diseases of the genitourinary system" (by 34.4), "neoplasms" (by 33.4), "diseases of the ear and mastoid process" (by 29.9), "diseases of the circulatory system" (by 22.6%), etc.

The reasons for the lower newly diagnosed incidence among the rural population in the Republic of Sakha (Yakutia) is the poor territorial accessibility of medical care for residents of rural settlements, which determines the importance of strengthening preventive and dispensary work with this contingent of patients.

The results of the analysis determine the importance of rehabilitation of rural residents with this pathology, the implementation of dispensary observation and preventive work in rural areas.

Conclusion. Over the 10 years of our study (from 2011 to 2022), in the Republic of Sakha (Yakutia) there was an increase in mortality from 8.7 to 10.7‰$_{0}$ due to COVID-19; in 2022, the figure decreased and amounted to (8 .3%). The birth rate in the Republic of Sakha (Yakutia) over the 10 years of analysis decreased from 17.5 to 11.8‰. In the Russian Federation, the mortality rate was 12.9‰, the birth rate – 8.8‰. The mortality rate of the rural population in the Republic of Sakha (Yakutia) is significantly higher than in the city; the figures were respectively: village - 9.5‰ and city - 7.7‰. The incidence of COVID-19 in the Republic of Sakha (Yakutia) is growing and in 2020 it was 4806.7‰$_{00}$, in 2021 - 9323.1, in 2022 - 17196.6, which is higher than in 2020, 3.6 times. In the Russian Federation, the figures were 3391.1, 8063.4 and 8538.0‰$_{00}$, respectively. In the constituent entities of the Russian Federation, fluctuations in the incidence of COVID-19 amounted to 15.8 times.

In 2020, the Covid year, compared to the pre-Covid 2019 in the Republic of Sakha (Yakutia), the primary incidence decreased by 12.5%, from 103291.7 to 90425.6‰$_{00}$. In the subsequent covid years in the Republic of Sakha (Yakutia), there was an increase in morbidity, complicated by the COVID-19 pandemic and requiring rehabilitation, in the following classes: "respiratory diseases", "blood diseases, hematopoietic organs and certain disorders involving the immune mechanism", "diseases musculoskeletal system and connective tissue", etc.

A comparative study of the newly identified morbidity of the rural population in the Russian Federation and in the Republic of Sakha (Yakutia) (2022) was carried out. The analysis revealed problematic aspects of rural health care. The incidence of disease detected for the first time among residents of rural settlements in the Republic of Sakha (Yakutia) is almost 1.5 times higher than in the Russian Federation. In the Republic of Sakha (Yakutia), higher and lower rates of newly diagnosed morbidity among rural residents than in the Russian Federation have been determined, which determines the need for their rehabilitation, clinical examination and preventive work in rural settlements.

Conclusions. The results of the study are important and should be used to develop management decisions to counter threats to public health in the Republic of Sakha (Yakutia) caused by coronavirus infection.

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TOPICAL ISSUE

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INCIDENCE OF HIV INFECTION AND AWARENESS OF HIV INFECTION AMONG THE POPULATION OF THE IRKUTSK REGION

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The article presents certain aspects of the epidemiological situation regarding HIV infection in the Irkutsk region: morbidity in adults, children and adolescents, dynamics of transmission routes and age groups at risk. According to the results of the sociological study, a satisfactory level of awareness of the region's residents on HIV infection issues has been shown, with significant differences by gender and age groups. The results obtained are necessary to increase the effectiveness of information and educational work among the population, with an individual approach to each gender and age group.

Keywords: HIV infection, morbidity, awareness, age groups at risk, prevention.

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Introduction. The epidemic spread of HIV infection continues on the territory of the Russian Federation (RF). In 2022, 34 constituent entities of the Russian Federation had rates of newly diagnosed morbidity that exceeded the Russian average [8]. The Irkutsk region is one of the five most disadvantaged regions: in 2022, the incidence rate was 1.8 times higher than the all-Russian one (79.3 versus 43.3 per 100 thousand), the incidence rate was 2.5 times higher (1977.9 versus 794 .7 per 100 thousand, respectively) [8].

The economic damage caused by HIV infection in the Russian Federation in 2022 is estimated at 262.5 billion rubles. [8]. The high epidemiological, social and economic significance of the consequences of the spread of the human immunodeficiency virus (HIV) determines the main directions of prevention [9]. The leading preventive measure remains awareness-raising activities. Taking into account the peculiarities of the epidemiological situation in the region, the priority is to study the awareness of different age groups of the population on current issues of HIV infection.

Purpose of the study: to study the incidence of HIV infection and awareness in different age groups of the population of the Irkutsk region on the epidemiology