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DYNAMICS OF THE MAIN MEDICAL AND DEMOGRAPHIC INDICATORS OF MATERNAL AND CHILD HEALTH CARE IN THE ARCTIC REGIONS OF THE REPUBLIC OF SAKHA (YAKUTIA)

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The analysis of the main medical and demographic indicators of maternal and child health care in 13 Arctic regions of the Republic of Sakha (Yakutia) is presented in the article. It is demonstrated that the studied period is marked by a decrease in population size, and despite this, there are high birth rates, as well as high rates of total mortality, a significant decrease in the infant mortality rate, and high rates of child morbidity.

Keywords: demography, birth rate, mortality, morbidity, Arctic, Yakutia.

Introduction. The industrial development of the Arctic territories of Russia is one of the priorities of the state development. In the current geopolitical conditions, it acquires special significance [3,4]. In this regard, the development of such an important area of medicine as Arctic medicine requires consolidation and cooperation [1,6]. It is possible to determine the initial situation of health care in the Arctic territories by analyzing the main medical and demographic indicators that are public health parameters [2,5,6]. The state of health of children and adolescents in the Arctic has always been a priority. In recent years, extensive federal programs for the protection of women's and children's health in the Russian Federation have been approved and implemented. All this has significantly affected the availability and quality of medical care in the regions of the Arctic zone of the Russian Federation. And this program should be continued. After all, healthy children are the future of the Arctic.

Purpose of the study: to analyze the dynamics of the main medical and demographic indicators in the Arctic regions of the Republic of Sakha (Yakutia) in 2000-2022 in order to establish the main directions for improving the system of maternal and child health care.

Materials and Methods: The dynamics of the main medical and demographic indicators of maternal and child health protection in 13 Arctic regions of the Republic of Sakha (Yakutia) according to the data of the YARMIAC for the period of 2000-2022 was analyzed. Two time periods (2000 and 2022) were taken. The methodology of calculating the indicators of the dynamic series is used.

Results. Since 2000, the population in the Arctic regions of the Republic of Sakha (Yakutia) has decreased by 30%. Moreover, in 4 Arctic districts the population has decreased by more than 40%:

Allaihovsky, Verkhnekolymsky, Nizhnekolymsky and Ust-Yansky districts. The smallest population decline is in the Anabarsky District. The population growth is registered only in two districts namely Oleneksky and Eveno-Bytantaysky districts (3 and 4% respectively).

Certainly, the decrease in the population should be reflected in the number of children, but this trend does not fully correlate with the number of children. This is another point in the demographic development of the population, primarily due to the large number of children and the presence of 3 or more children in families. As shown in Table 1, the number of children in the Arctic regions of the Republic of Sakha (Yakutia) decreased by 33% between 2000 and 2022. In 5 districts, the number of children decreased by 40% or more: Abyisky, Allaikhovsky, Verkhnekolymsky, Verkhoyansky and Nizhnekolymsky districts. The lowest rate of decline in the number of child population was in 3 districts: Zhigansky, Oleneksky and Eveno-Bytantaysky districts (5%, 2%, 2% respectively).

As shown in Table 2, despite the rather serious population decline, the average birth rate in the 13 Arctic regions remains at the level of 14.4‰. Compared to 2000, the birth rate decreased by 0.1 unit and the rate of decline was only 1%. The stable high birth rates are observed in the same districts where the population size is preserved, these are Anabarsky and Bulunsky districts. The birth rate increased in the following districts: Allaihovsky (18%), Verkhnekolymsky (24%), Zhigansky (20%), Oleneksky (39%) and Ust-Yansky (70%). The largest decrease in the birth rate in two districts: Bulunsky (27%), Momsky (36%).

The mortality rate is stably higher than the national one and has no tendency to decrease. For 2000-2022 this indicator decreased by 0.3‰, the rate of decline amounted to only 3%. The high growth rate of mortality rate is observed in Abyisky (36%), Allaihovsky (54%), Verkhnekolymsky (41%), Oleneksky (16%), Srednekolymsky (20%), Ust-Yansky (21%) Districts. The mortality rate decreased in 3 districts: Anabarsky (-39%), Bulunsky (-21%), Eveno-Bytantaysky (-37%).

As shown in Table 3, the mortality rate of the child population increased significantly during the period under study. Thus, the highest rate of increase is in the following districts: Nizhnekolymsky, Ust-Yansky, Allaihovsky.

The modernization and improvement of the pregnancy routing allowed for a 23-year period to reduce significantly the infant mortality rate in the country as a

Table 1

Child population in the Arctic regions of the Republic of Sakha (Yakutia)

Districts	Population of children		Absolute growth (by how many units the 2022 indicator > or < that of the 2000 indicator)	Growth rate, %
	2000 г.	2022 г.		
Abyisky	1541	783	-758	-49
Allaikhovsky	1072	638	-434	-40
Anabarsky	1256	1029	-227	-18
Bulunsky	2812	1986	-826	-29
Verkhnekolymsky	1659	745	-914	-55
Verkhoyansky	4229	2357	-1872	-44
Zhigansky	1352	1282	-70	-5
Momsky	1735	1253	-482	-28
Nizhnekolymsky	1892	1016	-876	-46
Oleneksky	1517	1488	-29	-2
Srednekolymsky	2966	2047	-919	-31
Ust-Yansky	2952	1791	-1161	-39
Eveno-Bytantaysky	799	787	-12	-2
Average for Arctic regions	25782	17202	-8580	-33
RS (YA)	306208	224438	-81770	-27

Table 2

Birth rate in the Arctic regions of the Republic of Sakha (Yakutia)

Districts	Birth rate (per 1000 of population)		Absolute growth (by how many units the 2022 indicator > or < that of the 2000 indicator)	Growth rate. %
	2000 г.	2022 г.		
Abyisky	15.4	13.3	-2.1	-14
Allaikhovsky	15.3	18.1	2.8	18
Anabarsky	19.7	19.4	-0.3	-2
Bulunsky	14.6	10.6	-4	-27
Verkhnekolymsky	10.0	12.4	2.4	24
Verkhoyansky	15.0	13.0	-2	-13
Zhigansky	12.6	15.1	2.5	20
Momsky	17.3	11.0	-6.3	-36
Nizhnekolymsky	11.6	10.4	-1.2	-10
Oleneksky	11.6	16.1	4.5	39
Srednekolymsky	13.9	12.1	-1.8	-13
Ust-Yansky	9.0	15.3	6.3	70
Eveno-Bytantaysky	22.6	20.2	-2.4	-11
Average for Arctic regions	14.5	14.4	-0.1	-1
RS (YA)	13.5	11.9	-1.6	-12

whole and in a number of Arctic regions. In general, the infant mortality rate in all Arctic regions decreased by 72% and amounted to 7.9‰ in 2022. Thus, according to Table 4, eight districts did not allow infant mortality in 2022. The infant mortality rate increased only in Verkhnekolymsky Raion. We can safely say that these indicators demonstrate the origins of the phenomenal vitality of the people in the sharply continental conditions of life in the Arctic. A huge reserve for preserving the health of the population in the Arctic has been revealed in the creation and organization of an effective system in practical perinatology and pediatrics. Evidently, this is not the limit.

As shown in Table 5, the average morbidity rate of the child population in the Arctic regions of the Republic of Sakha (Yakutia) increased by 24%. However, when considering the dynamics of the indicator for the period under study, its range is very wide. There are even districts in which the incidence rate of the child population in 2022 decreased significantly: Bulunsky, Verkhnekolymsky, Verkhoyansky, Zhigansky, Eveno-Bytantaysky districts. In general, the dynamics shows an increase in the morbidity rate of the child population in the Arctic regions of the Republic of Sakha (Yakutia). Taking into account the fact that the morbidity indicator is formed on the basis of data on the population turnover, it can be assumed that it is difficult to present a real picture of the health status of the child population on the basis of its data.

Discussion. The analysis of the dynamics of the main medical and demographic indicators in the 13 Arctic regions of the Republic of Sakha (Yakutia) in 2000-2022 has shown the following trends:

1. A clear downward trend in population and child population in general (by 30 and 33%, respectively).
2. High birth rate (in 2022 -14.4‰).
3. High rates of total mortality (only 3% decrease) and mortality of the child population (3-fold increase).
4. Infant mortality rates have been significantly reduced (by 72%).
5. Morbidity among the child population has increased by 24%.

The improvement of the system of women's and children's health care in the Republic of Sakha (Yakutia) affects the main indicative medical and demographic indicators, but when analyzing the situation in the Arctic regions, the following trend is quite worrying: an increase in child mortality and child morbidity, which require urgent detailed analysis, the development of regional programs and

Table 3

Child mortality rate in the Arctic regions of the Republic of Sakha (Yakutia)

Districts	Mortality rate in children of 0-17 ages (per 10 000 of child population)		Absolute growth (by how many units the 2022 indicator > or < that of the 2000 indicator)	Growth rate, %
	2005 г.	2022 г.		
Abyisky	4.0	0	-4	-100
Allaikhovsky	2.2	12.7	10.5	477
Anabarsky	7.3	15.8	8.5	116
Bulunsky	0.7	0	-0.7	-100
Verkhnekolymsky	-	21.8		
Verkhoyansky	2.8	0	-2.8	-100
Zhigansky	-	0		
Momsky	0.6	0	-0.6	-100
Nizhnekolymsky	0.7	16.7	16	2286
Oleneksky	2.5	12.0	9.5	380
Srednekolymsky	2.1	4.1	2	95
Ust-Yansky	2.1	14.6	12.5	595
Eveno-Bytantaysky	-	11.0		
Average for Arctic regions	1.9	8.4	6.5	342
RS (YA)	1.3	4.6	3.3	254

Table 4

Infant mortality rate in the Arctic regions of the Republic of Sakha (Yakutia)

Districts	Infant mortality rate per 1000 of live births		Absolute growth (by how many units the 2022 indicator > or < that of the 2000 indicator)	Growth rate, %
	2000 г.	2022 г.		
Abyisky	25.0	0	-25	-100
Allaikhovsky	30.8	20.2	-10.6	-34
Anabarsky	95.9	14.1	-81.8	-85
Bulunsky	13.8	0	-13.8	-100
Verkhnekolymsky	15.9	20.8	4.9	31
Verkhoyansky	20.4	0	-20.4	-100
Zhigansky	12.5	0	-12.5	-100
Momsky	22.7	0	-22.7	-100
Nizhnekolymsky	22.5	0	-22.5	-100
Oleneksky	27.4	14.3	-13.1	-48
Srednekolymsky	7.1	0	-7.1	-100
Ust-Yansky	22.5	0	-22.5	-100
Eveno-Bytantaysky	54.1	33.9	-20.2	-37
Average for Arctic regions	28.5	7.9	-20.6	-72
RS (YA)	17.6	3.9	-13.7	-78

Table 5

Childhood morbidity rate in the Arctic regions of the Republic of Sakha (Yakutia)

Districts	Morbidity in children (per 1000 of population)		Absolute growth (by how many units the 2022 indicator > or < that of the 2000 indicator)	Growth rate, %
	2000 г.	2022 г.		
Abyisky	1783.3	2742.7	959.4	54
Allaikhovsky	1518.7	2656.4	1137.7	75
Anabarsky	1163.9	2102.0	938.1	81
Bulunsky	1443.5	1120.9	-322.6	-22
Verkhnekolymsky	1753.4	1284.4	-469	-27
Verkhoyansky	1384.4	994.7	-389.7	-28
Zhigansky	1853.3	1202.4	-650.9	-35
Momsky	1564.9	1828.0	263.1	17
Nizhnekolymsky	1562.7	2889.5	1326.8	85
Oleneksky	1941.1	2635.0	693.9	36
Srednekolymsky	2570.4	2941.8	371.4	14
Ust-Yansky	1157.5	2717.1	1559.6	135
Eveno-Bytantaysky	1525.5	1168.6	-356.9	-23
Average for Arctic regions	1632.5	2021.8	389.3	24
RS (YA)	1658.3	2507.5	849.2	51

changes in the ideology of medical care for children in the Arctic regions, and interdepartmental work to reduce child mortality.

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