ORGANIZATION OF HEALTHCARE, MEDICAL SCIENCE AND EDUCATION

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MORBIDITY OF POPULATION IN THE CENTRAL ECONOMIC ZONE OF THE SAKHA (YAKUTIA) REPUBLIC

DOI 10.25789/YMJ.2019.65.18

ABSTRACT

The analysis of the incidence rate for the period 2007-2016 was carried out (in the age aspect - since 1992) in the Central Economic Zone of the Sakha (Yakutia) Republic, which included such regions / uluses as Amginsky, Gorny, Kobyaysky, Megino-Kangalassky, Namsky, Tattinsky, Ust-Aldansky, Khangalassky and Churapchinsky, and also the capital of the republic Yakutsk. According to medical and geographical zoning, these municipalities are part of a group of central and behind the river districts. At the same time, the general and primary morbidity of both the general population and the age range in adults and children (0-14 years) of the population was considered. According to the medical-demographic indicators and morbidity data, the most alarming situation is in Kobyai district, therefore, appropriate management decisions are needed from both the municipality and the Republic's Ministry of Health.

The analysis was carried by the percentile method, first as a whole in the Republic, then in the selected uluses. Thus, the incidence rate for these uluses is positioned in comparison with the indicators of all administrative-territorial entities of the Sakha (Yakutia) Republic.

Keywords: general morbidity, primary, adult morbidity, morbidity of children, Central Economic Zone, the Sakha (Yakutia) Republic.

Introduction. The indicator of the incidence of the population (general and primary, in the age aspect, according to the main classes of diseases, etc.) is one of the main criteria of public health. According to state or departmental statistics, the level of morbidity in one or another territory is determined. In the approved Strategy of socio-economic development of the Sakha (Yakutia) Republic until 2030, with the definition of the main directions until 2050, there are sections directly or indirectly affecting the health sector: demographic and family policy, innovative healthcare development, physical culture and sport, social protection of the population. In the section "Development of territorial planning" the entire territory of the republic is divided into 5 economic zones: Arctic, Western, Central, Eastern and Southern.

Since indicator values of the expected results are planned by 2030, there is a need to evaluate some or other characteristics of public health of the population at this stage, including morbidity. In this article, we will analyze the incidence in the Central Economic Zone (CEZ).

Material and methods of the research. In the article the materials of the official statistics of the Republic (Sakha (Yakutia) stat) and the Ministry of Health (YRMIAC) were used [1-3]. For the analysis of these statistical data, the percentile (centile) method used by us in developing the criteria for the regionalization of the North of the Russian Federation and for the preparation of a number of articles was used. According to this method, the areas with indicators up to the 10th percentile belonged to territories with a low incidence rate, from 10 to 25th percentile - with a level below the average, from 75 to 90 - above the average and over 90th per centile high level. Obviously, with the indices lying within the 25th to the 75th percentile, the regions belonged to a group with average morbidity rates.

The analysis was carried by the percentile method, first as a whole in the Republic, then in the selected uluses. Thus, the incidence rate for these uluses is positioned in comparison with the indicators of all administrative-territorial entities of the Sakha (Yakutia) Republic.

Results and discussion. The general and primary morbidity of the population of the Central economic zone in 2007-2016 is presented in Table 1. For the overall morbidity (morbidity), the best position is occupied by the Gorny and Khangalassi uluses - low-level periods were recorded for 4 years. After them there are the Megino-Kangalassky, Churapchinsky uluses

Table 1

The general and primary morbidity of the population of the CEZ RS (Ya) in 2007-2016. (per 1000 of population)

District	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
General morbidity										
Amginsky	2199,0	2272,2	2335,5	2666,3	2679,4	2851,8	2894,7	2566,1	2682,5	2302,9
Gorny	1648,9	1673,3	1829,8	1603,7	1515,6	1526,8	1602,6	1541,7	1659,3	1618,1
Kobyaysky	1891,0	1808,0	1969,8	1594,9	1841,0	2289,8	2476,2	2224,2	2474,1	2042,4
M-Kangalassky	1314,3	1315,3	1491,4	1688,9	1668,0	1834,1	2038,6	1960,4	2041,2	1816,2
Namsky	2399,8	2290,3	1974,4	1649,0	1669,2	1796,4	1892,3	1840,6	1819,9	1682,4
Tattinsky	1693,1	1658,5	1772,1	1936,7	1866,0	2044,5	2196,8	2085,0	1835,7	1818,7
Ust-Aldansky	1568,7	1524,3	1904,4	2065,4	2349,5	2341,8	2562,3	2341,4	1888,4	1881,7
Khangalassky	1276,8	1240,6	1350,2	1365,7	1501,2	1705,2	1819,1	1906,7	1931,7	1886,9
Churapchinsky	1717,6	1578,9	1821,2	1766,0	1694,2	1731,7	1752,1	1684,2	1717,5	1556,1
Yakutsk	1625,9	1671,6	1862,1	1852,5	1813,7	1697,6	1759,5	1742,2	1877,6	1806,7
In the RS (Ya)	1710,2	1759,2	1844,2	1858,7	1863,6	1930,3	2005,7	1973,7	2016,8	1919,2
Primary morbidity										
Amginsky	1332,2	1624,0	1618,5	1812,1	1818,4	1770,7	1804,6	1627,0	1528,6	1548,0
Gorny	901,2	869,7	1088,3	953,7	825,1	846,9	883,6	915,2	936,4	1151,6
Kobyaysky	1138,4	1071,7	1214,7	975,1	1095,8	1311,8	1476,9	1339,3	1391,8	1253,3
M-Kangalassky	717,6	715,6	825,2	946,8	908,1	937,0	1032,1	970,7	937,7	1021,1
Namsky	1348,6	1099,0	1028,0	850,3	820,9	889,3	1062,9	1049,9	836,0	931,7
Tattinsky	960,8	973,5	1059,4	1158,4	1117,8	1215,1	1344,6	1224,4	1063,4	1096,5
Ust-Aldansky	949,5	827,1	962,9	1131,6	1213,7	1144,6	1299,1	1253,8	642,0	1004,7
Khangalassky	717,7	695,1	708,3	786,5	880,5	1025,1	1069,8	1139,3	1090,3	1114,3
Churapchinsky	970,6	824,2	973,6	1031,7	1021,1	1041,7	1102,1	1024,0	1002,2	913,3
Yakutsk	829,4	947,3	1002,0	998,7	986,0	910,7	919,1	927,1	886,8	931,4
In the RS (Ya)	940,5	987,0	1014,8	1032,8	1046,0	1065,0	1106,4	1098,1	1026,6	1043,8

Note. In the Tabl. 1-3 legend:

3739,1	high morbidity	1416,5	level below average
3162,2	level above average	1158,3	low morbidity

and the city of Yakutsk - during this period, the average and below average morbidity levels are generally observed. Relatively high morbidity levels are observed in the Kobyaysky, Ust-Aldansky Ulus and, especially, in the Amginsky Ulus. Amginskiy Ulus "distinguished" by the fact that from 2007 to 2014 it had high levels of morbidity, although then the level decreased but still remained above mean value.

Primary morbidity was relatively high in the Amginsky and Kobyaysky ulus, with a high level in the Amginsky ulus for the entire period under review. In addition to average values, the level below the average and low was recorded in such regions as Megino-Kangalassky, Khangalassky, Churapchinsky, and also in Yakutsk.

The indicators of the general and primary morbidity of the adult population of the Central Economic Area for 1992, 1995, 2000, 2005 and the period 2010-2016 are presented in Table 2. It can be seen that in the Amginsky ulus, with the exception of 2005, then relatively high morbidity rates are observed. Also, not all is well for the overall morbidity in Ust-Aldansky (since 2005) and for the primary one in Kobyaysky.

The situation for the overall morbidity is better in Gorny (from 2012), Khangalassky (in 2005, 2010-2013) and Churapchinsky (from 2013) uluses. For primary morbidity, good indicators are observed in the Gorny (2012-2015), Megino-Kangalassky and Ust-Aldansky (before 2005) uluses and in Yakutsk (in 2000, 2013-2015).

As for children, the overall and primary morbidity of children in the CEZ is ambiguous: there are uluses with relatively high, and there are relatively low levels for 1992-2016 (Table 3). Thus, relatively high levels were registered in the Amginsky (from 2010) and Kobyay (in different years) ulus, relatively low - in Megino-Kangalassky (since 1995) and Ust-Aldansky (except for 2012 for the total incidence). Also good indicators for primary morbidity in the Gorny District, but here are the general years with an above average incidence rate (1992, 2005).

The conclusion. Thus, the situation of the overall and primary morbidity in 9 uluses / Districts and Yakutsk, representing the Central Economic Zone, is generally am-

Table 2

The general and primary morbidity of the adult population of the CEZ RS (Ya) in 1992, 1995, 2000, 2005, 2010-2016. (per 1000 adult population)

District	1992	1995	2000	2005	2010	2011	2012	2013	2014	2015	2016
General morbidity											
Amginsky	1022,6	1000,1	1485,7	977,2	2325,0	2362,8	2278,4	2292,5	2218,5	2331,4	1925,3
Gorny	1516,6	1320,8	1244,5	1429,1	1460,4	1459,5	1334,0	1386,7	1270,3	1369,1	1254,1
Kobyaysky	1332,5	1149,8	1072,5	1453,4	1278,3	1420,7	1811,2	2053,5	1758,2	2016,3	1563,8
M-Kangalassky	1166,6	970,8	1064,1	1147,5	1577,4	1612,3	1825,4	2084,8	1978,9	2057,4	1750,5
Namsky	1423,5	1258,2	1231,4	1401,6	1500,2	1569,5	1604,0	1617,0	1580,8	1614,6	1473,6
Tattinsky	1096,7	1052,7	1225,9	1547,1	1625,5	1746,9	1694,2	1758,5	1656,7	1493,4	1440,7
Ust-Aldansky	1034,6	820,5	816,4	1481,0	1696,2	1971,2	1751,4	2208,6	2183,7	1705,4	1735,2
Khangalassky	1226,1	1486,0	1148,5	1085,5	1074,3	1199,4	1386,2	1512,3	1496,1	1576,5	1446,8
Churapchinsky	842,7	696,6	985,5	1643,4	1566,9	1443,4	1397,6	1400,1	1419,7	1430,9	1307,6
Yakutsk	990,7	1053,9	1004,6	1323,1	1577,6	1599,9	1446,5	1510,2	1470,6	1599,2	1519,1
In the RS (Ya)	1167,8	1102,0	1098,3	1407,4	1590,4	1586,4	1647,0	1740,6	1708,6	1755,9	1635,8
Primary morbidity											
Amginsky	680,0	610,8	1011,5	464,6	1269,7	1208,6	1007,9	994,6	966,2	938,4	937,2
Gorny	756,9	735,3	642,6	631,9	661,5	594,4	537,9	535,5	530,3	491,3	626,9
Kobyaysky	881,9	684,9	505,9	705,3	562,0	577,5	759,0	991,5	763,7	790,8	588,2
M-Kangalassky	549,3	472,9	373,4	439,8	549,5	662,2	685,1	779,7	684,3	632,8	733,3
Namsky	924,1	693,9	665,8	779,3	559,6	557,5	552,7	603,2	586,1	464,2	626,5
Tattinsky	635,8	571,2	611,7	651,6	691,3	712,0	683,5	699,4	576,1	535,1	630,0
Ust-Aldansky	551,1	385,9	341,1	521,2	609,9	672,1	567,3	764,9	792,1	551,8	628,1
Khangalassky	636,3	681,0	520,8	474,8	447,3	493,4	600,5	611,6	590,3	589,9	539,2
Churapchinsky	543,0	356,6	535,9	703,9	634,1	608,5	554,5	612,8	579,5	534,2	469,0
Yakutsk	599,1	565,9	422,0	539,8	624,2	634,8	554,9	557,8	554,5	515,5	519,6
In the RS (Ya)	693,4	617,4	527,6	634,9	652,0	649,3	650,6	689,9	671,8	619,0	610,6

Table 3

The general and primary morbidity of the children of the CEZ RS (Ya) in 1992, 1995, 2000, 2005, 2010-2016. (per 1000 child population 0-14 years)

District	1992	1995	2000	2005	2010	2011	2012	2013	2014	2015	2016
General morbidity											
Amginsky	1543,9	1564,1	1544,3	1318,1	3358,8	3994,5	4069,6	4146,8	3319,7	3435,8	3152,2
Gorny	1930,0	1306,1	1465,3	2385,8	2039,1	1973,9	1963,7	2099,0	2101,5	2217,9	2396,2
Kobyaysky	2085,5	1764,7	1605,7	2310,7	2432,5	3076,6	3417,2	3443,4	3314,4	3502,0	3157,5
M-Kangalassky	1703,8	1254,4	1207,1	1381,0	1910,0	1807,0	1781,6	1885,6	1896,2	1916,1	1953,0
Namsky	2989,3	2295,2	1779,6	1866,8	1972,4	2076,7	2138,6	2536,1	2380,2	2249,8	2099,2
Tattinsky	1361,3	1569,4	1678,2	1809,6	2672,8	2861,6	2853,2	3249,7	3100,3	2595,2	2702,2
Ust-Aldansky	1564,4	1082,8	1167,0	1648,5	2985,9	3672,5	3278,8	3293,8	2621,0	2281,5	2162,0
Khangalassky	1671,7	1483,4	1470,5	1579,0	2251,1	2415,3	2660,4	2787,8	3148,3	3001,2	3202,3
Churapchinsky	1024,2	1089,8	1618,0	2449,7	2193,4	2267,1	2355,8	2491,0	2272,4	2309,9	2039,2
Yakutsk	1555,9	1838,4	1800,6	2349,5	2903,3	2934,4	2686,0	2720,4	2748,1	2862,7	2941,8
In the RS (Ya)	1601,9	1600,2	1658,3	2113,0	2736,1	2761,1	2828,9	2855,9	2779,1	2773,3	2774,5
Primary morbidity											
Amginsky	1343,6	1387,6	1369,1	1107,1	2886,2	3501,4	3451,3	3533,8	3037,9	2790,7	2876,0
Gorny	1382,6	968,2	1099,9	1579,4	1716,7	1546,2	1562,4	1692,3	1762,7	1837,1	2247,6
Kobyaysky	1849,3	1478,6	1349,2	1899,2	2086,6	1985,4	2668,8	2676,3	2684,7	2794,6	2870,6
M-Kangalassky	1102,4	918,0	911,1	874,3	1632,0	1470,4	1441,4	1569,2	1575,1	1509,6	1620,8
Namsky	2425,6	1845,3	1389,6	1179,5	1509,0	1487,5	1663,5	2143,2	2090,2	1645,0	1833,3
Tattinsky	1043,2	1299,7	1379,9	1226,5	2225,5	2479,3	2468,0	2889,4	2767,6	2277,5	2348,5
Ust-Aldansky	1286,2	870,6	869,2	1070,3	2348,1	2666,5	2248,2	2369,9	2200,1	806,5	1824,7
Khangalassky	1364,0	1194,1	1052,4	1185,2	1794,0	2029,4	2344,5	2515,1	2812,9	2616,0	2832,4
Churapchinsky	900,2	929,3	1344,5	2061,3	1850,4	1907,8	2038,5	2163,8	1985,4	1996,5	1818,0
Yakutsk	1423,2	1458,1	1375,8	1794,9	2385,0	2459,5	2260,3	2252,0	2261,4	2169,5	2449,0
In the RS (Ya)	1317,4	1330,7	1324,5	1612,4	2255,0	2312,0	2373,9	2410,0	2374,9	2218,5	2338,4

biguous. Relatively high levels of these indicators were noted during the period under review in the Amginsky and Kobyaysky uluses, relatively low in the Gorny, Megino-Kangalassky, Khangalassky and Churapchinsky uluses (although with single indicators that characterize the above-average incidence rates).

In Namsky and Tattinsky Ulus, mean values are generally noted, although there are years with different levels of general and primary incidence. The situation in the Ust-Aldansky ulus is favorable for children's morbidity, and in Yakutsk - for the incidence of the adult and the entire population.

Since we previously analyzed the medical and demographic situation in 8 uluses / districts and the city of Yakutsk, representing the Central Economic Zone (Yakutsk Medical Journal, No. 1 (61) for 2018), it is possible to assess the health status of the population in these territories by medical demographic indicators and incidence data. The most alarming situation is in Kobyajskiy district, in connection with which, in our opinion, appropriate management decisions are necessary both from the municipality and the Ministry of Health of the Republic.

The work was prepared based on the results of the project "Assessment, the main trends in the natural and socio-economic condition, human potential of the Central Economic Zone of the Sakha (Yakutia) Republic" of the Integrated Scientific Research Program in the Sakha (Yakutia) Republic aimed at developing its productive forces and social sphere in 2016-2020 years.

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HYGIENE, SANITATION, EPIDEMIOLOGY AND MEDICAL ECOLOGY

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THE ROLE OF EXPEDITIONARY RESEARCH IN STUDYING THE HEALTH OF THE POPULATION OF VILYUI REGION

DOI 10.25789/YMJ.2019.65.19

ABSTRACT

In order to preserve the original habitat, culture and traditional way of life, the health of the population of the North is of fundamental importance. The first public health studies at the state level were carried out by members of the medical and sanitary unit as part of the first complex Yakutsk expedition of the USSR Academy of Sciences (1925-1928). Subsequently, the ideas and forms of work of the Yakut expedition of the Academy of Sciences of the USSR continued to be realized by their followers. In the 60-90s of the twentieth century, a study began of the state of health of the population of the republic, including the Vilyuysk group of uluses, which turned out to be on the territory of industrial pollution by enterprises of the diamond-mining industry and the Vilyuiskaya hydroelectric station. The knowledge obtained during long-term monitoring studies makes it possible to make a long-term forecast of possible environmental changes under conditions of climate change and anthropogenic impact. The Vilyui group of uluses was characterized by transgressive water migration enriched with microelements, petroleum products and phenol. This is associated with the accumulation of toxic elements, industrial poisons in the river fauna, in fish tissues, in humans and animals. Proof of this are the established high concentrations of micro and macronutrients in the hair and in the blood of the representatives of the indigenous population. The obtained results can be used in planning programs for the socio-economic development of the Vilyui region of the Sakha Republic (Yakutia) and individual administrative regions and municipalities of the republic, in the development of projects for the integrated development of mineral deposits, the use of agricultural land, and environmental protection measures. Research materials should be used by the supervisory authorities to monitor the state of public health and the environment. In August 2018, as a result of the destruction of the dams of the dredging pits of the Irelyakhskaya placer mine of the Mirny mine, Alrosa company, pollutants were released to the Irelya, Malaya Botuobuya and Viluy rivers. Huge damage has been inflicted on water bodies, aquatic biological resources and the population living in this region. Currently, environmentalists are working, but the medical community also needs to be connected, because the pollution of water bodies, given the slow recovery typical of northern ecosystems, will inevitably affect the health of the population.

Keywords: nature, ecology, health, monitoring, technogenic influence, anthropogenic influence, ecosystems, development programs, regions.

Back in the XIX century, the works of individual naturalists found that the natives of the North (Eskimos, Nenets, Chukchi, evens, Yakuts, etc.) have their morphological and physiological characteristics that ensure their adaptation to the conditions of existence, formed under the influence of biological and social factors of the environment. Difficult