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The Causes of Low Life Expectancy in the Regions of Russia

Data on life expectancy in the regions of Russia show that needed improvements in survival rates are being hampered by the existing quality of health-care programs, due to cost-cutting policies, and by continuing environmental problems.

The factors influencing the population's state of health and mortality have been studied in our country and abroad for about fifty years. A large amount of statistical material has been accumulated in this period, and special methods have been worked out to study and assess their influence on individual health. It has been found that the chief factors are: monetary income, housing conditions, nutrition, the state of the environment, and the way of life, genetic characteristics, sex, and age of the individual.

The population-based or social health of the country's population (or region) is characterized by three main indicators: remaining life expectancy, disease rate, and disability rate. The state statistical data provide the information base for the assessment. The task of determining social health factors is accomplished based on using temporal or spatial data that might not be comparable or sufficient, and, most important, the influence

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of certain factors may either be leveled out or reinforced by other factors, including those that often do not relate directly to the object of the study. For that task, researchers often employ methods of mathematical statistics, such as correlation analysis, regression analysis, and so on. Often, however, the results that are obtained (the connections) are either difficult to explain or statistically insignificant, and this makes it harder to use them in making decisions in the field of social policy. This latter aspect makes it necessary to carry out additional socioeconomic analysis.

A major characteristic of social health is life expectancy, since disease and disability rates depend largely on the level of development of the health-care system in a given territory and the population's access to good quality medical services. Furthermore, they are also influenced by the level of social support for invalids and those who are temporarily unable to work, the current situation in the labor market, and so on.

On the eve of the economic reforms in 1990, the life expectancy of the Russian population was 69.2 years—63.7 percent for males and 74.3 percent for females; in other words, the gender difference in the indicators of remaining life expectancy was relatively high, but it did not exceed ten years. In addition, the difference in life expectancy between the urban and rural populations was slightly more than two years, in favor of urban residents (69.55 and 67.97 years, respectively). Four years later (in 1994), the remaining life expectancy for the population as a whole fell to 63.8 years, and moreover, it had fallen by 3.2 years for females and by 6.4 years for males. This change was the result of the market reforms being implemented in the country but without the kinds of social buffers that are necessary in such cases.

By 1998, the situation had somewhat stabilized: the remaining life expectancy for the country as a whole had risen to 67.1 years, and positive shifts had taken place in both the urban and rural contexts. But the financial crisis in that same year once more changed the direction of that indicator's dynamic: starting in 1999, it declined steadily until 2003 (64.8 years). As was the case at the beginning of the market reforms, the crisis had a greater impact on the health of males: in the Russian Federation (RF) as a whole, the remaining life expectancy went down by 2.7 years during that period, whereas for females it went down by 1.3 years. In the cities, moreover, that decline was greater for males (2.75 years), whereas in the countryside it was greater for females (1.55 years).

A rise in remaining life expectancy was observed once more in Russia starting in 2004. Even by 2008, however, the figure did not reach the 1990

level (67.9 years vs. 69.2 years). Owing to the high male mortality rate, their life expectancy came to almost two years lower than it had been eighteen years earlier (61.83 vs. 63.73 years), whereas for females the difference was only 0.2 years (74.16 vs. 74.30 years). Thus, as a whole in the preceding eighteen years, Russia had two periods of remaining life expectancy decline: 1991–94 and 1999–2003.

With respect to regional differences in life expectancy, in 1990 the maximum difference was 10.5 years (73 years in the Republic of Dagestan vs. 62.4 years in the Republic of Tyva), while in 2008 the difference was about twofold larger: 20.4 years (80.1 years in the Republic of Ingushetia and 59.7 years in Chukotka Autonomous Okrug [AO]). It should be noted, however, that the data for Ingushetia as well as republics that show high remaining life expectancy indicators (75.5 years in Chechnya and 74.4 years in Dagestan), where military hostilities have been ongoing for almost the entire period in question, do not seem very trustworthy. If we take the remaining life expectancy of 72.8 years in Moscow as the maximum figure, then the maximum regional differences have risen to 13.1 years.

In order to study the causes of the population's low life expectancy, we selected the ten RF entities with the lowest indicators of remaining life expectancy. We did not take into account that in the previous eighteen years several regions had changed their administrative status and territorial boundaries more than once. Table 1 shows the ten regions that had the lowest life expectancy in the RF in 1990, 1998, and 2008, as well as during the years where the decline of the remaining life expectancy for the country as a whole was the greatest, 1994 and 2003.

Comparing the composition of the group of ten regions in 2008 and 1990 reveals that it has changed by 60 percent. The Republic of Tyva and the Republic of Buriatia and Magadan and Sakhalin oblasts have remained the same. In 1990, the composition of this group included, for the most part, the regions of Siberia and the Far East (with the exception of the Republic of Kalmykia) with differing levels of socioeconomic development. The lowest remaining life expectancy occurred in the Republic of Tyva (62.4 years). In all of the other regions it was at least 3.7 years higher, and in Krasnoyarsk krai it was equal to the average Russian indicator in 2008 (67.9 years). The same remaining life expectancy figures in 1990 were recorded in three other regions as well: Novgorod and Chita oblasts (Zabaikal krai) and Primore krai. Four years later, the composition of this group had changed by half, but again, as before, it consisted basically of

Table 1

Regions with the Lowest Life Expectancy in Russia

Years	Remaining life expectancy in the RF, in years	Regions
1990	69.2	Republic of Tyva, 62.4; Kamchatka oblast (krai), 661; Republic of Sakha (Yakutia), 66.9; Magadan oblast, 67.0; Sakhalin oblast, 67.3; Irkutsk oblast, 67.3; Khabarovsk krai, 67.3; Republic of Buriatia, 67.6; Republic of Kalmykia, 67.8; Krasnoyarsk krai, 67.9.
1994	63.8	Republic of Tyva, 55.3; Republic of Altai, 59.9; Republic of Khakassia, 60.1; Zabaikal krai, 60.3; Magadan oblast, 60.3; Sakhalin oblast, 60.5; Irkutsk oblast, 60.5; Pskov oblast, 60.7; Kamchatka oblast, 60.8; Jewish AO, 60.8.
1998	67.1	Republic of Tyva, 58.2; Republic of Khakassia, 63.7; Krasnoyarsk krai, 63.9; Republic of Altai, 64.1; Pskov oblast, 64.2; Irkutsk oblast, 64.2; Sakhalin oblast, 64.2; Kemerovo oblast, 64.6; Kamchatka oblast, 64.7; Khabarovsk krai, 64.7.
2003	64.8	Republic of Tyva, 54.2; Chukotka AO, 59.0; Zabaikal krai, 59.7; Republic of Altai, 60.0; Pskov oblast, 60.2; Irkutsk oblast, 60.4; Republic of Khakassia, 60.5; Republic of Karelia, 60.6; Novgorod oblast, 60.6; Murmansk oblast, 60.6.
2008	67.9	Chukotka AO, 59.7; Republic of Tyva, 60.5; Jewish AO, 62.7; Amur oblast, 63.5; Novgorod oblast, 63.6; Pskov oblast, 63.6; Magadan oblast, 63.7; Zabaikal krai, 63.8; Republic of Buriatia, 64.4; Sakhalin oblast, 64.4.

Source: Zdravookhranenie v Rossii: Statisticheskii sbornik (Moscow: FSGS, 2001 and 2009).

federal entities in Siberia and the Far East, where the population's life expectancy had been considerably lower than it was in the Central part of the country back in the Soviet era as well. The Republic of Kalmykia was replaced by Pskov oblast, which was included in the composition of the next ten regions with relatively low remaining life expectancies (67.9–68.7 years) in the ranked distribution of the country's territories for that indicator. In 1990, half of that group consisted of regions of the Northwestern Federal District, which in several cases (Murmansk oblast, the Republic of Komi, and the Republic of Karelia), just as in regions of the Siberian and Far Eastern Federal Districts, is significantly linked to unfavorable natural and climatic living conditions.

In the overwhelming majority of regions, the remaining life expectancy indicator had the same change over time as the average for the whole country. At the same time, the composition of the group with the lowest indicator changed—in 1998 because of the territories of the Siberian and the Far Eastern federal districts, while in 2003 the group included, in addition to Pskov oblast, three more regions of the Northwestern Federal District: the Republic of Karelia and Novgorod and Murmansk oblasts.

Despite the different composition of the group, the minimum and maximum remaining life expectancy figures in the ten regions in 1994 and 2003 differ little among themselves. A similar picture can be seen in 1998 and 2008 (the minimum figures are 58.2 and 59.7 years, respectively, and the maximum—64.7 and 64.4 years, respectively). In 2008 the composition of the group included five regions of the Far Eastern Federal District, three regions of the Siberian Federal District, and two regions of the Northwestern Federal District. In all of the federal entities, the remaining life expectancy indicator was lower than 65.

The lowest remaining life expectancy indicators are seen in Chukotka AO (59.7 years) and in the Republic of Tyva (60.5 years). In both regions, less than 10 percent (9.4 percent) of people were older than working age. Both federal entities are distinguished by a high percentage of rural inhabitants in the population: the figure is one out of two in Tyva and one out of three on Chukotka. These territories differ significantly in terms of economic and social development.

The Republic of Tyva is a weakly developed region with high unemployment (19 percent) and a low standard of living (32.9 percent of the republic's inhabitants were below the poverty line in the period in question; i.e., a figure almost two times higher than the national aver-

age); living space came to twelve square meters per person; almost 60 percent of the housing stock lacks rudimentary conveniences (or plumbing), and 17 percent is dilapidated and dangerous. Poverty is the cause of inadequate nutrition. In Tyva, which has a high proportion of children in its population (28.9 percent), the average per capita consumption of milk and dairy products is only 70 percent of the national average (170 liters per year); sugar—60 percent (24 kilograms); eggs—33 percent (83 eggs); and vegetables and melon crops—39 percent (43 kilograms). The minimum consumer basket drawn up by the Ministry of Health Care and Social Development of the RF for the country's natural climatic Zone IV, which includes the republic, calls for milk and dairy product consumption of 173 liters per year for retired people to 318 liters for children ages seven through fifteen; for the same population groups, the recommended consumption of eggs is 180–200, while the rate of vegetable and melon crop consumption is 92–125 kilograms.[1]

Inadequate and poor-quality nutrition along with poor housing conditions are factors that cause poor health and, consequently, early mortality. In this republic, at the same time, we find a low rate of general morbidity (newly diagnosed rate of 562.7 per 1,000 population) as well as all classes of diseases, which, given the low life expectancy, indicates a shortage of medical assistance for a majority of the population. Statistics show that the infant mortality rate there remains very high (13.2 per 1,000 live births), and this indicator, above all, shows the level of development of the health-care system and the population's access to medical services. This republic, with its low population density (1.9 people per square kilometer), has a definite shortage of doctors (43.7 per 10,000 inhabitants) and midlevel medical personnel (138.6 per 10,000 inhabitants), and hospitals.

The Chukotka AO was included in the group of regions with a low life expectancy that experienced a mass exodus of population from the district during the 1990s. At present, the district is classified among the regions with a high level of economic development, where the main socioeconomic indicators, as a rule, are slightly better than the average figures for all of Russia (e.g., per capita monetary incomes, adjusted to take account of the high cost of living, are 107.6 percent, unemployment is 4.7 percent, housing is 30.8 square meters per person, etc.). In 2008 the level of poverty in the okrug was only slightly higher than the national average figure (13.5 percent vs. 13.1 percent), whereas in the preceding years the ratio of these indicators was the exact opposite. The disease rate

of the population in the okrug is 1.5 times higher than the national average (1,168.7 per 1,000 people), including by two times for nervous disorders (35.1 percent vs. 17 per 10,000 population). The okrug is distinguished by its large number of poisonings and other unnatural causes (139 vs. 91.7 per 1,000 people in the RF). This is largely due to the high rate of alcoholism and the poor mental state of the population. In 2008, 3,990.3 patients with alcoholism and 2,003.2 patients with mental disorders were registered with the medical treatment and preventive institutions on Chukotka, which exceed the figures for all of Russia by 2 times and 1.6 times, respectively. Among the serious factors accounting for the morbidity rate in the population of the okrug are the severe natural and climatic conditions (cold, Arctic night, and atmospheric pressure). Another contributing factor is inadequate, poor-quality nutrition: a majority of the food products in the okrug are brought in from the central regions of Russia by sea during the navigation season. The average annual per capita consumption of meat and meat products is only 50 kilograms; milk and dairy products—58; eggs—144; vegetables and melon crops—20 kilograms; and fresh fruit—none. Even in the consumption of bread and grain products the okrug ranks in eightieth place in the country (62 kilograms per capita per year).

The minimum consumer basket for Zone I, to which the Chukotka AO also belongs, contains the following norms of consumption for the different sociodemographic groups of the population: milk and dairy products, 183–333 liters; vegetables and melon crops, 92–125 kilograms; eggs, 180–250; bread and grain products, 75–186 kilograms. It is only the consumption of meat and meat products (the amount of which in the subsistence minimum is not very large) that makes it possible for the average per capita indicator to reach the minimum level of consumption for the working-age population, 50 kilograms per year. It may be that a majority of the okrug's residents consume enough fresh fish and fish products (caviar), but no statistics are published on these food products.

The availability of health-care services in the okrug, calculated per 10,000 population, is considerably higher than both Tyva and all of the regions in question. For example, the network of medical services in 2008 is characterized by the following relative indicators (calculated per 10,000 people): the number of doctors is 80.8; midlevel medical personnel—160.9; hospital beds—238.3; and the capacity of medical treatment and preventive institutions is 597.9 visits per shift. However, the health-care institutions are located in the cities and the raion centers,

which, given the low population density (0.1 people per square kilometer) and the lack of roads, severely limits the availability of medical assistance for the rural population.

In addition to the Republic of Tyva, the group of problem regions of the Siberian Federal District includes the Republic of Buriatia and Zabaikal krai, which are also characterized by low population density (2.7 and 2.6 people per square kilometer, respectively) and a large proportion of rural population (45.2 percent and 36.3 percent). Despite their higher economic development, Buriatia and Zabaikal krai do not differ much from neighboring Tyva in terms of social problems. For example, per capita monetary incomes, with the cost of living taken into account, came to 79 percent and 76 percent, respectively, of the national average; one out of five inhabitants was below the poverty line (21.2 percent and 19.9 percent); overall unemployment was 11.6 percent and 14.9 percent; and living space was 18.5 and 19.2 square meters per person. The level of amenities and utilities is lower in Buriatia than in Tyva.

Like the Republic of Tyva, the Republic of Buriatia and Zabaikal krai are located in Natural Climatic Zone IV. In 2008, the average per capita consumption of food products in Buriatia was slightly higher than the minimum essential level for that zone recommended by the Ministry of Health Care and Social Development of the RF, but it is considerably lower than the average per capita level of consumption for the country as a whole. One exception is the consumption of milk and vegetables (which includes melon crops), but it is not very much higher (250 liters and 112 kilograms vs. 243 liters and 110 kilograms, respectively). In 2008, the average per capita consumption of meat and milk in Zabaikal krai did not differ from the national average indicators, whereas for all other products it was lower, and egg consumption did not even meet the minimum norms (153 eggs vs. 180–200 per year).

Just as in neighboring Tyva, the statistic on the overall disease rate is also relatively low for main disease classes in Buriatia and Zabaikal krai (641 and 644 people per 1,000 population). In both regions the exceptions are diseases of the endocrine system, nutritional and metabolic disorders (16.8 and 12.9 patients vs. 11.5, on average, per 1,000 population for Russia as a whole), and diseases of the digestive organs (43.3 and 36.9 vs. 34.6 per 1,000 population). Moreover, Zabaikal krai's population has a higher rate of diseases of the blood and blood-producing organs (6.2 patients vs. 5.3 per 1,000 population, on average, for Russia as a whole). The Republic of Buriatia suffers from an acute problem of the mental state

of the population, and Zabaikal krai experiences alcoholism and alcoholic psychosis. In each region, about 1,800 such patients are registered in the treatment and preventive institutions, per 100,000 population.

The low morbidity indicators in these federal entities are the result of the weakly developed health-care system, which definitely lags behind the needs of the population. In Buriatia, for example, the number of doctors per 10,000 population (40.2) is lower not only than the national average indicator (49.6) but also than that of the Republic of Tyva. Given the low population density the number of hospital beds is definitely insufficient (101 beds per 10,000 in population). It must be noted that the number of hospital beds in the republic fell by almost 1.5 times from 1990 through 2000, and only since 2004 a slight increase has been noted, making it possible to exceed the national average indicator (96 beds per 10,000 population). At the same time, the capacity of the medical treatment and preventive institutions increased by only 25 percent from 1990, to 240.8 visits per shift per 10,000 inhabitants. Clearly, one has to conclude that the statistical data for Buriatia are not reliable. In Zabaikal krai, which has almost the same population density as Buriatia's, the availability of health-care services to the inhabitants is considerably higher. And this is especially true for the number of doctors (56.7 per 10,000 inhabitants) and the capacity of medical treatment and prevention institutions (353.8 visits per shift per 10,000 population).

It must be mentioned in particular that all three regions of the Siberian Federal District are distinguished by severe natural and climatic conditions: many years of observations show that the average temperature difference between July and January ranges from 41.7 degrees in Buriatia to 49.5 degrees in the Republic of Tyva. This factor has a negative impact on an individual's state of health.[2] It is also a significant factor in the health of the population of the majority of the problem territories of the Far Eastern Federal District: Amur oblast (48 degrees), Jewish AO (42.2 degrees), Magadan oblast (40.1 degrees), and Chukotka AO (34.9 degrees). The relatively mild climate of Sakhalin (28 degrees) and the coast of the Sea of Okhotsk in the Chukotka AO are exceptions.

Sakhalin oblast is distinguished not only for its more favorable climatic conditions but also because it has the highest level of economic development among these ten regions (the domestic regional product per capita in the oblast was 2.5 times higher than the counterpart indicator for the RF). The demographic composition of the population is characterized by a relatively low share of children and people older than working age

(16.5 percent and 17.9 percent). One-fifth of the population (21.8 percent) lives in rural areas.

In spite of its relatively high economic development, social problems in the oblast are still quite acute. For example, per capita monetary incomes, adjusted to take account of the difference in the cost of living, exceed the national average by 11.4 percent. At the same time, however, a high differentiation of the population by incomes persists (by a factor of 16.3), which, in terms of its size, is comparable to the general level of inequality in the country (a factor of 16.9). Unemployment remains a serious social problem in the oblast; in 2008 overall unemployment was 8.1 percent. At the same time, the prevalence of poverty among these island dwellers is lower than the average level for the RF (11.5 percent), which does not rule out a lack of sufficient objectivity in regard to the amount of the subsistence minimum in the region. Housing remains an acute problem: one-tenth of the housing stock is in dilapidated and dangerous condition.

Island residents' per capita consumption of basic food products in all food groups lags behind the national average, except for potatoes and meat. Moreover, meat consumption is 1.3 times higher than the national average.

Like a majority of the Russian federal entities being examined here, Sakhalin oblast has low population density (5.9 people per square kilometer), so that a more extensive network of medical facilities is necessary than is the case on average for the country. The number of hospital beds per 10,000 population remained at the level of 140.4, and midlevel medical personnel—at 128.4. At the same time, the island has definite shortages of doctors (47.8 vs. 49.6 per 10,000 inhabitants) and outpatient medical treatment and prevention institutions, with a total capacity of 264.9 visits per shift per 10,000 inhabitants. In 2008, overall morbidity of the island population was higher than the national average: 834.8 newly diagnosed patients per 1,000 population, compared to 772 for the RF. Statistics showed high morbidity levels for the following classes of diseases: diseases of the digestive organs (82.6 vs. 34.6 for the RF); diseases of the skin and muscular connective tissue (49.4 vs. 35.3); complications of pregnancy and childbirth (161.7 vs. 71.3); birth defects (3.2 vs. 2.1); and diseases of the endocrine system (12.2 vs. 11.5). The following data indicate the widespread prevalence of diseases of social etiology: infectious and parasitic diseases (52.1 vs. 36.5 per 10,000 population); and alcoholism (2,997.2 patients registered in medical treatment and prevention institutions per 100,000 population).

The proportional indicators of social etiology are higher in Magadan oblast, which has 60.7 infectious diseases and 5,097 patients per 100,000 population suffering from alcoholism registered in the medical treatment and prevention institutions. It should be noted that the data of these institutions reveal that about 2,000 people per 100,000 population are suffering from mental disorders in the oblast; in other words, the rate of disease is almost the same as it is in neighboring Chukotka AO.

Regarding economic development among the ten regions in that group, Magadan oblast ranks only behind Sakhalin oblast and Chukotka AO. It is distinguished by its high proportion of urban residents (95.3 percent). The proportion of people older than working age is slightly more than 15 percent, compared to the national average of 21.2 percent. The standard of living of the oblast's population is characterized by the following indicators: per capita monetary incomes, adjusted to take account of the cost of living, hardly differ at all from the national average (14,100 rubles vs. 14,900 rubles), greater than the scale of poverty by 3.5 percentage points (17 percent); available housing and housing amenities are better than the RF average.

The average per capita consumption of food products in the oblast is higher than the level of consumption in Chukotka okrug, and the consumption of meat and meat products is higher than the average national indicator (72 kilograms vs. 66 kilograms per year). Comparing this to the minimum essential level of consumption reveals a definite scarcity in the population's supply of vegetables, melon crops, potatoes, and fruit.

Regarding the development of the network of health care institutions, the number of doctors per 10,000 population (55), the number of midlevel medical personnel (152.3), the number of hospital beds (151.9), and the capacity of the outpatient institutions (382 visits per shift), the oblast ranks only behind Chukotka AO in this group. The level of the overall disease rate in Magadan oblast (new diagnoses) is higher than the average Russian indicator (861 vs. 772 per 1,000 population). Widely prevalent in addition to diseases of social etiology in the oblast are diseases of the respiratory organs (365.3 per 10,000 population), which is largely due to the natural and climatic conditions (the Arctic and sub-Arctic climate), as well as injuries, poisonings, and certain other diseases caused by external factors (116 per 1,000 population). The indicators of high infant mortality (10 deaths per 1,000 live births) and women's complications of pregnancy, childbirth, and the postnatal period (153 per 1,000 population between the ages of fifteen and forty-nine) show, above all, the lack of

access to qualified medical assistance for women. These facts constitute one of the main reasons that women terminate pregnancies: in 2008, 58 women per 1,000 of childbearing age had abortions (which is 1.6 times more than the RF average).

It must be noted that the problem of the widespread prevalence of abortions is urgent in all five regions of the Far Eastern Federal District, but in Amur oblast it has taken on disastrous proportions, with 149 abortions per 1,000 women between the ages of fifteen and forty-nine, which is four times greater than the national average. The reasons for this are well known: infant mortality (15.7 cases per 1,000 live births in 2008), birth defects (3.3 per 1,000 population), and unresolved social problems. The relatively low figure for complications of pregnancy, childbirth, and the postnatal period (62.8 vs. 71.3 per 1,000 women between the ages of fifteen and forty-nine in the RF) does not agree with the indicators of infant mortality and birth defects.

In economic and social development, Amur oblast ranks considerably behind the regions of the Far Eastern Federal District examined above, whereas in the size of its population (864,000) it is the biggest region among them, while the proportion of children and people older than working age is almost the same (17.8 percent and 17.7 percent). More than one-third of the population (34.6 percent) lives in rural areas. Per capita monetary income in the oblast, adjusted to take account of the cost of living, is 1.4 times lower than the average Russian indicator; one out of four or five inhabitants (22.2 percent) lives below the poverty line, and the population's housing accommodations are also relatively low (21.2 square meters per capita).

The housing stock is poorly equipped with utilities and conveniences. Amur oblast is classified as belonging to the same natural and climatic zone as Magadan oblast, but it is located somewhat further south. For this reason, the average per capita consumption of vegetable products and eggs, including products produced and raised on individual farm plots, is also considerably higher in this territory than the average RF indicators. At the same time, the average per capita consumption of milk and dairy products remains lower than the minimum essential level.

In its number of doctors (59.2 per 10,000 population), the oblast ranked only below Chukotka AO among the ten regions in 2008; the oblast's population was also better supplied, compared to the average Russian level, with midlevel medical personnel (117.1), hospital beds (111.3), and polyclinic institutions (capacity is 272 visits per shift). However, the

network of health-care institutions is located in cities and raion centers, and given the poor state of transportation services are not accessible to rural residents, which affects indicators of disease and mortality rates. In 2008, the overall disease rate of the population (711.2 per 1,000 people), including the majority of the main disease classes, was lower than the national average. The exceptions included diseases of the endocrine system, nutritional disorders, and impaired metabolism (15 vs. 11.5 for the RF). A total of 1.4 times more of the population suffer from mental disorders than the national average.

The Jewish Autonomous Oblast is also classified among the weakly developed regions in level of economic development. The demographic composition, by age and place of residence (urban or rural), does not differ from the situation in Amur oblast. The social problems are more acute: the unemployment level is 10.1 percent, the magnitude of the prevalence of poverty is 23.6 percent, the average per capita monetary income, adjusted for cost of living (9,626 rubles per month) is 1.5 times lower than the national average, and housing provides 20.7 square meters per person.

The problem of the population's access to qualified medical assistance is especially urgent, with only 35.2 doctors per 10,000 population, which is confirmed by the figures for infant mortality (11.7) and birth defects (4.5, which is one of the highest figures in the country). At the same time, the oblast still has an extensive network of hospital beds (140 per 10,000 population), while the capacity of the outpatient polyclinic institutions (231.3 visits per shift) lags behind the population's needs and is lower than the average indicator for all of Russia. For this reason, the relatively low indicators of the overall disease rate in the Jewish Autonomous Oblast (638.1 per 1,000 population) causes one to doubt their reliability.

Two regions in the Northwestern Federal District are included in the problem group, Novgorod oblast and Pskov oblast. Like the majority of the federal entities examined above, both territories have a high percentage of rural inhabitants (29.5 percent and 32.3 percent) and a relatively low level of economic development. At the same time, they are distinguished by their more favorable natural and climatic conditions and relatively high population density—11.9 and 12.6 people per square kilometer, respectively. One in four people is older than working age, while the proportion of children does not exceed 15 percent; this is a consequence of the low birthrate (10.6 and 10.0 vs. 12.1 per 1,000 population in the RF). The high mortality rate in both regions (20.9 and

21.7 per 1,000 population) is due not so much to the age composition of the population as to the mortality rate of working-age males. The remaining life expectancy among them is considerably lower than retirement age (56.6 and 56.9 years) and fifteen years less than that of females. At the same time, women are not distinguished by their longevity either: their remaining life expectancy is 2.6 to 2.7 years less than the national average (71.5 and 71.4 vs. 74.1).

A person's health depends largely on age, and the older the population the higher the disease rate. It is no accident, therefore, that the overall disease rate indicators for the population in Novgorod oblast are higher than the average for the RF (new diagnoses of 869.7 per 1,000 population vs. the national average of 772). And this is true of practically all disease classes: neoplasms (12.3 per 1,000 population), diseases of the blood circulation organs (28.4), and diseases of the respiratory organs (371.7). A particularly serious problem is the prevalence of injuries, poisonings, and other consequences of external factors (112.2 cases per 1,000 inhabitants), birth defects (2.8), and a high rate of disabilities (130 per 1,000 population). Compared to the country as a whole, two times more patients (2,280) suffering from mental disorders are registered in treatment and prevention institutions (calculated per 100,000 population). Even more people are registered as patients suffering from alcoholism and alcoholic psychosis (2,764 patients per 100,000 population).

The indicators for disease rates of the population in Pskov oblast look less reliable. In 2008, for example, only 660.8 people (per 1,000 population) were registered as being diagnosed for the first time in their lives. Of all the disease classes, only the disease rate of the nervous system is higher than the national average. The conclusion that the indicators of actual disease rates are unreliable is confirmed by data reflecting the development of the health-care system in the oblast, and in particular the availability of doctors. The number of doctors per 1,000 population (32.6) is 1.5 times lower than the national average.

The number of hospital beds has declined drastically in recent years (down to 104.6 per 10,000 population), while the capacity of the outpatient institutions has not increased (232.9 visits per shift per 10,000 population).

The population's access to medical assistance is considerably higher in Novgorod oblast than in neighboring Pskov oblast. In the course of health-care system reform there, the number of hospital beds also declined, but at the same time the capacity of the network of outpatient

institutions increased dramatically to 325 visits per shift per 10,000 population. The inadequacy of qualified medical assistance in Novgorod oblast is confirmed by the infant mortality indicator (9.7 cases per 10,000 live births).

Regarding the social factors that influence the population's health, no large differences between the oblasts are observed. The average per capita monetary income is 1.3–1.4 times lower than the average Russian indicator, but taking into account the relatively low cost of living in these RF entities, the difference shrinks to 1.2–1.3 times. The poverty level in Novgorod oblast is 18 percent versus 16.1 percent in Pskov oblast. While housing is not inferior to the average Russian level (26–27 square meters per person), the amenities are much lower (less than 60 percent of the housing stock is equipped with running water and plumbing). A more urgent problem in Pskov oblast is overall unemployment, which is slightly higher than the indicator for the country as a whole: 6.8 percent versus 6.3 percent.

Table 2 shows the main causes of the low life expectancy in the ten entities of the RF based on the analysis that was carried.

Ecology has not been singled out on the list of factors that account for low life expectancy, but this does not mean that such a problem does not exist in the overwhelming majority of these RF entities. Every year, statistical services publish a very limited list, by regions, of environmental pollution indicators: the emission volumes and the detection of pollutants in the atmosphere due to stationary sources (thousands of metric tons per year); the amount of polluted wastewater discharged into surface waters (thousands of metric tons per year), including amounts that are not treated. As a rule, to ensure the comparability of these data for the particular regions, proportional indicators are used (calculated per square kilometer of area), which loses its meaning for territories with low population density. Meanwhile, the following cities were included on the official list of cities with the highest levels of air pollution as of January 1, 2008: Kyzyl in the Republic of Tyva, Birobidzhan in the Jewish AO, Blagoveshchensk in Amur oblast, Magadan in Magadan oblast, Ulan-Ude in the Republic of Buriatia, Chita in Zabaikal krai, and Iuzhno-Sakhalinsk in Sakhalin oblast—in other words, the administrative centers where the overwhelming majority of the urban population lives. The problem of pollution of surface waters (Category 1) that are the source of drinking water and economic needs is the most acute in Novgorod and Pskov oblasts. For example, the proportion of sample water tests from waters

Table 2

Main Causes of the Low Life Expectancy in Ten Regions of the Russian Federation

Regions	Climate	Incomes of the population	Housing conditions	Nutrition	Development of health care	Rate of alcoholism	Other factors
Chukotka AO	+			+	+		
Republic of Tyva	+	+	+	+	+		+
Jewish AO	+	+	+		+		+
Amur oblast	+	+	+	+	+		+
Novgorod oblast		+	+		+	+	+
Pskov oblast		+	+		+	+	+
Magadan oblast	+			+	+	+	+
Zabaikal krai	+	+	+		+	+	+
Republic of Buriatia	+	+	+	+	+		+
Sakhalin oblast			+		+		+

that fail to meet hygienic norms of sanitation and chemical indicators was 78.1 percent in Novgorod oblast in 2007 and 100 percent in Pskov oblast in 2006. In 2007, high indicators were also recorded in the Chukotka AO (51.4 percent), Magadan oblast (48.1 percent), the Republic of Buriatia (37.7 percent), and Sakhalin oblast (24.3 percent).[3]

In addition to the ten territories examined above, three more RF regions had remaining life expectancy lower than sixty-five years in 2008 (64.8 years in Tver oblast, 64.5 years in Smolensk oblast, and 64.6 years in Kemerovo oblast). While the factors that influence low life expectancy in the first two oblasts are almost the same as in Pskov oblast, Kemerovo oblast has serious ecology problems in addition to its social problems and severe natural and climatic conditions. In terms of the volume of emissions of pollutants into the atmosphere (1.503 million metric tons) the oblast ranks third in the country after Tiumen oblast (3.494 million metric tons) and Krasnoyarsk krai (2.458 million metric tons), and in terms of the proportional indicator of 15.7 metric tons per square kilometer it comes behind Moscow (63.6 metric tons) and St. Petersburg (28.6 metric tons). Three cities in that oblast (Kemerovo, Novokuznetsk, and Prokopevsk) were included on the list of cities with the highest levels of atmospheric pollution. Kemerovo oblast is among the leaders (seventh place) for volume of polluted water discharged into open bodies of water. The proportion of water sample tests from bodies of water of Category 1 that fail to meet standards of sanitation and chemical composition was 27 percent in 2007.

The poor state of the ecology has a primary impact on the health of pregnant women and babies that are born: in 2008 the number of babies born with various developmental abnormalities in the oblast rose to 4.1 per 1,000 inhabitants (twice as high as the average Russian figure), and 79.4 women per 1,000 population between the ages of fifteen and forty-nine experienced complications of pregnancy, childbirth, and the postnatal period, compared to 71.3 women, on average, for all of Russia. Statistical data reveal that the overall disease rate for the population is not much higher than the average Russian indicator (with new diagnoses of 793.8 vs. 772 per 1,000 population), basically because of the high proportion of injuries, poisonings, and other consequences of external causes (130 cases per 1,000 population). This is one of the highest indicators in the whole country (after the Chukotka AO), and it is due to the prevailing working conditions in coal mining, which are severe and harmful to health. The latter is, to a considerable extent, one of the factors causing

the relatively high rate of disability (90 people per 1,000 inhabitants) and the population's mortality rate (16.3). Among the most urgent social problems, first place ranking goes to the problem of labor safety and the living conditions of miners and their families.

The analysis that has been carried out makes it possible to set the priorities of social policy in each of the regions that have been examined here, but for all of them one of the most urgent tasks is to develop the health-care system and ensure that all population strata have access to qualified medical assistance. The health-care reform being conducted at present, which is designed chiefly to reduce the state's expenses, is not helping to accomplish this task, and this has an especially adverse impact on the health and quality of life of the population of economically underdeveloped regions with low settlement density.

Notes

1. Methodological recommendations on determining the consumer basket for the main sociodemographic population groups for the RF as a whole and in the entities of the RF. Appendix no. 9. Approved by RF Government Decree no. 511, dated August 12, 2000. All entities of the RF are assigned to nine zones as a function of factors that influence the characteristics of the consumption of food products.

2. E.V. Budilova, L.A. Migranova, et al., "Vliianie demograficheskikh i prirodno-klimaticheskikh faktorov na nespetsificheskii immunitet zhitelei Respubliki Kareliia i Murmanskoi oblasti," *Narodonaselenie,* 2010, no. 1.

3. As of January 1, 2008, a total of sixty-four cities were included on the list of cities with the highest level of pollution of the atmosphere (*Okhrana okruzhaiushchei sredy v Rossii* [Moscow: Rosstat, 2008]).