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Public Health and Medical Care in Russia: Status and Problems

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ABSTRACT

The article deals with analysis of the current trend of indicators characterizing health of the Russian nation and negatively influencing factors. The following issues are addressed: the underfunding of the health sector, shifting the financial burden from the state to the population, inefficient use of state funds for the health protection of the population. The effect of per capita state funding on life expectancy and mortality is shown evidence from Russian and foreign statistical information.

Keywords: Health, life expectancy, birth rate, mortality, factors of public health deterioration, the state health policy.

1. INTRODUCTION

1.1. Relevance

Since the 1990-ies, the deterioration of all health indicators of the population gave the health problem the status of threat to national security. For many decades the following problems were quite relevant: "supermortality" in labor-able age men; poor infant mortality rate; high growth rates of social diseases such as tuberculosis, AIDS, and drug abuse; high gap in life expectancy for men and women (13 years), and low average life expectancy in Russia in comparison with Western countries.

World health statistics draws attention to the significant increase in life expectancy in the advanced countries worldwide, but, unfortunately, not in Russia. According to the annual statistical report of the WHO (World Health Organization, 2014), the life expectancy in Russia for 1990-2011 increased by 0.6 years, which is the lowest figure among the advanced countries, where the average growth rate over the same period amounted to slightly more than 5 years. Life expectancy for men in Russia in 2013 was 65.1, while in women – 76.3. These figures are 4 years shorter than in some CIS countries, and on average 10 years shorter than in EU countries (Table 14.1).

Table 14.1
Life expectancy at birth in some countries, (number of years)

	Years	*Total population*	*Men*	*Women*
Russia	2013	70.76	65.13	76.3
CIS countries, including:				
Azerbaijan	2013	74.2	71.6	76.8
Armenia	2013	74.8	71.5	77.9
Belarus	2013	72.6	67.3	77.8
Kazakhstan	2013	70.5	65.8	75.1
Kyrgyzstan	2013	70.2	66.3	74.3
Republic of Moldova	2013	71.9	68.1	75.6
Tajikistan	2013	73.4	71.6	75.3
Uzbekistan	2013	73.4	71.1	75.8
Ukraine	2013	71.4	66.3	76.2
EU countries, including:				
Austria	2012	81.1	78.4	83.6
Bulgaria	2012	74.4	70.9	77.9
Hungary	2012	75.3	71.6	78.7
Germany	2012	81.0	78.6	83.3
Italy	2012	82.4	79.8	84.8
UK	2012	81.0	79.1	82.8
France	2012	82.1	78.7	85.4
Sweden	2012	81.8	79.9	83.6
Other countries, including:				
Australia	2012	82.1	79.9	84.3
Canada	2010	81.0	78.7	83.3
China	2010	73.3	71.6	75.0
Republic of Korea	2012	81.4	78.0	84.7
USA	2011	78.7	76.3	81.1
Switzerland	2012	82.8	80.6	84.9
Japan	2012	83.2	79.9	86.4

Source: According to the Rosstat data.

The increase in life expectancy is conditioned by the dynamics of population mortality. The mortality rate decreased from 16.1 per 1,000 population in 2005 to 13.0 in 2013 that led to an increase in life expectancy from 65.3 to 70.76 years over the same period. However, the mortality rate has increased to 13.1 in 2014, returning back to the previous figure of 2015, i.e. to 13.0 years nationwide. Though the mortality rate of the population in Russia has decreased in comparison with the mid 2000-ies, it is still significantly above the current level of mortality in the EU countries (by 1.4 times) and the level of the early 1990-ies – 12.2 deaths

per 1,000 population in 1992 (UN Report, 2013). In people of productive age, mortality rate is especially high in men. While the mortality rate in men of 40-44 years in 1990 was 7.7 deaths per 1000 population of this age, in 2014 it increased up to 8.7 persons, for women the corresponding figures equaled to 2.4 and 2.9, respectively (Health, 2015). Besides, Russia is characterized by high infant mortality rate compared to advanced countries (Figure 14.1).

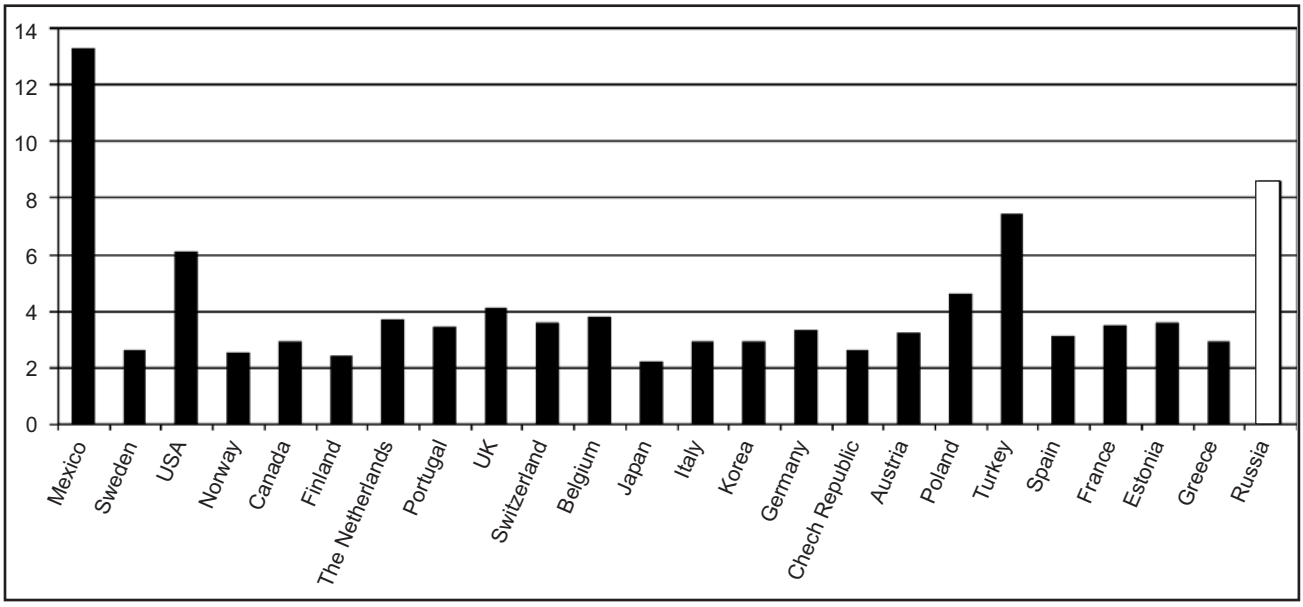

Figure 14.1: Infant mortality in 2012 (number of deaths in infants under 1 year per 1,000 newborn infants) (OECD, 2015)

Dynamics of primary incidence (number of new cases of diseases has increased from 96.3 up to 115 mln cases between 1990 and 2014) and general morbidity of the population (has increased from 107 to 235 mln illnesses during the same period) is quite unfavorable [Healthcare, 2015]. Noteworthy is the fact that the growth rate of general morbidity exceeds the growth rate of primary incidence that indicates a steady trend in transition of diseases of the Russian Federation citizens into the chronic form. According to the survey of the population, 11.46% of respondents aged 15 years and older have a chronic disease.

2. METHOD

Active study associated with the analysis of health systems in different countries, health effects and the extent of their influence among other factors, started in the mid 20th century, and originally was based mainly on analytical methods of comparative analysis. The impressive conclusions were made by Beck (Beck, 1986), who considered the indicators characterizing the health status of the population in different countries. According to these conclusions, today approximately just one tenth of the total population are born healthy, while globally 60% of people are in a status between disease and health in the so-called "third condition", that is, have chronic illness though did not lose their ability to work.

The comparative degree of the impact of medical and non-medical factors affecting average life expectancy in different countries and during different time periods was analyzed by OECD analysts R. Ohsfeldt and D. Schneider (OECD, 2005; Ohsfeldt and Schneider, 2006).

A lot of researchers identify the strengths and weaknesses of national health systems and carry out comparative analysis (McGlynn, 2003; Disney, 2004; Komamura and Yamada, 2004; France et al., 2005; Cohn, 2007; Tanner, 2008).

Active work on the modeling of health and longevity related processes began in the West in the 1960–70-ies based on the use of the econometric analysis methods. Studies of Western scientists were dealt with the model of the demand for health and longevity. Human capital theory underlying this model, is highlighted in the works of Still (1962), Grossman (1972), Becker (1993), and Mincer (1997) as well as in the works of other authors.

Most studies, however, consider health as exogenous variable, rather than the condition that can be influences by individuals themselves and society. Various health measures were used by the authors to assess the health effect on economic growth and development. The basic result of these works consists in the fact that in general good health has a beneficial effect on economic growth (Fogel, 1994). There are just a small number of works considering health as an endogenous factor. For example, in the work of Chakraborty (2004), the author suggests that the health indicator such as life expectancy is increasing function of the state health expenditure. Subsequently, this model was extended by other authors by including into consideration of environmental pollution as an additional factor influencing health (Raffin and Seegmuller, 2014).

Contemporary works of Russian researchers are focused mainly on the analysis of the causes of high mortality and low life expectancy in Russia, the problems of underfunding of healthcare, shifting the financial burden from the state to the population, and the search for optimal ways of using state recourses for the effective protection of public health (Sidorina, Sergeev, 2001; Roshal, 2008; Shilova, 2013; Kucherenko et al, 2013). The authors basically use pair regression models. For example, Lisitsyn and Ulumbekova (2011) proved the existence of directly proportional correlation between the health indicators of the population and per capita state health funding.

We also conducted a study of the influence of various factors on the population's health in Russia using the multiple regression method as well as comparative analysis and pair-correlation techniques. In order to carry out analysis, we created database of indicators for 82 entities of the Russian Federation (regions, territories, and republics) for the period of 2005-2008 (post crisis years were not considered to avoid distortion of trends). The obtained data laid the basis for construction of panel regression equations with fixed effects. Estimation of equation parameters was conducted using the least squares method for 328 observations in the 6.0 EViews econometric package. The equations were subjected to standard testing procedures of statistical hypothesis, which indicated their statistical significance at a significance level of 10% and below.

Infant morbidity was considered as a dependent variable in one of the equations (the number of detected cases of diseases in children under 14 years per 1,000 population).

From our viewpoint, this is the most adequate measure characterizing the health level that allows avoiding the problem of detectability (adults do not always ask for help to doctors in case of illness), because medical examinations in kindergartens and schools are regularly conducted, and thus the degree of childhood diseases detectability is quite high. The morbidity of children indirectly reflects the level of

health of the entire nation, because unhealthy children often are born from sick parents. On the other hand, children health is a key link in the formation and preservation of population's reproductive potential. Basic healthcare and healthy lifestyle, which will be transferred to the next generations, is formed exactly in childhood. The chosen regressors included indicators provided by the Russian statistics and characterizing economic-infrastructural, socio-psychological, ecological impacts and climatic factors that influence health.

We have obtained the following equation, whose main characteristics (the confidence level of the equation and the reliability levels of the coefficients, the determination coefficient, and testing criterion of the equation essence) are given in Table 14.2.

$$Sick = 1148.99 + 5.43*IND + 12.4*URBAN - 29.21*BUD - 26.93*HEALTH + 83.11*ALC + 0.16*CRIME - 15.14*CL + 0.31*WATER + 0.91*AIR$$

where: Sick – is the overall morbidity of children under the age of 14 years (the number of detected cases per 1,000 population).

URBAN – is the proportion of urban residents in total population (%).

IND – is the proportion of industry in the production of GRP (%).

CRIME – is the number of registered crimes per 100 thousand people.

BUD – is the proportion of health expenditures in consolidated budget of the region (%).

HEALTH – is the ratio of consumer spending for the medical purposes to the cost of living (%).

ALC – is the share of alcoholic beverages and tobacco in consumer spending (%).

CL – is the difference between average temperatures in July and January (°C).

AIR – is the per capita accumulation of greenhouse gases (tons of CO2-equivalent per capita).

WATER – is the per capita accumulation of substances polluting water resources (kg per person).

Table 14.2
Characteristics of the general morbidity equation for children at the age under 14 (the number of detected cases per 1,000 population)

Variable	*Measurement unit*	*Coefficient*	*Level of reliability, %*
Constant		1148.99	99.9
The proportion of industry in the GRP	%	5.43	99.9
The proportion of urban residents in total population	%	12.40	99.9
The proportion of health expenditures in consolidated budget of the region	%	-29.21	99.9
The ratio of consumer spending for the medical purposes to the cost of living	%	-26.93	99.9
The share of alcoholic beverages and tobacco in consumer spending	%	83.11	99.8

Variable	*Measurement unit*	*Coefficient*	*Level of reliability, %*
The number of registered crimes per 100 thousand people	Number of crimes	0.16	99.9
The difference between average temperatures in July and January	°C	-15.14	99.9
Per capita accumulation of substances polluting water resources	Kg per person	0.31	97.7
Per capita accumulation of green gases	Tons per person	0.91	99.9
R^2 = 56.8%; F-statistics = 46.5; confidence level = 0.0			

Source: Based on the results of the regression equation derived with the use of the 6.0 EViews statistical software package.

2.1. Analysis of the results

As can be seen from the regression analysis, one of the significant factors improving the health of the population is the increasing expenditure for medical purposes, primarily state funding, and reduction in consumption of alcoholic beverages and tobacco. Unfortunately, in Russia, both of these factors are negative. Thus, tobacco smoking and alcohol abuse are widespread among Russian citizens: 35% of the adult population (55% of men and 18% of women smoke, and in addition about 18% are passive smokers); 59% of the adult population drink alcohol, at that 27% consume strong drinks no less than several times a month (OECD, 2015) (Figs. 14.2, 14.3).

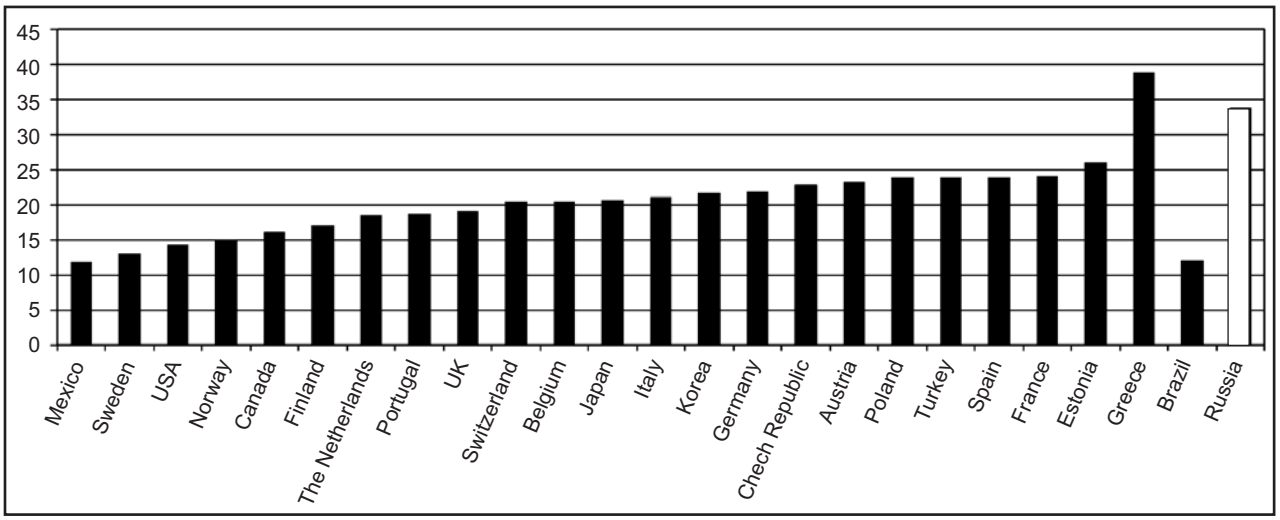

Figure 14.2: Constantly smoking people at the age of 15 in 2012 (share of population, %) (OECD, 2015)

With regard to state funding of health service, its amount is significantly behind the level of advanced countries. To achieve satisfactory health indicators, state funding of health service should be at least 6.6% of GDP, amounting to 75-80% of the total expenditure on medical purposes. Currently, government spending on healthcare is just 3.5% of the GDP, thus, in relative terms (percentage of GDP), expenditures on health in Russia are by 2.2 times lower than those in the countries of the Organization for Economic Co-operation and Development (OECD), which on average amounts to 7.6% (Figure 14.4).

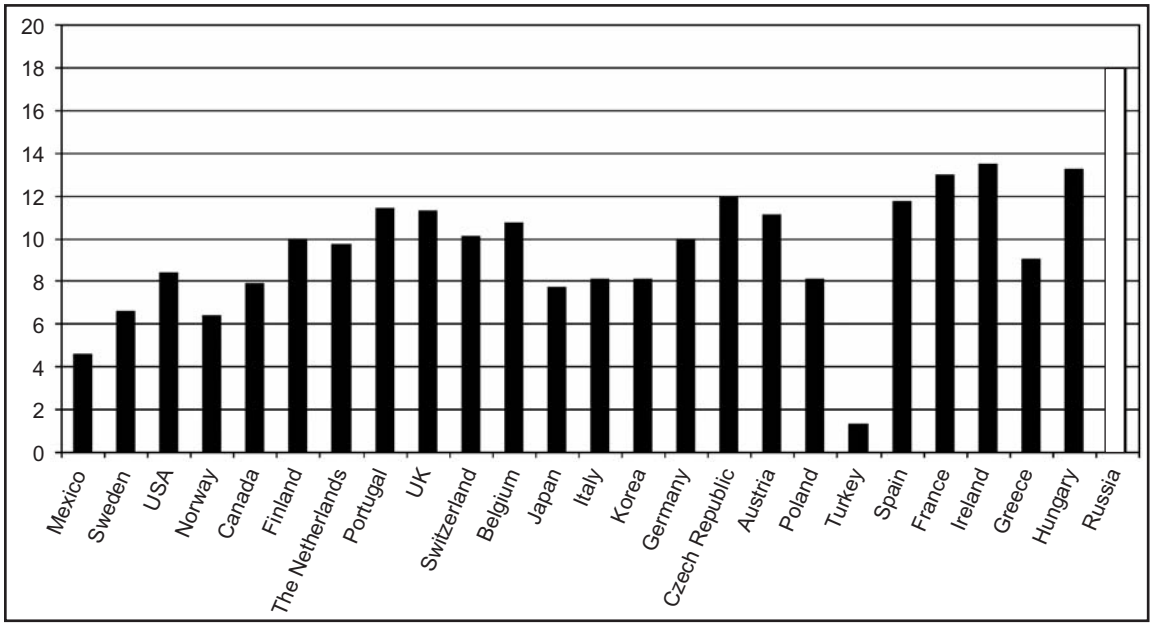

Figure 14.3: Per capita alcohol consumption by persons aged 15 years and older in 2012 (liters per year per person expressed in terms of pure alcohol) (OECD, 2015)

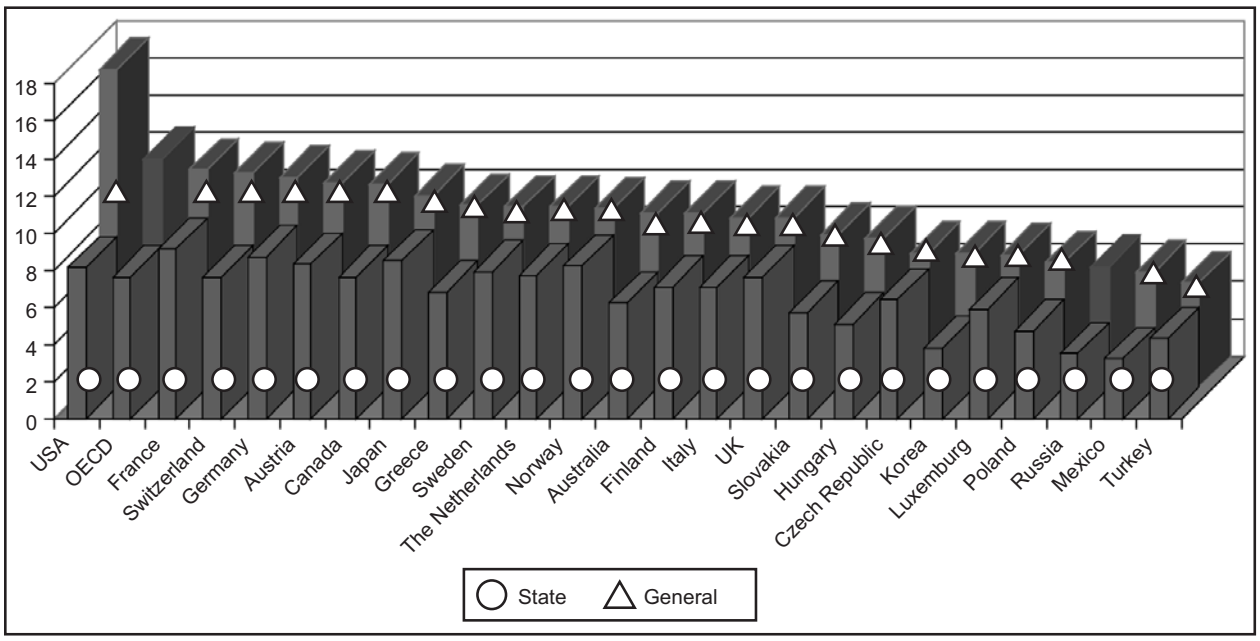

Figure 14.4: Health-care spending in 2013 (% of GDP) (The World Bank, 2016)

Figure 14.5 shows the per capita amounts of state expenditure on health in current USD. It can be seen that in 2013 in Russia, 460 USD were spent per person from government sources that is 5-6 times less than the average figure in advanced countries, and 2-3 times less than that in the "new" EU countries (the former socialist countries and CIS states). This means that countries with developed market economy are more socially oriented than Russia in providing of state guarantees of medical care. Note that in the Soviet Union in the period of 1960-1970, per capita state health expenditure was approximately at the level of the United States and the advanced countries of Europe in those years.

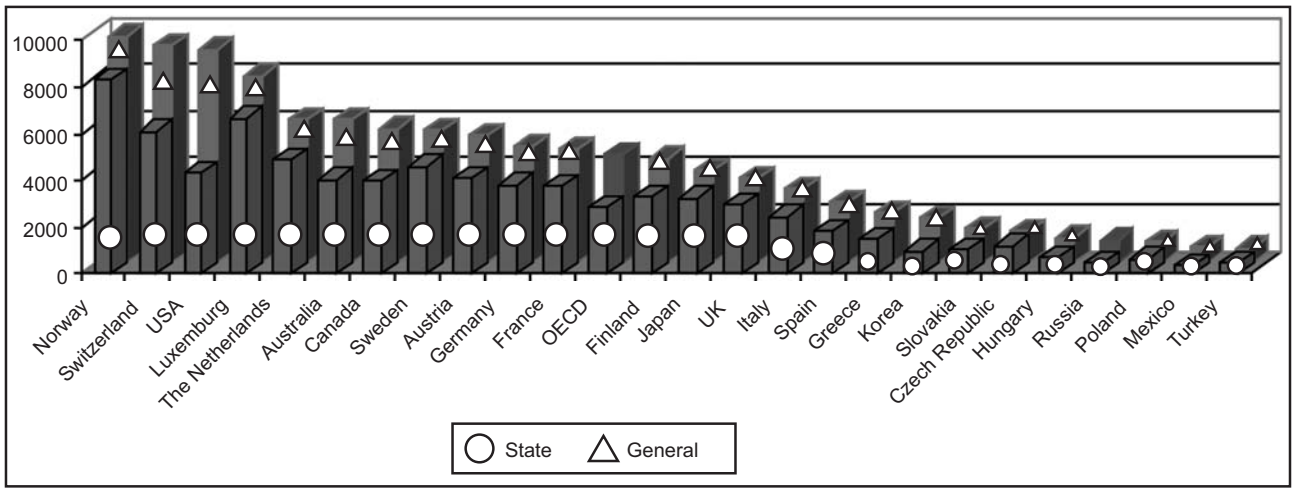

Figure 14.5: Per capita state health expenditure in 2013 (in current USD) (The World Bank, 2016)

The need for growth in state spending on health to improve public health status is indicated also by the outcomes of the conducted correlation analysis. There are directly proportional dependences of life expectancy and overall mortality rate on per capita state health funding (Figs. 14.6-14.8).

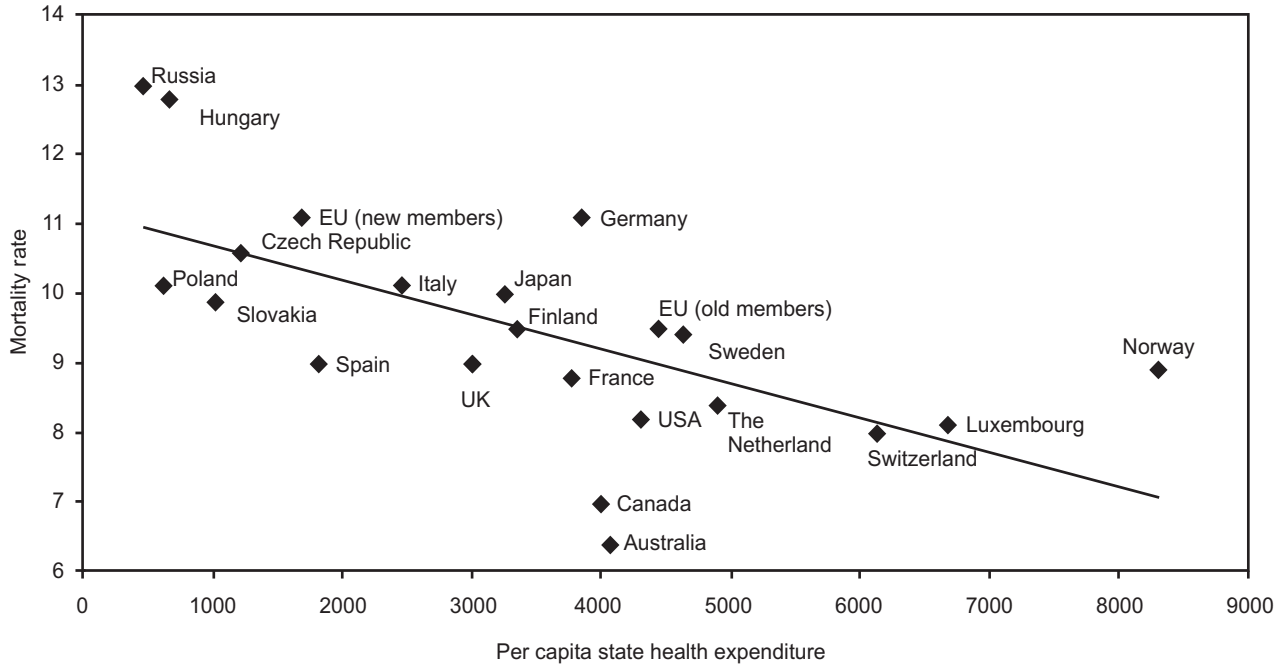

Figure 14.6: Total mortality rates (per 1,000 population) and per capita state health expenditures (in current USD per person) in 2013 in the countries worldwide (The World Bank, 2016; Commission, 2008)

The inverse dependence of the mortality rate on per capita state health expenditure was also revealed in the context of Russian regions (Fig. 14.8). The dependence was constructed for 80 regions of Russia (excluding the regions such as Dagestan and Ingush Republic, in which low mortality is due to other factors, mostly genetic and climatic).

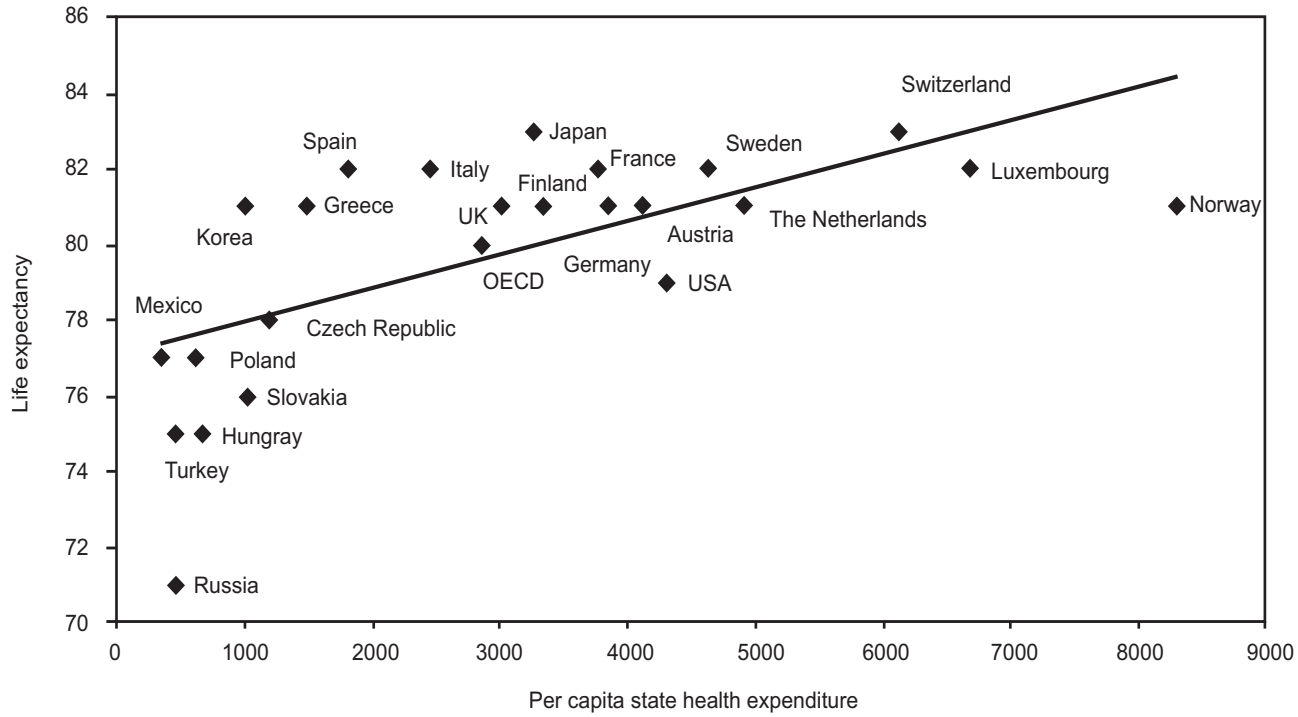

Figure 14.7: Life expectancy (years) and the per capita state health expenditure (current USD per person) in 2013 in the countries worldwide (The World Bank, 2016; Commission, 2008)

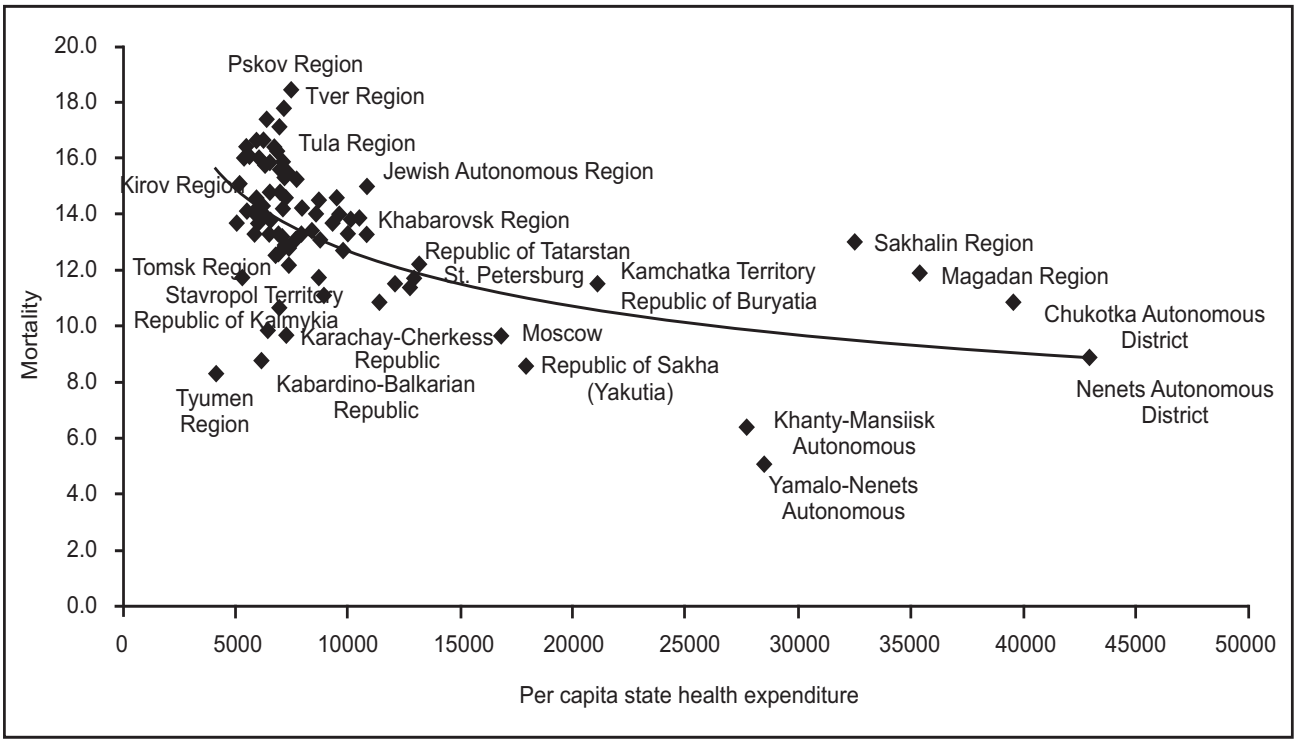

Figure 14.8: Mortality rates (per 1,000 population) and the per capita state health expenditure (rubles per person) in 2014 for the Russian Federation entities (according to Rosstat data)

There is a clear relationship between health expenditure and the level of socio-economic development of the state: the higher the level of country's economic development, the larger the proportion of health expenditure in the structure of total social spending. Thus, in OECD countries the growth of health expenditure occurs at a rate higher than economic growth that is conditioned by a number of factors, such as the growing level of industrialization and anthropogenic nature of environment that creates new risks for the environment and public health, and increases the level of pathological changes and chronic diseases, as well as increasing life expectancy and the ageing of the population.

3. DISCUSSION

In scientific literature there is an extensive ongoing discussion about the assessment of the effectiveness of national health policy. On the one hand, certain social policy focused on improvement of public health brings positive improvements (slight increase in the life expectancy). A number of strategic documents defining the focal point of this policy were adopted over the recent decade. These are the "Concept of long-term socio-economic development of Russia until 2020", the "Concept for demographic policy of the Russian Federation for the period up to 2025", the "State program of health-care development until 2020", approved in 2012 in the framework of the "Concept of health development in the Russian Federation", a priority "Health" national project which was started in 2005, and the program "Rural Doctor" implemented since 2012 (the allocation of 1 million rubles to young doctors ready moving to rural areas).

On the other hand, the transition is made from the so-called "budget" funding model of medicine (the essence of which is direct funding from the budget of the cost for maintaining a single national network of medical institutions) to the "insurance" model, which includes the payment of medical services through insurance intermediaries (Fund of obligatory medical insurance (FOMS) and private insurance companies). Now about 35% of the healthcare expenditures are spent for maintenance of the regional FOMS offices, while another 10% are taken by insurance companies (Zavialov, 2016). That is, almost half of the budget of public health service is spent on the maintenance of officials, who have very little to do with the practical medicine. All this reduces the already low (as analyzed above) capabilities for state financing of the healthcare sector. Thus, free medical care is substituted by fee-for-service medicine that is primarily hitting low-income segments of the population. The problem is also exacerbated by the limited access to free and effective drugs (due to the reduction of budgets of the Federal mandatory medical insurance fund (FFOMS) by 11.9 bln rubles in 2015, and 330 bln rubles planned for 2016 (20), as well as the economic sanctions) and inflation processes, leading to higher prices for medicines and paid medical services.

In 2014, the government approved a set of measures called the healthcare system "optimization" in Russia. Briefly describing the idea of this policy, we list the main policy components of these measures:

1. Reducing the number of physicians by increasing the medical burden of healthcare centers and hospitals through their merger.
2. Increasing salaries of medical staff.
3. Providing infrastructure of polyclinics and hospitals with high-tech equipment.

The overall results of the health service optimization turned out to be quite contradictory. Certain upgrade really brought the material and technical base of domestic medicine to a higher level that resulted in improved technical equipping of healthcare organizations. While at the end of 2005 the balance of non-profit healthcare organizations included medical fixed assets in the amount of 266.8 bln rubles, at the end of 2014 their amount increased almost twice (up to 492.1 bln rubles in comparable prices of 2005 at the gross book value). While in 2005 the share of medical organizations, which were in a good condition, was 65.4% of the total, in 2014 this figure increased up to 73.1%; the average age of medical equipment in nonprofit organizations reduced from 10 years in 2005 to 9.7 years in 2014. (Healthcare, 2015). Many doctors have got new capabilities in terms of using advanced medical technologies that previously were limited due to outdated equipment. Though, we cannot say that funds were spent only for the purposes that were necessary and useful. There were cases of idling and obsolescence of new medical equipment due to the lack of qualified personnel, able to apply new examination and treatment technology in practice.

However, the implementation of the first focal point of "optimization" policy resulted in a significant reduction of a number of medical staff. In 2014 a number of medical staff has reduced by 90 thousand, though the proportion of part-time occupation remained quite high at a level of 140%. Reduction of healthcare staff in the regions was conducted without prior planning and consideration of the possible consequences. The largest staff reduction has touched clinical specialty doctors. Bed capacity and medical staff was especially reduced in rural hospitals, where medical service was transferred to the level of regional hospitals. As a result, the number of treated rural residents decreased by 32 thousand people. As a result of this "optimization", the availability of free medical service was significantly decreased. The organization of primary care services were the most acute issues for the population, as is evidenced by the availability of queues at medical institutions and poor organization of patients' attendance. Indeed, just according to Rosstat data, the average number of waiting days for hospital admission in 2014 has increased by more than twice compared to 2011. Besides, the number of people seeking medical help, though never received it for various reasons, increased as well. Against the background of population growth, the number of visits to physicians in 2014 decreased by 7.7 mln visits compared to 2013, while the number of failures in the ambulance calls increased by almost 22%. The growth of in-hospital mortality in 2014 was recorded in 61 regions. At that, in the 49 regions, the increase in the number of deaths occurred at the background of reduced number of indoor patient (Fadeichev, 2015; Kukartsev, 2015).

As for the second objective of healthcare "optimization" i.e. increase of salaries of medical staff, its feasibility is also highly questionable. According to official data, average salary of a doctor in Russia at the beginning of 2016 was 48 thousand rubles per month. According to a survey of the "Health" independent monitoring fund, only 4% of doctors out of 5 thousand respondents confirmed that they receive more than 40 thousand rubles. Thus, pediatrician in Rostov gets wage in amount of 12.5 thousand rubles, nurse in Belgorod – 10 thousand, an endocrinologist in Ulyanovsk – 11 thousand, the surgeon in Bryansk – 18 thousand, an ambulance attendant in Ivanovo – 9 thousand rubles (Zavialov, 2016). To earn the "average salary", medical workers must take 1.5-2 wage rates, have an impressive experience and a good relationship with the chief physician, as well as reduce the time of patient admission to the absurdly short period of 10-12 minutes.

Consequently, an increase of mortality of the working-age population in 2014, recorded for the first time over many years, was the reason to call "lethal" the reform of the Ministry of Healthcare of the Russian Federation.

4. CONCLUSION

Against the background of global trends in the financing of health systems, we observe in Russia not just the gap funding, but the lack of a sound conception of social health policy. The country needs evidence-based health development strategy, which will determine the amount and sources of health financing, priority spending, as well as developing mechanisms allowing efficient use of the allocated funds. The planned lack in growth of state spending in healthcare for 2016-2017 will lead to a deterioration of population's health indicators. According to experts, the overall mortality rate in the Russian Federation in the best case will freeze at the level of 13.0 instead of 12.1 deaths per 1,000 population planned for 2017, while at worst will rise to 13.9. All this will cause the deterioration of the social situation in the country and will not allow achieving the goal set forth by President – to increase life expectancy up to 74 years by 2020 (Hutaba, 2015).

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