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# Financing of Public Health Care for the Population of the Russian Federation: To Maintain Multichannel or Switch to a Single Payer System?

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## ABSTRACT

**The subject** of the research is the models of collection and consolidation (pooling) of resources for payment of public (free at the place of delivery) medical care to the population in developed countries and in the Russian Federation. **The purpose** of the study is to develop practical recommendations on the development of a system for financing medical guarantees for the population of the Russian Federation. **The relevance** of the study is due to the lack of resources to pay for public health care for the entire population in our country. The scientific **novelty** lies in the comparison of single-channel and multichannel pooling models used by developed countries in terms of their financial-economic and medico-social efficiency with the conclusion about a higher level of costs of the multichannel model with a comparable level of coverage with medical services of the population and indicators of its health compared to the model single payer. The research **methodology** is based on the use of complex, statistical, comparative and retrospective analyzes. It was **concluded** that the use of a multichannel pooling model in the financing of healthcare in the Russian Federation with the participation of competing insurers and the use of different channels of budgetary financing for different groups of the population is an important reason for the low efficiency of the Russian healthcare system. **The prospect** of further research is in the formation of a scientific and methodological justification for replacing the multichannel pooling model, which has historically developed in healthcare in Russia, with a single-channel model of a single payer represented by the Federal Compulsory Medical Insurance Fund (hereinafter- CMIF).

***Keywords:*** health care financing; single payer model; competing insurer model; health care efficiency; CMIF; consolidation (pooling) of financing; universal health care

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## INTRODUCTION

One of the key functions of the health financing system is the so-called pooling — collection and consolidation of funds for the payment of medical care to the population.[1] Authors identify "single pool" systems; territorially separate pools; geographically overlapping pools in terms of services and coverage; different pools for different socio-economic groups with segmented populations; different pools for different population groups; combination of several competing pools with risk adjustment for pools; fragmented systems with voluntary health insurance, duplicating State funded insurance [1–3]. However, the authors consider that from the point of view of social solidarity and the pooling of risks with the outward diversity of approaches to pooling in different countries the choice between the two main models is a matter of principle: between a single-channel model of a single payer (single pool system) and a multi-channel model involving competing insurers and/or using several different channels (pools) of budget financing for different population groups. Considering that in the Russian practice of health care the concept of "pool" is practically not used, the authors apply the more common and understandable equivalents of the word to Russian-speaking readers: "channel" and "payer".

A single-channel single payer system (State or national insurer) can take two forms. The first (non-market) option concentrates most of the financial resources in the budget of the national Ministry of Health, which finances a subordinate public health infrastructure — i.e. there is no clear separation between buyer and provider of medical services. It is noteworthy that today such a system exists not only in countries with communist backgrounds (for example, Cuba and Belarus), but also in countries with market economies and small, compact territories — for example, Malta, Eswatini, Sri Lanka [4].[2]

The second (market) version of the single-channel single-payer system envisages the delegation of the function of financing public health care to the entire population of the authorized non-profit organization or public agency, which consolidates income from all sources of income (insurance premiums, budget expenditures, etc.) and makes all payments for medical care provided to the population. At the same time, consumers are free to choose competing treatment facilities. Thus, the maintenance of market relations combined with the market power (monopsony) of a single payer makes it possible to obtain high-quality services from medical institutions while keeping prices low. Administrative and transaction costs are reduced, queues are solved and quality growth and cost reduction are stimulated [5]. Single payer systems are usually more progressive and effective, combining risks, offering the government a higher level of control over health costs. They ensure a more effective redistribution of resources: from young to old, from rich to poor, from childless to multi-child [6].

On the contrary, multi-channel systems with more payers sacrifice this control and effectiveness for the benefit of their beneficiaries, which can be, for example, owners of insurance companies, top managers of regional, departmental and corporate channels, as well as privileged groups of consumers. This is the opposite process to the pooling of risks, —

[1] World Health Organization. Financing health systems. 2008. URL: https://www.who.int/healthinfo/statistics/toolkit_hss/EN_PDF_Toolkit_HSS_Financing.pdf (accessed on 02.11.2021); Financing health systems: the way to universal coverage. World Health Report. Geneva: World Health Organization. 2010. 106 p. URL: https://apps.who.int/iris/handle/10665/87685 (accessed on 09.10.2021).

[2] World Health Organization. Global Health Expenditure Database: National Health Accounts. URL: http://apps.who.int/nha/database (accessed on 01.09.2018); Ministry of Health Swaziland. The Second National Health Sector Strategy Plan 2014–2018: Towards attainment of Universal Health Coverage. Draft Zero. 2014. URL: https://extranet.who.int/countryplanningcycles/sites/default/files/planning_cycle_repository/swaziland/swaziland_nhssp_ii_draft_zero_29_aug_2014.pdf (accessed on 30.10.2021).

fragmentation of pools (channels), which is a key obstacle to universal health coverage. Fragmentation contributes to health system inefficiencies. Usually it implies duplication (or multiplication) of the number of agencies needed to manage pools and procurement, increase in administrative costs. System-wide costs of multiple information systems are increasing, and administrative staff are increasing with overlapping responsibilities. Increased costs are also inevitable due to selection of "bad" risks — for example, with voluntary health insurance [7–11].[3]

Historically, the idea of a single-channel single-payer model was first suggested by V. Lenin, which in 1912 at the Prague All-Russian Conference of the RSDLP during the discussion of the bill on state insurance of workers adopted by the Duma of the Russian Empire put forward an alternative program, which provided for a state (non-commercial) The nature of social insurance and the implementation not only of health insurance but also of all types of social insurance by a single authority [12]. However, in practice this approach in health care was implemented much later — in the USA as part of the Medicare Government's Program of Public Funding for Treatment of the Elderly and Disabled. Hence another common name for the model — "Medicare-for-all", often used by politicians to make their health agenda more understandable to voters [13].

Today, Norway, Taiwan, South Korea, United Kingdom, Sweden, Denmark, Finland, New Zealand, Australia, Portugal, Italy, Spain, Iceland, Canada uses a single-channel single-payer system from developed countries. All other developed countries use so-called multi-channel systems in which health-care revenues are fragmented into several budget channels and/or divided among competing insurers [14–16]. The highest level of multi-channel funding today has very different, at first glance, health systems of the USA and Russia.

In the US, the voluntary health insurance market for the working population competes with the commercial insurers, while the non-working population is paid for through many independent budgetary channels. About 35% of the US population receives federal or state-funded health care across a range of programs: Medicare (assistance to all older Americans over 65 years of age, as well as to disabled and haemodialysis patients); Medicaid (assistance to people whose income is equal to or less than the poverty threshold); CHIP (assistance to children from low-income families); Tricare (military personnel, retired military personnel and their families); VHA (war veterans' health care); HIS (health services for the Indian territories); FEHB (for current and retired federal employees); RHP — Refugee Health Program, etc. [17].

In turn, the Russian health care system inherited multi-channel from the Soviet model of Semashko, where assistance to each social group of the population was paid for a separate channel, relatively independent of others. Medical assistance to the rural population in the USSR was partly financed by collective farms (which bore the bulk of the costs), to a lesser extent by local governments (village councils). Autonomous departmental medical systems have been established for officials, the military, individual workers and prisoners, who receive funding from the budgets of the relevant ministries. Enterprises incurred a significant part of the cost of maintaining "their" guild doctors, factory medical units and hospitals. Trade unions-maintained health centres and sanatoriums. After the reforms of the 1990s, the multi-channel funding of assistance to different groups of the population, firstly, was strengthened by the growth of the autonomy of channels. Whereas in the USSR, the interests of

[3] World Health Organization (WHO). Everybody's business-strengthening health systems to improve health outcomes: WHO's framework for action. Geneva: WHO. 2007. URL: https://www.who.int/healthsystems/strategy/everybodys_business.pdf (accessed on 05.11.2021).

affordability to the population dominated departmental interests (for example, military hospitals and factory hospitals worked for the benefit of territorial health systems — for example, were involved in the provision of emergency assistance to the population), today assistance of departmental systems is available to the rest of the population only in the format of paid services. Second, the number of quasi-autonomous departmental and state-owned health-care systems has increased dramatically — as in the form of creation and development of «own» medical organizations, and agreements of voluntary health insurance (VHI), which are paid from income tax advantages, personal income tax and contributions to off-budget funds. Third, to the Soviet multi-channel funding of assistance to certain groups and categories of the population has been added the multi-channel payment of certain services guaranteed by the State. Currently, payment for different phases of one patient's care in one case is often shared by the compulsory health insurance (CHI) system, regional budget, federal budget, Social Insurance Fund and Pension Fund of Russia. Under the CHI, the costs are shared by the competing health insurance organizations, and part by the CHI Federal Fund (with respect to the payment of care provided by federal medical organizations). In addition, there is a duplication of the same medical guarantees — for example, in large cities, many Russians have a package CHI + VHI, CHI + departmental medicine [18, 19].

Years of co-existence of different working models of pooling of public health care finance (often in neighboring States) — the reason why research has been conducted and published for decades to try to compare their effectiveness.

At first glance, the efficiency of multi-channel and single-channel models is about the same. Thus, according to the agency Bloomberg, which regularly publishes the index The Most Efficient Health Care, calculated on the ratio of national expenditures for medicine and achieved life expectancy (*Table 1*), among the top 15 countries, the number of countries with single-channel and multi-channel models is about the same.

Tried to look more closely at the problem of comparing different funding models in 1996 by J. Elola. He compared health indicators (infant mortality, life expectancy, potential lost years of life, health expenditure as a percentage of GDP and per capita) and the satisfaction of the population of some European countries with their health-care system for 1992 year [20]. The author did not find a significant difference in health indicators with lower costs of "single payer" systems and higher subjective satisfaction of the population with health services in countries with a model of competing insurers. The obtained data gave the author the reason to conclude that the goal of the reforms of the European health care should be the mutual convergence of different models in the search for a compromise between consumer satisfaction and cost containment.

After that R. B. Saltman, R. Busse and J. Figueras made another attempt to compare the effectiveness of different models of health financing [21] over a wider range of indicators — not only costs, longevity and user satisfaction, but also waiting lists (queues), equity of funding and quality ratings. Like J. Elola, the authors postulated a higher satisfaction of the population with the model of competing insurers, found no appreciable difference in health indicators and a higher efficiency of the "single payer" model in terms of cost containment. They concluded their work with the conclusion that the evaluation of effectiveness should focus on what is more important: the cost reduction factor (affordability of medical care) or the subjective satisfaction of patients.

N. Kravchenko and A. Ragozin [22, 23] made the first attempt in Russia to compare the effectiveness of different

*Table 1*

**TOP-15 rating by Bloomberg The Most Efficient Health Care 2017–2018. Countries with a single payer model are highlighted in green**

| Position | | Country | Efficiency | Expected average life expectancy | Total health care costs | |
|---|---|---|---|---|---|---|
| 2017 | 2018 | | | | % Of GDP | US dollars per capita in PPP |
| 1 | 1 | Hong Kong | 87.3 | 84.3 | 5.7 | 2222 |
| 2 | 2 | Singapore | 85.6 | 82.7 | 4.3 | 2280 |
| 3 | 3 | Spain | 69.3 | 82.8 | 9.2 | 2354 |
| 4 | 6 | Italy | 67.6 | 82.5 | 9.0 | 2700 |
| 5 | 4 | South Korea | 67.4 | 82.0 | 7.4 | 2013 |
| 6 | 7 | Israel | 67.0 | 82.0 | 7.4 | 2756 |
| 7 | 5 | Japan | 64.3 | 83.8 | 10.9 | 3733 |
| 8 | 10 | Australia | 62.0 | 82.4 | 9.4 | 4934 |
| 9 | 12 | Taiwan | 60.8 | 79.7 | 6.2 | 1401 |
| 10 | 9 | UAE | 59.7 | 77.1 | 3.5 | 1402 |
| 11 | 20 | Norway | 58.9 | 82.3 | 10.0 | 7464 |
| 12 | 14 | Switzerland | 58.4 | 82.9 | 12.1 | 9818 |
| 13 | - | Ireland | 58.2 | 81.5 | 7.8 | 4757 |
| 14 | 13 | Greece | 56.0 | 81.0 | 8.4 | 1505 |
| 15 | - | New Zealand | 55.6 | 81.5 | 9.3 | 3554 |

*Source:* compiled by the authors based on: Bloomberg.com. URL: https://www.bloomberg.com/graphics/infographics/most-efficient-health-care-around-the-world.html. (accessed on: 18.08.2021).

health financing systems, which did not compare the satisfaction of the population, a Focused on assessing the ratio of health expenditure to managed health indicators. As a result, they concluded that national health systems in countries using the single-payer model are more efficient than those with a multi-channel model, and this pattern does not depend on geographical location, and development of the country's economy.

## MATERIALS AND METHODS

This study compared some indicators of health expenditure, resource endowment, effectiveness of HiAP policies ("Health in All Policies") and achieved of health indicators, on the one hand, by developed countries (IMF classification) with single-channel single-payer model (Norway, Taiwan, South Korea, United Kingdom, Sweden, Denmark, Finland, New Zealand, Australia, Portugal, Italy, Spain, Iceland, Canada), on the other hand — countries with multi-channel model (Austria, Belgium, Cyprus, Czech Republic, Estonia, France, Germany, Greece, Israel, Japan, Latvia, Lithuania, Netherlands, Slovakia, Slovenia, USA and Switzerland), as well as (separately) using the multi-channel model of the Russian Federation. Taking into account the specificity of the US health system and the impact of its population on the statistics of the group of countries with a multichannel model, data from this group with and without US indicators are given.

Although in terms of pooling (pooling) of resources, there is no difference between a "non-market" and a "market" option to a single-channel single-payer system (see above) their effectiveness is significantly affected by differences in other parts of the health-care financing technology chain — for example, differences in payment mechanisms for health services and cost management. Therefore, the study compared market systems only.

Results of comparison are shown in summary *Tables 2–5*.

## DISCUSSION

### Healthcare cost comparison

The data obtained support the conclusions of other authors that the use of the model of competing insurers is related, on the one hand, to statistically significant growth in total health expenditure: in 2018–1.4% more GDP excluding the United States, and with the United States included — 4.4% more GDP than with the single payer model. Consequently, a multi-channel model requires significantly higher public health spending as absolute (in 2018–786 USD per capita), and as a share of total public spending (in 2018–2.8% more) compared to the single payer model.

At the same time, the use of the single payer model requires a higher share of personal expenditures of the population (Out-of-Pocket) in current health care expenditures (in 2018–20% versus 12.5%) in countries with a multi-channel model. However, this factor is largely offset by the lower absolute cost. For example, in the 2018 study, the weighted average personal expenditure of the population in countries with a single payer model was 838.6 USD per capita, which is only 151.4 USD more than in countries with a multi-channel model (687.1 USD per capita in year). In view of this fact, the growth of the share of personal expenditures of the population in current health expenditures in the single-payer model is of little significance for the population of developed countries in terms of reduced financial access to health care.

The level of both total and public health expenditure in the Russian Federation, both in absolute and relative terms, is many times lower than that of developed countries. It seems that this makes it impossible to adequately fund modern public health care for the entire population and objectively requires a pronounced de facto inequality of the rights of Russian citizens to health care. The scarcity of resources is compounded by the Russian Federation's use of a knowingly more expensive multi-channel health-care

*Table 2*

**Healthcare costs (2018)**

| Weighted average | Countries with a single payer model | Country with multichannel model | | Russian Federation (multichannel model) |
|---|---|---|---|---|
| | | All | Without USA | |
| Total health care costs, % Of GDP[a] | 9.2 | 13.6 | 10.6 | 5.32 |
| Current health expenditure per capita in PPP, US dollars[b] | 4193 | 7649 | 4979 | 1488 |
| Government spending on health care per capita PPP, US dollars[c] | 3101 | 4514 | 3759 | 885 |
| Government spending on health as a percentage of total government spending, %[d] | 15.4 | 19.7 | 18.2 | 9.49 |
| Share of personal spending of the population (Out-of-Pocket) in current spending on health care, %[e] | 20.0 | 12.5 | 13.8 | 45.85 |

*Source:* compiled by the authors based on data from the World Health Organization.

*Notes:* [a] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/total-expenditure-on-health-as-a-percentage-of-gross-domestic-product (accessed on 20.09.2021); [b] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/current-health-expenditure-(che)-per-capita-in-ppp-int-usd (accessed on 01.09.2021); [c] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/domestic-general-government-health-expenditure-(gghe-d)-per-capita-in-ppp-int (accessed on 01.09.2021); [d] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/general-government-expenditure-on-health-as-a-percentage-of-total-government-expenditure (accessed on 20.09.2021); [e] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/out-of-pocket-expenditure-on-health-as-percentage-of-total-health-expenditure (accessed on 20.09.2021).

*Table 3*

**Provision of health care resources and efficiency of their use (2015)**

| Weighted average | Countries with a single payer model | Country with multichannel model | | Russian Federation (multichannel model) |
|---|---|---|---|---|
| | | All | Without USA | |
| Hospital bed availability (per 10,000 population)[a] | 43.1 | 59.2 | 87.2 | 81.6 |
| Physicians density (per 1000 population)[b] | 3.2 | 3.0 | 3.3 | 3.98 |
| Skilled health professionals density (per10 000 population)[c] | 114.9 | 131.5 | 144.3 | 126.6 |
| Provision of nurses and midwives (per 10,000 population)[d] | 83.3 | 128.0 | 112.0 | 45.33 |
| Health service coverage index, % of population, 2017[e] | 85 | 83 | 81 | 75 |

*Source:* compiled by the authors based on data from the World Health Organization.

*Notes:* [a] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/hospital-beds-(per-10–000-population) (accessed on 25.09.2021); [b] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/physicians-density-(per-1000-population) (accessed on 25.09.2021); [c] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/skilled-health-professionals-density-(per-10–000-population) (accessed on 22.09.2021); [d] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/nursing-and-midwifery-personnel-(per-10–000-population) (accessed on 22.09.2021); [e] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/uhc-index-of-service-coverage (accessed on 25.10.2021).

*Table 4*

**Some indicators of the effectiveness of the HiAP policy ("Health in All Policies")**

| Weighted average | Countries with a single payer model | Country with multichannel model | | Russian Federation (multichannel model) |
|---|---|---|---|---|
| | | All | Without USA | |
| Prevalence-of-obesity among adults (bmi over 30), 2016[a] | 23.8 | 26.9 | 17.6 | 25.7 |
| Alcohol consumption among persons 15 and older, liters of pure alcohol per person per year, 2019[b] | 10.0 | 10.6 | 11.2 | 10.5 |
| Share of smokers among persons aged 15 and over, 2018[c] | 21.7 | 26.2 | 27.1 | 28.3 |
| Environmental mortality, deaths per 100,000 population, 2012[d] | 49.1 | 53.7 | 50.4 | 176.3 |
| Suicides per 100,000 population, 2019[e] | 12.3 | 14.8 | 13.7 | 14.1 |
| Road traffic deaths per 100,000 population, 2019[f] | 5.1 | 8.3 | 4.3 | 12.0 |
| Homicides per 100,000 population, 2019[g] | 1.0 | 3.1 | 0.7 | 7.9 |

*Source:* compiled by the authors based on data from the World Health Organization.

*Notes:* [a] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/prevalence-of-obesity-among-adults-bmi-=-30-(crude-estimate)-(-) (accessed on 25.09.2021); [b] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/alcohol-consumption-among-adults-aged-=-15-years-(litres-of-pure-alcohol-per-person-per-year) (accessed on 25.09.2021); [c] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/age-standardized-prevalence-of-current-tobacco-smoking-among-persons-aged-15-years-and-older (accessed on 25.09.2021); [d] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/age-standardized-deaths-attributable-to-the-environment-(per-100-000-population)- (accessed on 05.10.2021); [e] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/suicide-mortality-rate-(per-100-000-population) (accessed on 06.10.2021); [f] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/estimated-road-traffic-death-rate-(per-100-000-population) (accessed on 06.10.2021); [g] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/estimates-of-rates-of-homicides-per-100-000-population (accessed on: 06.10.2021).

*Table 5*

**Population health indicators**

| Indicators | Countries with a single payer model | Country with multichannel model | | Russian Federation (multichannel model) |
|---|---|---|---|---|
| | | All | Without USA | |
| Maternal mortality rate (number of mothers who die per 100,000 live births), 2015[a] | 6.7 | 11.4 | 5.4 | 17.0 |
| Neonatal mortality rate (deaths between birth and 28 days per 1000 live births), 2019[b] | 2.2 | 2.7 | 1.8 | 2.6 |
| Infant mortality rate (the number of deaths between the ages of birth and 1 year per 1000 live births), 2019[c] | 3.1 | 4.1 | 2.8 | 6.0 |
| Under 5 mortality rate (number of deaths, both sexes, per 1000 live births), 2020[d] | 3.5 | 4.9 | 3.1 | 7.0 |
| Total mortality of the adult population of working age 15–60 years old (number of deaths per 1000 population), 2015[e] | 62.1 | 86.7 | 65.4 | 202.7 |
| Probability of dying between the ages of 30 and 70 from cardiovascular diseases, cancer, diabetes, respiratory diseases, %, 2019[f] | 9.2 | 11.9 | 10.4 | 24.2 |
| Life expectancy at age 60 (years), 2019[g] | 25.0 | 24.2 | 25.1 | 19.9 |

*Table 5 (continued)*

| Indicators | Countries with a single payer model | Country with multichannel model | | Russian Federation (multichannel model) |
|---|---|---|---|---|
| | | All | Without USA | |
| Healthy life expectancy (HALE) at age 60 (years), 2019[h] | 19.0 | 17.9 | 19.3 | 15.0 |
| Life expectancy at birth life (years), 2019[i] | 82.5 | 80.6 | 82.6 | 73.2 |
| Healthy life expectancy (HALE) at birth, (years), 2019[j] | 71.4 | 69.2 | 72.1 | 64.0 |

*Source:* compiled by the authors based on data from the World Health Organization.

*Notes:* [a] URL: 1https://www.who.int/data/gho/data/indicators/indicator-details/GHO/maternal-mortality-ratio-(per-100–000-live-births) (accessed on 28.10.2021); [b] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/neonatal-mortality-rate-(per-1000-live-births) (accessed on 28.10.2021); [c] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/infant-mortality-rate-(probability-of-dying-between-birth-and-age-1-per-1000-live-births) (accessed on 28.10.2021); [d] URL: https://population.un.org/wpp/DataQuery/ (accessed on 28.10.2021); [e] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/adult-mortality-rate-(probability-of-dying-between-15-and-60-years-per-1000-population) (accessed on 28.10.2021); [f] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/probability-(–)-of-dying-between-age-30-and-exact-age-70-from-any-of-cardiovascular-disease-cancer-diabetes-or-chronic-respiratory-disease (accessed on 28.10.2021); [g] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/life-expectancy-at-age-60-(years) (accessed on 28.10.2021); [h] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/gho-ghe-hale-healthy-life-expectancy-at-age-60 (accessed on 28.10.2021); [i] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/life-expectancy-at-birth-(years) (accessed on 28.10.2021); [j] URL: https://www.who.int/data/gho/data/indicators/indicator-details/GHO/gho-ghe-hale-healthy-life-expectancy-at-birth (accessed on 28.10.2021).

resource pool system. Natural result — forced to compensate for the lack of public resources by imposing paid services, hence the abnormally high share of personal expenses of the Russian population in current health care expenditures — 45.85%, which corresponds to the countries of the "third world", for example, Haiti (in 2018–44%), Benin (45%), Central African Republic (42%) or Sierra Leone (45%).

### Comparing the availability and effectiveness of health resources

The data obtained suggest that the use of multi-channel systems, compared to the single payer model, is associated with significantly higher resource requirements for almost all the indicators studied (availability of hospital beds, specialists, nurses and midwives), in addition to medical expertise, which is practically comparable.

At the same time, the higher resource requirements of multi-channel systems do not change the coverage of health services compared to the single-payer model, which suggests a better use of resources by single-channel models. Thus, in 2017, the index of population coverage of health services in developed countries with a single-channel model was 85%, in countries with a multi-channel model (excluding the USA) — 83%.

The higher efficiency of single-channel models further confirms that these models are generally used by countries with low population densities and poor transport networks [10], which objectively requires better resourcing and reduces the effectiveness of their use.

#### Comparison of HiAP policy performance indicators ("Health in All Policies")

On the one hand, countries with a single payer model have more effective health policies HiAP ("Health in All Policies") by several indicators: people in these countries smoke less, consume less alcohol, and there are fewer deaths due to pollution and suicide.

On the other hand, in countries with multi-channel pooling without US data, prevalence of obesity, traffic death rate and homicide. However, the situation changes to the opposite in the case of inclusion in the USA group — "champion" in the multi-channel pooling of health resources among developed countries. Taking into account the US, multi-channel countries lose in HiAP policy effectiveness for all studied indicators.

Research suggests that the commitment of the population of the Russian Federation to a healthy lifestyle (consumption of alcohol, tobacco, weight control) is comparable to the attitudes of the population of developed countries. At the same time in Russia mortality from pollution, road accident and criminal accidents is many times higher — what influences not the behavior of the population and the health system, but the effectiveness of general public policy and inter-agency collaboration in the field of health.

#### Comparison of health indicators

The study shows that developed countries' use of a more expensive model of competing insurers does not provide statistically significant advantages in health indicators, and if competing insurers are included in the group of countries — significantly worsens most of these indicators.

The Russian Federation, which uses a multi-channel model, loses significantly for most of the health indicators studied in developed countries, regardless of the model they use. It seems that a key role in this is played by the low financial availability of health care as a natural result of an unfavorable combination of severe funding shortfalls and the use of a knowingly more expensive and less effective multi-channel pooling model.

## CONCLUSION

The use of multi-channel pooling by developed countries to pay for public health services is less effective than the single-channel single-payer model because:

а) requires higher levels of both general and public spending on health;

б) higher resource requirements for health care with almost equal health coverage;

в) limits the effectiveness of public health policies;

г) loses single payer models on managed health indicators.

The data of other authors about the higher level of subjective satisfaction of the population with medical care in developed countries with a multichannel model appear to be of little relevance in most territories of Russia, where the most significant problem is the apparent underfunding of guaranteed health care.

For the above reasons, the replacement of the more expensive and less efficient multi-channel pooling model with the

single-channel single-payer model represented by Federal Compulsory Health Insurance Fund seems to be an important condition for increasing the efficiency of health care financing in the Russian Federation, which should consolidate all, or at least most, channels for financing health care.

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**A. L. Safonov** — development of the research concept, selection of indicators for analysis, formation of research conclusions.
**A. V. Ragozin** — description of the methodology used and calculations, analysis of the results obtained, formation of the conclusions of the study.
**V. V. Grishin** — collection of statistical data, tabular and graphical representation of the results, analysis of the findings.

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