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ROLE OF INNOVATIONS IN HEALTHCARE FOR REGIONAL ECONOMIC SECURITY PROVISION OF RUSSIA

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ABSTRACT

The article actualizes the problem of innovations, the positions of Russia are presented on the level of innovative development. The reasons for backwardness from the developed countries are revealed. The expediency of innovation level increase of both the economy as a whole and human potential in order to strengthen the economic security of the regions. In this paper, we used the methods of intercountry comparisons, micro-, meso- and macro-analysis, statistical, system analysis and synthesis, integrative and multilevel principles. Taking into account the existing demographic threats for the country, a special attention is paid to the need to increase the efficiency of the healthcare system, including the result of innovation level increase. They offered the author's approach to the use of integrative and multilevel principles, the types of innovations in health care at different levels of application. They considered the introduction of medical, information and organizational innovations at the micro, meso- and macrolevel. They proved the possibility of a high medical, social, economic effect, the synergetic effect from the integrative introduction of innovations in the industry on the example of public healthcare in Yekaterinburg and the Sverdlovsk regions. The expediency of the proposed approaches application at the level of the entire industry. The results confirm the capacity of the health care system to preserve the human, including the able-bodied potential of the population, and strengthen the economic security of the country and the regions.

1. INTRODUCTION

In the current socio-economic conditions, an innovative socio-oriented type of the country economic development is required, providing for the institutional development of human capital, which represents the systemic unity of intellectual potential, health potential, and labor potential. The increase of the population well-being is one of the priority trends of the country socio-economic

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development and economic security provision (Kuklin, 2017).

Fedorov and Epaneshnikova (2008) define innovation as "a new problem-oriented integrated methodology of thinking and practical actions to develop and promote new scientific, technological and organizational ideas".

The Director General of the World Intellectual Property Organization (WIPO), Francis Gurry, notes the following: "Innovations can be the lever that will help to transform the observed economic recovery into a long-term growth" (Global Innovation Index 2017).

According to the rating of the "Global Innovation Index" of 2017, prepared jointly by Cornell University, the international business school, the INSEAD research institute and WIPO, Russia occupied the 45th place out of 127 countries in terms of innovation development level (Global Innovation Index 2017). A contradictory picture develops. According to the number of researchers, Russian Federation still holds the fourth place in the world after the USA, China and Japan (RAS et al, 2017). At the same time, the share of organizations in Russia engaged in technological innovation makes 8.3% (the innovative activity of organizations in Germany makes 52.6%, in China - 35.4%); the share of shipped innovative goods in the total volume is also low - only 8.4%, while only half of them is officially classified as newly introduced (RAS et al, 2017).

The most serious problems for the country innovative development and competitiveness level increase are represented by internal threats:

• the gaps between the high cost of human capital, determined, in particular, by a good level of education, and a low level of population life quality;

• The low share of "knowledge economy" contribution to GDP in Russia makes 13% (in Western Europe - 30%, in the USA - 40%), which determines the dynamics of economic growth (Aganbegyan, 2017).

The main priority task of the regional policy aimed at regional competitiveness increase should be the development of the innovative potential of the regions. Science, innovations and economic growth form the triangle, and each of its elements is dependent on others strategically (Abramov and Morozov, 2017). The increase of the region innovative potential, its economic security depends on population labor potential quality, its most important components - intellectual potential, public health, on the effectiveness of education, health care and other branches of the social sphere operation.

The existing demographic threats for Russia (the demographic bottom in the first half of the 2030-ies, and thus the reduction of the able-bodied population) actualize the problem of healthcare system effectiveness increase (Ageev and Kuzyk, 2017). The creation of the healthcare system in Russia "capable of competing with the healthcare of developed European countries" requires the level of innovation increase in the sector, it is one of the priorities in the most important strategic documents of the country: the Concept of Russian Federation Demographic Policy until 2025 , the concepts of social and economic development of Russian Federation until 2020 , the National Security Strategy of Russian Federation until 2020 , etc.

An insufficient practical development of innovation introduction tools in healthcare has led to research in this area using the example of public healthcare in Yekaterinburg and the Sverdlovsk region. The author's approach was developed based on the integrated use of various types of

innovations in the industry at all levels of management and the possibility of the obtained effect evaluation. The obtained results indicate the achievement of synergistic effects in health care. They are recommended for a widespread use throughout the country.

2. MATERIALS AND METHODS

The assessment of the innovation level in the country was carried out on the basis of intercountry comparison method.

Work materials were represented by the studies in the field of innovation in healthcare organizations of Ekaterinburg and the Sverdlovsk region using statistical, system analysis and synthesis.

Taking into account the specifics of healthcare during the introduction of innovations in the industry, the authors proposed the application of integrative and multilevel principles at all levels of management (at micro, meso and macro level).

3. RESULTS AND DISCUSSION

The innovative development of the industry requires state support, on the one hand, first of all, in respect of modern equipment provision and medical personnel training to work on it in accordance with world standards, on the other hand – the interest and initiative of healthcare organizations in the application of new technologies.

According to the authors, integrative approach includes a comprehensive application of the highest priority innovation types for healthcare: medical, information and organizational one (Table 1).

Table1: Integrative and multilevel approach for innovation application in healthcare

Innovation types in healthcare	Application levels			Types of effects
	Microlevel	Meso level (regional)	Macro level (federal)	
Medical	healthcare organization	regional level	sectoral level	Medical. social, economic
Information	healthcare organization	regional level	sectoral level	Managerial, medical, social, economic
Organizational	healthcare organization	regional level	sectoral level	Managerial, medical, social, economic

The example of integrative and multilevel principle implementation is the creation of an intersectoral scientific and technical complex "Eye Microsurgery" in 1986 under the guidance of the Doctor of Medical Sciences S.N. Fedorov, which facilitated the opening of MNTK branches throughout the country and abroad, the introduction of not only medical innovations at the meso- and macrolevel, but also organizational innovations such as a medical surgical conveyor, mobile surgery systems based on buses, etc.

The introduction of medical innovations allows us to make a rational choice of progressive methods of treatment, taking into account the greater clinical effectiveness in comparison with traditional approaches, the saving of resources and medical care quality improvement.

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The criteria for medical effect evaluation resulting from the application of medical innovations are the improvement of health indicators at the level of a patient and population in general by disease profiles. The reduction of losses from morbidity, disability, mortality indicates the level of social effect achievement as the result of more progressive methods of treatment applications. The innovations in medical practice contribute to the saving of resources by reducing the duration of treatment, the days of temporary disability, which contributes to the economic effect achievement.

High contribution to medical care improvement and the saving of country resident lives is provided by Federal high-tech medical centers (macro level).

The successful provision of high-tech medical care at the regional (meso-) level is supported by the following examples.

As the academician of the Russian Academy of Sciences Leo Bokeria notes, "the share of cardiovascular diseases in the country among the causes of death makes 54-56%, and the breakthrough technologies in cardiovascular surgery in the Kaliningrad Center for High Medical Technologies make it possible to consider this center of European level.

The uniqueness of the Federal Center of Neurosurgery in Tyumen is not only in its equipment according to the world standards, but also in a new level of experience exchange with the colleagues from other regions of the country and foreign scientists: the possibility to see the progress of an operation in 3d format, visual, audible and conversational contact with surgeons, which is the breakthrough in medical technology teaching.

The studies carried out by the authors on the application of innovations at the regional level (mesolevel) - using the example of the Sverdlovsk region healthcare and in the medical practice of the healthcare organizations of Ekaterinburg (at the microlevel) show the possibilities of a high medical, social and economic effect achievement.

According to the Center for Family Planning in Ekaterinburg, the state allocates at least 100,000 rubles per couple for the treatment of infertile couples annually, also because of prostatic diseases among men which lead to infertility. The introduction of the innovative technology for ozone treatment of non-gonococcal urethritis among men at SBI "The Ural Scientific Research Institute of Dermatovenereology and Immunopathology" in the Sverdlovsk region made it possible to reduce significantly the risks of infertility among men. A high medical, social effect has been achieved: the improvement of health indicators among the men of working age and the demographic indicators of the population. The economic effect from the introduction of this medical innovation made 47 - 95.8 million rubles, the economic efficiency made 15.7 - 23, i.e. the return made 15.7 - 23 rubles from each invested ruble (Krivenko, 2012).

The expediency of use in the sphere of domestic innovative resource-saving medicines has been proved as the result of the pharmacoeconomic analysis carried out on the example of the domestic drug "Tizol", created by the scientists of the scientific and production enterprise of Ekaterinburg "OLYMP" LLC. The use of the drug "Tizol" in the prevention and the treatment of different diseases allows you to achieve high medical results at a lower price, to shorten treatment time and save public funds significantly during the replacement of imported medicines. The medical efficacy of the drug

"Tizol" use is confirmed by the studies at the state institution The Russian Cancer Center named after N.N. Blokhin RAMS, the Research Institute of Pediatric Oncology and Hematology, Sverdlovsk Regional Medical Scientific and Practical Center "Oncology" and at the anti-tuberculosis service of the Sverdlovsk Region (Krivenko, 2012).

The advantages of information innovations are the timely adoption of management decisions based on large amounts of information and the monitoring in real time.

The choice of innovative treatment technologies based on the information and analytical system at the Interregional Traumatology Center in Ekaterinburg contributes not only to a higher medical effect achievement, but also to a significant reduction of stay duration at a 24-hour hospital, and for a number of outpatient procedures - up to 1 day (for example, cryotechnologies). Patient treatment costs are reduced from 3 to 17 times as the result of treatment duration reduction at a hospital from 4 to 30 days and the stay on the sick list from 4 to 90 days (Krivenko, 2012).

The creation of a unified regional information system for real-time monitoring of all pregnant women in the Sverdlovsk region on the basis of an innovative information and analytical tool "Automated System "Regional Obstetric Monitoring" (AS "ROM"), developed in the Regional Children's Clinical Hospital No. 1 in Yekaterinburg, contributed to improvement of medical care quality and its timely provision to women and children in the service of obstetrics (Ankudinov et al, 2015).

Organizational innovations in health care are aimed at an optimal use of all available resources and the application of new management models.

The introduction of the model organizing specific medical care for the children with the disorders of the musculoskeletal system and with concomitant multifactorial pathology in the "Bonum" Center of Ekaterinburg helped to reduce the terms of restorative treatment, to prevent the persistent disability of children, to achieve an economic effect during the treatment of one child - 2.95 million rubles, 4000 children undergoing the treatment under this program - in the amount of 11 billion 800 million rubles (Krivenko, 2012).

The development of the traumatological service of the city of Yekaterinburg on the basis of an innovative closed-cycle technological model with the use of the programs for injury prevention and the rehabilitation of disabled people made it possible to achieve the reduction of mortality from injuries by 58%, and reduction of the primary disability from trauma by 31% (Krivenko, 2012).

The introduction of the TB service management system in the Sverdlovsk region on the basis of indicators, multifactor analysis within the situational online center contributed to the reduction of losses at the community level due to morbidity, disability and mortality from tuberculosis, and the achievement of the economic effect at the amount 250.0 million rubles in 2016 (Tsvetkov et al, 2015). The organizational innovations of the anti-tuberculosis service of the Sverdlovsk region are used at the federal and interregional level of RF subjects (Tsvetkov et al, 2015).

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4. CONCLUSION

During her visit to Yekaterinburg on March 2, 2018, the Russian Minister of Health Veronika Skvortsova evaluated the innovative level of healthcare development in the Sverdlovsk region highly: "Modern digital technologies in the Sverdlovsk region work for the health of every individual. Last year, the overall mortality decreased by 5%, infant mortality - by more than 17%, and the mortality from tuberculosis by 21%. The experience of the Middle Urals on the use of unique computer products will be distributed throughout the country". Roszdravnadzor selected 18 best practices for the implementation of various healthcare projects, including 4 from the Sverdlovsk region, recommended for use in all regions of Russia.

5. SUMMARY

Thus, the synergistic effects from the integrative introduction of various types of innovations in healthcare that contribute to qualitative changes in medical services for the population , the reduction of losses at the community level due to the reduction of morbidity, disability, and mortality (Gabdrakhmanov and Egorov, 2015).

It is advisable to introduce innovations at all levels of management in the healthcare system, which will contribute to the preservation of human, including the able-bodied potential of the population, to GDP, and to the economic security increase of the region.

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