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## **Innovative vector of development of modern healthcare system in Kazakhstan: organizational and economic mechanisms and extrapolation of foreign experience**

The article is devoted to the study of organizational and economic mechanisms of innovative development of the healthcare system of Kazakhstan on the basis of extrapolation of effective foreign experience. The key problems of innovation in various fields of medicine are highlighted. The mechanism of technology transfer, the practical state with the use of advanced technologies is relevant. The mechanism of the public-private partnership for long-term financing of healthcare and providing positive animation is proved. In the field of innovations in the organization of healthcare, the basic mechanism is the introduction of compulsory social health insurance, the specifics of which are analyzed in the article. In the field of regulation of procedures relevant and modern is the introduction of information elements. Their structure and mechanism are also discussed in the present article. The article also considers the organization of clusters of medical innovations. The result of the implementation of the cluster approach should be an increase in productivity and innovation activity of enterprises belonging to the cluster, as well as an increase in the intensity of development of small and medium-sized businesses, which can significantly strengthen the innovative component of its activities in the promotion of the most effective medical technologies.

*Keywords:* technology transfer in medicine, public-private partnership in healthcare, compulsory social health insurance, strategic partnership in healthcare, smart medicine, hospital information systems.

In an open economy, innovation is universal. Modern medicine is an example of the active introduction of innovative products, technologies and organizational elements. The most significant in terms of long-term effect are the following areas: innovations in treatment, innovations in the organization of healthcare, innovations in the regulation of medical care procedures. What are the applied elements of innovative implementation in the healthcare system of our country?

Actually innovations in treatment are innovative forms of diagnostics, new methods of treatment, use of new dosage forms, new forms of the organization of preventive actions. In the development of this area of innovation the practice of the previous period is particularly important. This applies, in particular, to the trajectory of development of domestic medical science [1]. So, earlier in the institutional plan the domestic medical science traditionally developed within profile research and development works (R&D) of research institutes (SRI) in close connection with the leading scientific institutions of the USSR performing head functions practically in all directions of medical science. At the same time, a significant importance was attached to fundamental research, followed by their development in their own R&D and implementation of their developments. Achievements of world science and advanced foreign experience were used extremely rarely and in small volumes, and there was no direct borrowing of foreign science and practices achievements. Many medical disciplines developed only within the University science and did not have sufficient materials and technical base and scientific potential. Therefore, within the framework of a sovereign state, the most urgent problem was the development of new scientific potential with new priorities: determining the orientation of scientific research, the formation of a modern system of scientific medical information, a modern mechanism for the examination of inventions, authentic to the new time of training and certification of scientific personnel, etc. On this basis, it can be stated that the healthcare system in Kazakhstan lagged behind the vector of modernization and innovation of world medicine.

The first step for innovative development opportunities is to increase access to international medical scientific research through well-known databases. The creation of a system of scientific medical research in accordance with international principles and standards will allow Kazakhstan to achieve the goals of improving the competitiveness of the country in General and medical science in particular. The experience of leading countries, in particular the United States in the field of medical science shows that \$1 invested in R&D accounts for \$9 of gross domestic product (GDP) growth [2].

Today, the United States is seeking to provide leadership in all areas of scientific knowledge and the priority is medical science. It should be noted that the problems of development of scientific activity are problems for all countries of the world, and they are implemented in each state in different ways. Mainly re-

search in the field of management, organization and planning of scientific activities aimed to improve the scientific policy and management of scientific activities. The national institutes of health was found in 1887, when the hygiene Laboratory was established. It was reorganized in 1930 into the National Institutes of Health (NIH). NIH invests more than \$38 billion annually in medical research for the American people. More than 80 % of NCD funding is spent through nearly 50,000 competitive grants involving more than 325,000 researchers and more than 3,000 universities, medical schools, and other research institutions in each state and around the world. [3] Additional funding is intended, in particular, to attract highly qualified specialists who study the most dangerous modern pathologies associated with neuro-degenerative, oncological, cardiovascular and some other diseases.

In the health sector, government support is also being provided to expand the use of new technologies to improve healthcare, in particular to provide access to electronic health records for the majority of Americans. Consideration of the distribution of resources in the areas of research allows you to get an idea of the priority directions of their implementation. In the last decade, for example, not only in the United States, but also in other developed countries, the intensity of research in the field of new technologies, such as information and communication, nano-and biotechnology, which have an increasing impact on all aspects of society [4]. In this regard, the problem of technology transfer as the basis of innovations in treatment is actualized for Kazakhstan.

The institutional basis for the mechanism of quality transfer was the creation of the National medical holding. It unites 6 innovative medical centers: JSC «national scientific center of motherhood and childhood», JSC «national center of neurosurgery», JSC «Republican children's rehabilitation center», JSC «national scientific center of Oncology and transplantation», JSC «Republican diagnostic center» and JSC «national scientific cardiac surgery center». Innovative characteristics of the holding's clinics are: provision of highly specialized innovative and technological medical care; modern hospital management; international quality and safety standards.

Confirmation of the quality of medical services is the successful passage of the international accreditation of Joint Commission International (JCI) clinics of the holding. In total, there are 5 JCI accredited clinics in the former Soviet Union, 4 of which are located in Kazakhstan — in the National medical holding. JCI accreditation is the «gold standard» for medical organizations, evidence of the highest quality of medical care, patient safety, professional application of treatment methods and management in medical practice.

In applied terms, the transfer of new treatment technologies has led to the introduction of the following unique methods of diagnosis, treatment and rehabilitation:

- uterine artery embolization and in vitro fertilization (IVF) — at the National center for motherhood and childhood;
- microsurgical removal of a herniated disc at the lumbar level;
- laser vaporization of intervertebral discs; surgery to remove brain tumors and angiographic examination of the vascular system of the brain and spinal cord;
- new methods for the treatment of Parkinson's disease — at the National center of neurosurgery;
- biofeedback psycho-emotional correction;
- posturography;
- robotic kinesotherapy on the apparatus «Lokomat» — in the Republican children's rehabilitation center;
- implantation of VAD circulatory support devices;
- heart transplantation and prosthetic heart valves-at the National scientific cardiac surgery center;
- bone marrow, kidney, liver transplantation, as well as embolization of prostate vessels, liver, etc. — at the National center of Oncology and transplantation.

On the basis of these advanced clinics, more than 110 thousand Kazakhstani patients have already been treated. Along with this, 140 kidney transplants were performed in patients with such a serious illness as chronic renal failure, 114 bone marrow transplants were performed in patients with malignant tumors of the hematopoietic system.

Despite the obvious successes in the introduction of new technologies, it is necessary to highlight a number of problems in the development of innovations in treatment. The target function for this is to ensure the availability of new treatment methods. Unfortunately, the use of innovative technologies is not universal. There is no mechanism of animation and new techniques, and new dosage forms. To solve this systemic problem, a comprehensive solution of the following 4 tasks is required. These include:

- lack of financial resources for the widespread introduction of advanced technologies;
- lagging behind in the level of development of the latest world analog techniques;
- lack of introduction of innovative technologies in the regions;
- lack of professional staff for the functioning of the «new innovative medicine».

What are the ways to solve these problems?

In order to ensure the effective functioning of the health system, who recommends that at least 6–8 % of GDP be allocated with budgetary funding in developed countries and at least 5 % of GDP in developing countries. The share of healthcare expenditures in Kazakhstan is only 3.8 % [5]. Therefore, to solve the first problem — the lack of financial resources — it is very promising to introduce the mechanism of public-private partnership (PPP).

PPP is recognized as one of the most effective forms of attracting the private sector to create and finance public infrastructure. The main reason for the use of PPP in the health sector is to reduce the costs of the state, to achieve a rational ratio of price and quality, the transfer of risks to the private sector, the provision of advanced medical services. This is evidenced by the experience of foreign countries that have long practiced PPP projects. The most successful projects were in the UK, Germany, Spain, Sweden, etc. The largest PPP models are: construction, reconstruction and operation contracts; management and lease contracts; service and mixed contracts. At the same time, new technical solutions are applied, leading to the use of innovative technologies. For effective implementation of PPP projects in the health sector of Kazakhstan it is necessary to justify their specificity by country [6–8]:

1. The main thing in PPP projects in the UK is the reconstruction and construction of new health facilities (the project of a private financial initiative allowed for 20 years to reconstruct 106 hospitals and build 128).

2. in Germany, PPPs focus on two objectives: new construction and an increase in the share of private health facilities. A classic example is the construction of a € 132m proton therapy centre in Essen as part of a PPP, which was transferred to private management for a period of 15 years with an estimated cost savings of 20 %.

3. Sweden has agreements with private investors for the management of public hospitals, ambulances and laboratory services. In addition, the largest project is the construction of an ultra-modern University clinic «New Karolinska Solna».

4. in Spain, the public national health system owns 40 % of hospitals, the remaining 60 % of hospitals are private. At the same time, most of the private hospitals operate on the basis of a PPP concession agreement, which allows them to receive public funding. Also in Spain, there are several schemes of co-financing in the framework of public-private partnerships in the provision of medical services in the event of occupational injuries and diseases. In addition, the state has traditionally procured from private providers 15 to 20 per cent of highly specialized medical services, such as high-resolution diagnostics and outpatient surgery.

In Kazakhstan, there are no fully implemented PPP projects, but some aspects are being implemented within the framework of the Unified national health system. In particular, it is planned to implement 22 projects: 9 hospitals and 13 outpatient organizations (APO). In addition, since 2013, the private sector has been involved in the implementation of the state order within the guaranteed volume of free medical care. An effective mechanism for the implementation of socially significant PPP projects is clearly visible on the example of program hemodialysis. Thus, private hemodialysis providers account for 34 % and provide 40 % of services [6].

Effective development of healthcare is possible only through continuous investment and innovation using the mechanism of public-private partnership. The use of the model of public-private partnership in the healthcare system can generate a number of positive social and economic effects for society: technical and technological re-equipment of the industry; increasing the efficiency of resource use; creation of conditions and prerequisites for the effective functioning of health facilities owned by the state, their optimal management and rational operation; improvement of the quality of medical services, thanks to the growth of quality standards provided by the state in contracts with private companies — operators.

For innovation in the regions we have now taken the following measures: opening of competence centers of advanced technologies, organization of training courses for doctors from the regions, outreach workshops in the regions by mentoring, inviting the world's leading experts in various fields of medicine. The purpose of these events is not only to improve the skills of health workers, but also to teach them the best international technologies. Every year, on average — within the framework of the national budget-on the basis of the hold-

ing clinics are organized about 15 master classes, about 130 mentors are invited, about 100 doctors and nurses and 30 managers in healthcare are sent for training to the leading clinics of the world.

To solve the problem of mastering the latest world technologies, it is necessary to systematically ensure the primary level of obtaining innovative technologies — to ensure strategic partnership with leading foreign universities, initiators of innovations. For this purpose the following model of relationship is assumed. In terms of criteria for selecting strategic partners, it is necessary to highlight the presence of a University clinic, being in the TOP 300 in the ranking, multi-level training of doctors and academic mobility. The main areas of cooperation are improving the management system in medical universities, increasing the scientific potential of teaching staff of universities, improving educational programs, the development of scientific activities of medical universities. Mechanisms of implementation of strategic partnership are consulting, mentoring, joint management, trust management. This model contributes to the formation of long-term partnership, testing of new medical techniques, the entry of medical institutions into the General research algorithm.

To solve the fourth task — to improve the quality of medical personnel — it is necessary to modernize medical education. The main directions of its implementation are:

- transition to the autonomy of higher education institutions;
- Informatization of medical universities;
- development and establishment of University clinics;
- improving the competence model of teaching staff and increasing the capacity of teachers according to international standards;
- formation of an effective model of career development (doctor-teacher-scientist);
- involvement of students in international scientific events.

The next set of actual practical tasks is innovations in healthcare organization. The most important in this regard is the transition to a system of compulsory health insurance. It is the nature and essence of the national model of CHI that determines the quality and degree of provision of health services to the population. The General model of health insurance in the country will have a social orientation [9]. The parameters of this model are as follows. The principles of solidarity, inclusiveness and justice are taken as the basis of the domestic model of MSHI. The system is not cumulative and does not provide for a personalized distribution of funds, that is, medical services will be received by all citizens equally, regardless of who and how many of them deducts. The amount of deductions will depend on wages — the more a person receives, the greater the amount of his deductions, respectively. The interest rate for the entire working population was approved as a single one.

Solidary financing is monthly contributions and contributions to the health insurance Fund from employers, employees, self-employed and the state, which acts as the main payer and contributes funds for the socially unprotected population.

Participants of compulsory health insurance will have access to:

- primary healthcare (polyclinic services) will be provided in outpatient and day hospital conditions, including prevention, diagnosis, treatment of diseases and conditions, monitoring of pregnancy, medical manipulations;
- specialized and high-tech medical care will include: prevention, diagnosis, treatment of diseases requiring the use of special methods and complex medical technologies;
- planned medical care will be provided in inpatient conditions for diseases and conditions that do not threaten the life of the patient;
- provision of medicines in accordance with the approved list of diseases;
- nursing care-assistance to persons who are unable to self-care, in need of constant outside care or supervision due to illness;
- palliative care-maintaining the quality of life of patients with incurable, life-threatening and severe diseases at a possible comfortable level for a person.

The state guarantees the following types of medical care free of charge (i.e. regardless of compulsory insurance):

- ambulance and air ambulance;
- medical care for socially significant diseases such as Oncology, tuberculosis, diabetes, psychiatric pathology, as well as in emergency cases;
- immunization.

It should be noted that the social insurance model chosen in Kazakhstan is similar in purpose to the insurance mechanisms in a number of developed countries, in particular, in Germany. The German healthcare system is also based on compulsory social insurance. In the organization of healthcare in Germany clearly divided the functions of regions, hospitals to provide medical care, the individual doctor. Thus, strategic and annual plans for the development of the hospital network are developed in each region. They are based on an assessment of population needs and hospital capacity. As part of these plans, the health authorities give sanctions for investments, including the construction of new medical facilities, the purchase of new equipment and medicines [10]. In terms of the development of hospital care, there are strict rules of contractual relations, enshrined in the German social code. Contracts for the provision of healthcare under compulsory health insurance are concluded only with those hospitals that participate in quality assurance programmes. And for the assessment and selection of quality indicators and their monitoring, the state authorities have developed a special program. Considerable attention is paid to the provision of healthcare to people with low incomes. In particular, in each region there are programs to Finance medical care for persons whose income does not allow them to participate in compulsory health insurance schemes. In addition, there is a mechanism of joint insurance: so if the income of each family member does not exceed a certain minimum, then all are jointly insured without making additional contributions. The CHI system is therefore the preferred option for low-income families, single-income families and the elderly to receive healthcare. Medical activity is also insured. Every doctor is obliged to insure his / her professional liability. Under this condition, the injured party has a chance of receiving compensation from the insurance Fund, and not from the funds of the medical institution or CHI funds.

Thus, the German model combines the high social efficiency of medical care guaranteed by the Federal and regional authorities and the responsibility of both the medical institution and the individual doctor for the results of medical care. These advantages of health insurance are the socio-economic reference point for the national healthcare.

Highly developed countries with innovative health systems tend to have low levels of private spending. On average, in the countries of the Organization for economic cooperation and development (OECD), the share of private spending is on average 28 %, the state budget and social insurance accounts for 72 %. In Kazakhstan, the ratio is 35 % and 65 % respectively [11]. A high proportion of private expenditure in financing healthcare system in Kazakhstan, which is largely backed by no medical insurance, and citizen participation in the direct payment of medical services, is a major risk factor for the health system as a whole, since it is associated with high volatility of demand for medical services. Therefore, one of the ways out of this situation is the development of voluntary health insurance (VHI), which allows you to fully or partially cover the costs of the insured citizen for medical services not provided by the MSHI system, in selected clinics and on selected terms at the expense of the insurance company.

In this regard, the experience of Spain in the development of voluntary health insurance (VHI), which operates independently of the public sector (complete rejection of CHI is impossible) and is complementary. This type of insurance is mainly used to provide services for which there is a waiting list in the public sector (for example, specialized medical care) or to obtain such assistance, which is only partially provided under the free medical care program (for example, dental care for adults). Overall, 13 per cent of the population is covered by VHI, with coverage varying significantly by region.

Finally, we will focus on innovations in the regulation of medical care procedures.

First of all, they are associated with the reform of the healthcare system on the basis of innovative approaches using IT, such as: «smart medicine», remote prevention, «electronic medicine». Their development is aimed, first of all, at solving many important issues. Such as, for example, the expansion of access to high-quality medicine for the entire population of the country; the fight against bureaucracy, which becomes an obstacle, both for patients who often need prompt medical care, and for medical workers, making it difficult for them to perform their direct duties; exchange of health information on the basis of integrated health systems.

For example, in Spain, one of the first stages of the development of the system of public health services in digital format was the program «Medical service online» (Sanidad en línea), aimed at upgrading the Central information cluster of the health system on the basis of individual patient numbers and electronic medical records [8].

In Kazakhstan, the use of it innovations in the healthcare system is a fairly new practice, but the prospects for its rapid and successful development are obvious and are only a matter of time. Thus, within the framework of the task of Informatization of the healthcare system, the State program of reforming and development of healthcare was formed, according to which the investment project «Creation of a Unified

health information system of the Republic of Kazakhstan» (UISZ) is being implemented. Under this project, all health organizations are equipped with modern IT infrastructure, an integrated system of medical information about patients is created, an electronic passport of the country's population health is formed. Since 2004, the Ministry of health has been implementing the investment project «development of mobile and telemedicine in aul (rural) healthcare in Kazakhstan».

Kazakhstan, in turn, has already achieved success—the first among the CIS countries, having made the transition to integrated Informatization of the healthcare system.

What are the main applied problems in this direction? This is, first of all, the lack of universality of health Informatization. Secondly, the uneven use of automated procedures, and thirdly, the insufficient professional base to cover the entire population with «electronic medicine». To resolve these problems, the following system modernization measures are planned in the country. The core of the Informatization model is the interoperability platform (patient's personal account). Its filling is carried out through 5 channels:

- 1) electronic passport of the patient (patient's access channel to the state of health);
- 2) information systems of the Ministry of health of the Republic of Kazakhstan (management decision-making channel);
- 3) FSMS information system (channel for financing medical services);
- 4) hospital information systems (GIS) (automation channel of medical organizations and personnel);
- 5) smart medicine (channel for remote information about the health of the patient).

The most time-consuming is the formation of hospital information systems. However, they are more rationalize modern medicine. After all, the main objectives of hospital information systems are

- automation of all processes in the medical institution,
- the transition to a paperless form of the medical information.
- improving the quality of medical care,
- implementation of the mechanism of accounting for actual costs of healthcare providers.

The innovative model of healthcare development, based on the unity of science, education and practice, international partnership with leading countries and research centers and the development of public-private partnership, should have a special mechanism of management, dictating the presence of a dichotomy of two principles: economic efficiency and social justice. The State program of healthcare development of the Republic of Kazakhstan «Densaulyk» for 2016–2020 is aimed at the formation of such a model [12]. This is especially true for the current state of the healthcare system in Kazakhstan, which according to the report of the world economic forum «Global competitiveness index» for 2018 is characterized by weak positions on the indicator «Health» (96th place among 140 countries) and a significant decrease in the rating on this indicator by 3 positions compared to 2017 [13].

It is important to emphasize that the modernization of health potential should be realized through the development, implementation and implementation of medical innovations through the development of cluster strategies related to the promotion of innovations in the market through their commercialization. These directions of innovative modernization of the national healthcare system should form the basis of the Draft State program for improving the health of the population of the Republic of Kazakhstan for 2020–2025 [14].

As the main objectives of the innovative cluster strategy in the health sector of Kazakhstan it is necessary to highlight the following:

- integration of efforts of scientific and educational medical organizations, practical healthcare in the field of creation of new methods of diagnostics and treatment based on biotechnologies and nanotechnologies;
- development of entrepreneurial approach in the field of medical innovations dissemination and their effective commercialization;
- improving the competitiveness of domestic innovative medical products in the domestic and foreign markets;
- formation of a new management system of innovative medical activity;
- improving the technological level of the domestic system of medical care;
- integration of domestic and foreign innovative medical developments in the activities of leading regional medical centers;
- creation of a new model of personnel work, providing not only training for the introduction and use of medical technologies, but also continuous improvement of their skills in a continuous mode;

- attracting domestic and foreign investors for the development and implementation of high-performance technologies;
- consolidation of efforts with leading domestic and foreign research centers to promote the most effective medical technologies;
- development of information and communication environment for optimal promotion of innovations.

The organization of clusters of medical innovations taking into account the goal and objectives is designed to promote the development of the health sector of the national innovation system. The result of the implementation of the cluster approach should be an increase in productivity and innovation activity of enterprises belonging to the cluster, as well as an increase in the intensity of development of small and medium-sized businesses, which can significantly strengthen the innovative component of its activities in the promotion of the most effective medical technologies. The development of each new medical technology will only reach its goal when the innovation cycle is completed: fundamental development-production of the product-its production on an industrial scale-the introduction (use) of the product in the clinic for the diagnosis, treatment and prevention of diseases. In Kazakhstan, the introduction of new technologies in practical healthcare is sometimes delayed for years. And there are a number of serious reasons for this: the underdevelopment of public-private partnership as a tool to attract investment in domestic science; lack of qualified personnel in the field of commercialization of high-tech products in the field of medicine; insufficient demand for new technologies for the production of drugs, immunobiological and other drugs, diagnostics, medical equipment.

These are the General parameters of the innovation vector in the development of healthcare of the Republic of Kazakhstan.

#### References

- 1 Государственная программа развития здравоохранения Республики Казахстан «Саламатты Қазақстан» на 2011–2015 годы [Электронный ресурс]. — Режим доступа: <http://adilet.zan.kz/rus/docs/U1000001113>
- 2 Porter M.E. US Competitiveness 2001: Strengths, Vulnerability and Long-Term Priorities [Electronic resource] / M.E. Porter, D. Van Opstal. — Washington: Council on Competitiveness, 2001. — 86 p. — Access mode: <https://link.springer.com>
- 3 Human Development Reports [Electronic resource]. — Access mode: <http://hdr.undp.org/>
- 4 OECD Communications Outlook [Electronic resource]. — Access mode: <https://www.oecd-ilibrary.org>
- 5 Кинаятов А. Планирование управления инвестициями и развитие государственно-частного партнерства в сфере здравоохранения Казахстана / А. Кинаятов, Г. Темирбекова // Менеджер здравоохранения Республики Казахстан. — 2015. — № 4. — С. 61–65.
- 6 Избасаров Б. Государственно-частное партнерство в сфере здравоохранения / Б. Избасаров // Менеджер здравоохранения Республики Казахстан. — 2015. — № 1. — С. 14–19.
- 7 European Health Report, 2018 — World Health Organization [Electronic resource]. — Access mode: [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0008/379862/who-ehr-2018-eng.pdf?ua=1](http://www.euro.who.int/__data/assets/pdf_file/0008/379862/who-ehr-2018-eng.pdf?ua=1).
- 8 Системы здравоохранения: время перемен. Испания: реферат обзора. — Европейская обсерватория по системам и политике здравоохранения [Электронный ресурс]. — Режим доступа: [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0010/155557/E94549sumR.pdf](http://www.euro.who.int/__data/assets/pdf_file/0010/155557/E94549sumR.pdf)
- 9 Закон Республики Казахстан от 16 ноября 2015 года № 405-V ЗПК «Об обязательном социальном медицинском страховании» [Электронный ресурс]. — Режим доступа: <http://adilet.zan.kz/rus/docs/Z1500000405>
- 10 Антропов В. Здравоохранение в Германии: исцеление для всех / В. Антропов // Современная Европа. — 2006. — № 3. — С. 125–135.
- 11 Добровольное медицинское страхование в Казахстане: Проблемы и перспективы [Электронный ресурс]. — Режим доступа: <https://allinsurance.kz/articles/market/4796-dobrovolnoe-meditsinskoe-strakhovanie-v-kazakhstane-problemy-i-perspektivy>
- 12 Государственная программа развития здравоохранения Республики Казахстан «Денсаулық» на 2016–2020 гг. [Электронный ресурс]. — Режим доступа: <http://adilet.zan.kz/rus/docs/U1600000176>
- 13 Рейтинг стран мира по уровню Глобальной конкурентоспособности по версии Всемирного экономического форума [Электронный ресурс]. — Режим доступа: <https://gtmarket.ru/ratings/global-competitiveness-index/info>.
- 14 Проект Государственной программы улучшения здоровья населения Республики Казахстан на 2020–2025 годы [Электронный ресурс]. — Режим доступа: [http://www.rcrz.kz/images/content/proekt\\_GPRZ\\_20-25.pdf](http://www.rcrz.kz/images/content/proekt_GPRZ_20-25.pdf).

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## Қазақстанның заманауи денсаулық сақтау жүйесінің инновациялық даму векторы: ұйымдық-экономикалық механизмдері

Мақала Қазақстан Республикасының денсаулық сақтау саласындағы инновациялық қызметті дамытуға арналған. Медицинаның түрлі салаларына инновацияны енгізудің негізгі мәселелері айқындалды. Технологиялар трансфертінің механизмі, озық технологияларды пайдаланудағы тәжірибелік жағдай өзекті болып табылады. Денсаулық сақтауды ұзақ мерзімді қаржыландыруды және оң мультипликацияны қамтамасыз ету мақсатында МЖӘ механизмі негізделген. Денсаулық сақтау ұйымдарындағы инновация саласындағы міндетті әлеуметтік медициналық сақтандыруды енгізу базалық механизм болып табылады, оның ерекшелігі мақалада талданған. Рәсімдерді регламенттеу саласында ақпараттандыру элементтерін енгізу өзекті және заманауи болып табылады. Олардың құрылымы мен механизмі ұсынылған мақалада зерттелген. Сонымен қатар мақалада медициналық инновациялар кластерлерін ұйымдастыру қарастырылған. Кластерлік тәсілді іске асырудың нәтижесі кластерге кіретін кәсіпорындардың өнімділігі мен инновациялық белсенділігінің өсуі, сондай-ақ барынша тиімді медициналық технологияларды ілгерілетуде өз қызметінің инновациялық құраушысын едәуір күшейте алатын шағын және орта бизнесті дамыту қарқындылығын арттыру болуы тиіс.

*Кілт сөздер:* медицинадағы технологиялар трансферті, денсаулық сақтаудағы мемлекеттік-жеке меншік әріптестік, міндетті әлеуметтік медициналық сақтандыру, денсаулық сақтаудағы стратегиялық әріптестік, смарт-медицина, госпитальдық ақпараттық жүйелер.

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## Инновационный вектор развития современной системы здравоохранения Казахстана: организационно-экономические механизмы

Статья посвящена развитию инновационной деятельности в сфере здравоохранения Республики Казахстан. Выделены ключевые проблемы внедрения инноваций в различные области медицины. Актуальным представляется механизм трансфера технологий, практическое состояние с использованием передовых технологий. Обоснован механизм ГЧП для долгосрочного финансирования здравоохранения и обеспечения позитивной мультипликации. В области инноваций в организации здравоохранения базовым механизмом является внедрение обязательного социального медицинского страхования, специфика которого проанализирована в статье. В области регламентации процедур актуальным и современным является внедрение информатизационных элементов. Их структура и механизм также рассмотрены в статье. Авторами также изучена организация кластеров медицинских инноваций. Результатом реализации кластерного подхода должен стать рост производительности и инновационной активности предприятий, входящих в кластер, а также повышение интенсивности развития малого и среднего бизнеса, который сможет значительно усилить инновационную составляющую своей деятельности в продвижении наиболее эффективных медицинских технологий.

*Ключевые слова:* трансферт технологий в медицине, государственно-частное партнерство в здравоохранении, обязательное социальное медицинское страхование, стратегическое партнерство в здравоохранении, смарт-медицина, госпитальные информационные системы.

### References

- 1 Hosudarstvennaia prohramma razvitiia zdravookhraneniia Respubliki Kazakhstan «Salamatty Kazakhstan» na 2011–2015 hody [State program of health care development of the Republic of Kazakhstan «Salamatty Kazakhstan» for 2011–2015]. *adilet.zan.kz*. Retrieved from <http://adilet.zan.kz/rus/docs/U1000001113> [in Russian].
- 2 Porter, M.E., & Van Opstal, D. (2001). US Competitiveness 2001: Strengths, Vulnerability and Long-Term Priorities. Washington, Council on Competitiveness. *link.springer.com*. Retrieved from <https://link.springer.com>
- 3 Human Development Reports. *hdr.undp.org*. Retrieved from <http://hdr.undp.org/>
- 4 OECD Communications Outlook. Retrieved from <https://www.oecd-ilibrary.org>
- 5 Kinayatov, A., & Temirbekova, G. (2015). Planirovaniya upravleniia investitsiiami i razvitie hosudarstvenno-chastnoho partnerstva v sfere zdravookhraneniia Kazakhstana [Investment management planning and development of public-private partnership in the healthcare sector of Kazakhstan]. *Menedzher zdravookhraneniia Respubliki Kazakhstan — Health care Manager of the Republic of Kazakhstan*, 5, 61–65 [in Russian].
- 6 Izbasarov, B. (2015). Hosudarstvenno-chastnoe partnerstvo v sfere zdravookhraneniia [Public-private partnership in health-care]. *Menedzher zdravookhraneniia Respubliki Kazakhstan — Health care Manager of the Republic of Kazakhstan*, 1, 14–19 [in Russian].

- 7 European Health Report (2018). World Health Organization. of Kazakhstan «Salamatty Kazakhstan» for 2011–2015]. *adilet.zan.kz*. Retrieved from [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0008/379862/who-ehr-2018-eng.pdf?ua=1](http://www.euro.who.int/__data/assets/pdf_file/0008/379862/who-ehr-2018-eng.pdf?ua=1)
- 8 Sistemy zdravookhraneniia: vremia peremen. Ispaniia: referat obzora [Health systems: a time of change. Spain: summary of the review] *Evropeiskaia observatoriia po sistemam i politike zdravookhraneniia — European Observatory on health systems and policies*. Retrieved from [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0010/155557/E94549sumR.pdf](http://www.euro.who.int/__data/assets/pdf_file/0010/155557/E94549sumR.pdf) [in Russian].
- 9 Zakon Respubliki Kazakhstan ot 16 noiabria 2015 hoda № 405-V ZRK «Ob obiazatelnom sotsialnom meditsinskom strakhovanii» [Law of the Republic of Kazakhstan dated November 16, 2015 No. 405-V SAM «On compulsory social health insurance»]. *adilet.zan.kz*. Retrieved from <http://adilet.zan.kz/rus/docs/Z1500000405> [in Russian].
- 10 Antropov, V. (2006). Zdravookhranenie v Hermanii: istselenie dlia vsekh [Health care in Germany: healing for all]. *Sovremennaya Evropa — Modern Europe*, 3, 125–135 [in Russian].
- 11 Dobrovolnoe meditsinskoe strakhovanie v Kazakhstane: Problemy i perspektivy [Voluntary health insurance in Kazakhstan: Problems and prospects]. *allinsurance.kz*. Retrieved from <https://allinsurance.kz/articles/market/4796-dobrovolnoe-meditsinskoe-strakhovanie-v-kazakhstane-problemy-i-perspektivy> [in Russian].
- 12 Hosudarstvennaia prohramma razvitiia zdravookhraneniia Respubliki Kazakhstan «Densaulyk» na 2016–2020 hh. [The state program of development of health care of the Republic of Kazakhstan «Densaulyk» for 2016–2020]. *adilet.zan.kz*. Retrieved from <http://adilet.zan.kz/rus/docs/U1600000176> [in Russian].
- 13 Reiting stran mira po urovniu globalnoi konkurentosposobnosti po versii Vsemirnogo yekonomicheskogo foruma [Ranking of world countries in terms of Global competitiveness according to the world Economic Forum]. *gtmarket.ru*. Retrieved from <https://gtmarket.ru/ratings/global-competitiveness-index/info> [in Russian].
- 14 Proekt Hosudarstvennoi prohrammy uluchsheniia zdorovia naseleniia Respubliki Kazakhstan na 2020–2025 hody [Draft State program for improving the health of the population of the Republic of Kazakhstan for 2020–2025]. *rcrz.kz*. Retrieved from [http://www.rcrz.kz/images/content/proekt\\_GPRZ\\_20–25.pdf](http://www.rcrz.kz/images/content/proekt_GPRZ_20–25.pdf) [in Russian].