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Territorial health maps as a tool for building a republican healthcare system

Abstract. The article is dealing with the issues of creating a new method of public health management in the context of realization of innovative potential of the healthcare sector by means of motivating providers of medical services towards creative activity, positive attitude to implemented innovations, and as a result — transformation of consumers of medical services to patients with an “innovative attitude to their own health”. Targeting future incomes, raising the standard of living of the population, increasing accessibility and quality of healthcare provided when investing capital are essential features that distinguish social investment in healthcare. The healthcare model of the future, based on an accurate diagnosis of the health status of people, the prediction of diseases, and taking into account all the factors of the surrounding reality, should be of an investment nature, contributing to the preservation and development of human capital, providing an effective mechanism for managing public health.

Key words: healthcare; management; management of public health; healthcare model; behavioral factor; medical staff; investments; subjects of the healthcare system

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Introduction

When the global vector of development of healthcare systems is based on the transition from the prevalence of curative medicine to a system based on prevention, preservation of quality and accessibility of medical services, the Russian healthcare system needs creating a model of prophylactic medical

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examination as an information environment for public and business activity. Today the world is on the verge of a radical change in the healthcare sector. Improved diagnostics, sensor-controlled patients, artificial intelligence, robotics, the achievements of biomedical technology should radically change the relationship between patients and healthcare providers. Orientation of modern healthcare to “innovations-based functioning” dictates the need to review the existing system of public health management and to find new methods of management influence on the consciousness and behavior of consumers of medical services [Sheiman, 2011].

The innovative healthcare model created in Singapore is a kind of medical phenomenon; it combines cost-effective technologies that work for the social effectiveness of the state and a financing system that combines individual responsibility with targeted subsidies to protect the poor. In all cases, investments in healthcare do not have monetary characteristics, their payback is measured by the quality of human potential [Health Management... 2013]. A society which is aimed at the transition from a model of treatment to a model of prevention and dispensarization is capable of implementing it only when a sufficiently high rank of the value of individual human life and health is formed in the hierarchy of values. When studying foreign experience, it is advisable to propose mechanisms of stimulating individual responsibility of the patient for their own health (the experience of South Korea in personalized registration of funds; the experience of Germany in reducing the cost of paid services in the case of passing all the stages of prophylactic medical examination) to the Russian model of healthcare. These mechanisms, when applied to formation of an “innovative culture” of a patient in his/her attitude to his/her own health, can be a stimulus for a new interpretation of the concepts of “standard of health”, “health”, and as a consequence, lead to a decrease in morbidity and mortality, the formation of a positive attitude of consumers to the prophylactic medical examination and prevention [Ziganshina, 2016b].

Knowledge in medicine enables establishing the standard of health and deviations from it, dictate the goals, intentions and actions of consumers in the process of shaping the value of “health.” The management of public health on the basis of value requires from medical organizations the adoption, through continuous analysis of medical data, of more reasonable decisions in real time, optimizing planning and improving the results with respect to this value, and stimulating citizens’ individual responsibility for their own health. Effective analytics is crucial in the healthcare management; all measurable indicators need to be improved when setting the standard. The integration of data, their transformation into information and the transformation of this information into economically viable ideas that improve the patient’s health, this is what we propose and have already began to create on the basis of the university clinic of the Kazan University.

Methodology

The definition of healthcare as an investment model is a specific managerial, organizational and economic innovation. Like any investment model, the healthcare model should presuppose a clear definition of the subjects and beneficiaries of investments. How is the responsibility distributed between the subjects of investment? The adoption of management decisions aimed at increasing the competitiveness of the national healthcare model depends to a large extent on the level of investment activity of the subjects of the healthcare system. The methodology for assessing the effectiveness of the existing healthcare system should be based on the definition of an integral efficiency coefficient, which is the product of the coefficients of economic efficiency, social justice and individual responsibility of citizens for their own health.

The industrialization of medical care in shifting from standard approaches in the diagnosis and treatment of diseases to high-tech medical services, when clinical thinking is “replaced” by the capabilities of equipment, is possible only when creating an effective healthcare investment scheme, namely, in the formation of new types of partnerships: innovative approaches to continuous professional training of specialists (innovative organizational structure, innovative cluster of human resources, including the mentoring institute, simulation training center, clinical testing center); innovative medical care - the establishment of a high-tech medical organization, a center for translational medicine, an expert medical organization of a unified level; innovative preventive technologies - gene-cellular methods of prevention and treatment, as well as the territorial health maps that we proposed.

Continuous study of patients’ satisfaction with the quality of medical care allows to make changes in the infrastructure and to form an effective strategy of the clinic taking into account the implementation of priority directions, implying the possibility of changing the structure of clinical examination and prevention in accordance with the formed “territorial health maps” [Ziganshina, 2016b: 27]. The purpose of this method is to create a system of personalized accounting and mapping taking into account all health factors of the population as a tool for managing public health.

The “Territorial health maps” we proposed are medical-geographical maps, built on the basis of:

- ecological maps of the district where the population attached to the university clinic lives (the condition and quality of the environment, which are manifested in adverse health effects of the population);
- geographical maps (natural, social and industrial) with the definition of the prerequisites of human diseases inherent in natural and industrial territorial complexes, their combination and conditions of manifestation;

- video ecological maps (the influence of different aspects of the environment (visual environment) on the growth of mental illnesses, the determination of the number of people with myopia;
- maps, formed on the basis of gender, age and social characteristics of the attached population;
- nosogeographic maps characterizing the actual spread of diseases;
- maps of public health;
- demoeological maps showing areas of increased mortality of the population and its possible causes;
- data maps of clinics' medical information system (categories of benefits, disability, dispensary records, anthropometry, vaccination card, transfusiologic history, allergic anamnesis, bad habits, concomitant diseases, infertility, recent diseases, etc.). "Territorial health maps" is an instrumental step towards the transition to a completely new principle of building a healthcare system that allows analyzing the sexual, age, national predisposition of the population to certain types of diseases, to build an individual trajectory of managing citizens' health, to work with different cases.

Development of *the "territory health maps"* on the basis of gender, age, and social profile of the attached population

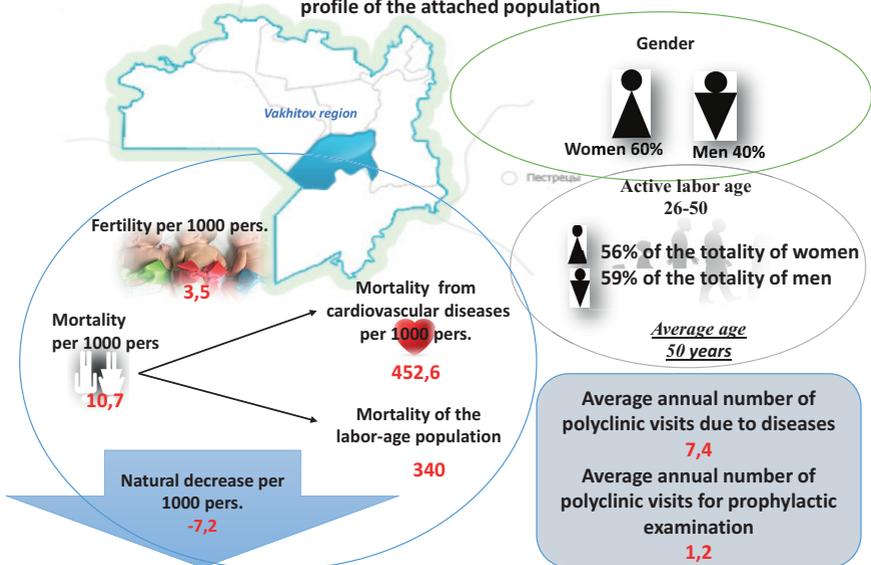


Fig. 1. Formation of "territorial health maps" on the basis of gender, age, and social characteristics of the population attached to the university clinic "Kazan" (MSD of KFU)

Source: compiled by the author.

We started the formation of “territorial health maps” in the university clinic of the MSD of KFU with the maps formed on the basis of the gender, age and social characteristics of the attached population (Figure 1). The health of the population is expressed in demographic indicators and incidence rates: according to the annual statistical reports for 2015, the crude fertility rate among the population attached to the clinic was 3.5 per 1000 population, which is 4.2 times lower than in the Republic of Tatarstan (14.7). The crude death rate was 10.7 per 1000 population, which is 1.1 times lower than in the Republic of Tatarstan (12.0). It is worth paying attention to special mortality rates: 1) mortality of the labor-age population is 1.5 times lower than the average republican rate (340 per 100 thousand people); 2) mortality from cardiovascular diseases is 452.6 per 100 thousand people, which is 1.4 times lower than the average republican rate. However, it is not possible to draw conclusions about fertility and mortality trends in the population attached to the clinic, since these indicators depend on both the age levels of fertility and mortality, and to a large extent on the age structure of the attached population, which may differ markedly from the age structure of the population of the region in general. The reduction in the number of the attached population may be due to both a lower birth rate and an older age structure.

Analysis of polyclinic visits indicates a significant prevalence of visits due to diseases over preventive (7.4 and 1.2 visits, respectively). A low percentage of the implementation of the plan for clinical examination (69%) necessitated special attention to the improvement of preventive work with the population in preventing the diseases and raising the overall level of health [Ziganshina, 2016a: 128].

Expected results

Modern healthcare management should assume not only monitoring the financial well-being of the client, but also a consistent observation of his health. To start with, by shaping a “territorial health map” the personal consultant should determine the risks that clients may face if they continue to lead a lifestyle they’re used to. At the next stage, the manager develops individual programs in cooperation with the doctor, makes adjustments and makes a plan for achieving the set goals.

Turning to the issue of resolving the contradictions of the subjects of the healthcare system in the process of creating “innovative” methods for managing public healthcare, it should be noted that the State is the only entity that has the exclusive right to manage by means of a regulatory and legal framework. The role of the State is disclosed most obviously in the regulation of market failures in the absence of a “civilized” healthcare market, the existence of an economic aspect in the activities of medical organizations, the possibility of opportunistic

behavior of doctors, asymmetry of information, when a low-informed patient is prescribed treatment within the rigid frames of the standard of medical care with simultaneous social value and vitality of medical services, as well as in the presence of control of provision of high-quality and affordable medical care.

It is necessary to note the fact of leveling the contradictions of the interests of various subjects in the process of implementing the “University Clinic” project, which is the result of the creation (in this case, the revival) of a new system of their interaction: medical science and education – medical practice – patient – State.

To achieve the above described radical changes, trained and talented management teams with different skills are needed. Today’s health leaders rely on innovative thinkers, creative performers and effective agents of change. Continuous deviations from the norm are an incentive to create innovative solutions. Nevertheless, despite many changes and achievements in the field of healthcare, its main mission to improve the quality of patients’ health remains unchanged.

What are the basic skills and knowledge that employers in the health sector usually expect from managers? It is the ability to lead and inspire, analytical and organizational skills, understanding of politics, decision-making skills, interpersonal skills, the ability to manage and collaborate with various groups, data collection and analysis, oral and written communication skills [Ziganzhina, 2016a].

Future medicine is in need of management personnel with a good knowledge of information technologies, specialists who can create databases, high-quality diagnostics that operate advanced information and communication technologies, specialists who develop solutions for one of the most significant social problems of the day — aging of the population, managers of personalized medicine able to shape individual diagnostic programs, prevention and treatment on the basis of territorial health maps,

Conclusion

The contemporary Russian model of healthcare should be developed on the basis of the concept of continuity of the best practices of different countries of the world, the re-creation of traditions of the Russian medical school to increase the efficiency of the industry by strengthening the regulatory role of the state. Modernization and provision of strong competitive advantages of the existing healthcare model are possible through intensive investment of funds by the subjects of the healthcare system in the conditions of the need to maintain a balance of social justice, individual freedom and economic efficiency. Stimulation of individual responsibility of people for their own health involves the formation

of a patient with an “innovative culture” of attitude towards it: health is value, prophylactic medical examination is the way to health.

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