
Ekaterina V. Rozhkova¹

Ulyanovsk State University

Russian Federation, 432017, Ulyanovsk, Lev Tolstoy street, 42,

<http://www.new.ulsu.ru/>

Telemedicine in the context of accessibility of medical aid in Russia

Abstract: The urgency of the topic is determined by the need to significantly increase the level of accessibility of medical services, first of all — of an innovative nature. The purpose of the article is to identify and characterize the development of telemedicine in contemporary Russia and therefore, propose the tools to improve accessibility of telemedicine services to the population.. Management decisions and organizational and economic relations that arise within the development of telemedicine are the subject of the study. The main results are: analysis of accessibility of medical services to the population as a whole was conducted; directions of using telemedicine technologies as an instrument for increasing access to medical care were identified; problems in the development of the domestic telemedicine market were outlined; differentiated accessibility of telemedicine services by different criteria were identified; directions for solving identified problems were suggested. The author suggests development of network cooperation between medical prevention centers, telemedicine centers and educational institutions located in rural areas. The materials of the article can be useful both for further scientific substantiation of ways for development of healthcare and for elaboration of practical solutions for the development of the market of innovative medical services.

Key words: healthcare, innovation, telemedicine, access to medical services

JEL codes: I14, I18

Introduction

The high pace of changes in the external environment necessitates the development, careful substantiation and rapid implementation of innovative solutions. To the fullest extent, this applies to social organizations, a large-scale component of which is the area of medical services.

At the same time, recent studies in the field of development of medicine and public health in general [Popovich et al., 2014: 156-169] enable stating the presence of a paradox of innovations: on the one hand, innovative solutions enable improving the quality of medical services and the capacity of the health care system to meet the needs of the population, and on the other, they predetermine

¹ Ekaterina Vladimirovna Rozhkova, PhD, Associate Professor of the Department of Management at the Ulyanovsk State University. E-mail: erozhkova@mail.ru.

the growth of spending on health. In this regard, the issue of accessibility of innovative medical services for the population in Russia becomes ever more topical.

Since telemedicine is one of the most relevant and socially significant areas of innovative development of the healthcare area, the goal of this study is to identify and characterize development of telemedicine services in the Russian reality, and to offer instruments to increase their accessibility to the population. The objectives of the study are to analyze the accessibility of medical services to the population, to identify the directions for using telemedicine technologies as an instrument to increase the availability of medical care, to identify problems in the development of the national telemedicine market, to differentiate the accessibility of telemedicine services by various criteria, and to suggest solutions to the identified problems.

Review of scientific sources

The existing problems of the healthcare system in Russia, the lessons of the healthcare reform and the challenges for the industry in the coming decades are revealed in the works of N. A. Voskolovich and M. Y. Sheresheva [Voskolovich, 2014, Sheresheva., 2017]. Comparative studies of healthcare reforms in countries that represent different models of organization and financing of healthcare are presented in the monograph by V. A. Sadovnichy, N. S. Grigorieva, and T. V. Chubarova [2012]. The conditions for the implementation of market mechanisms in the field of Russian healthcare, including providing affordable free medical care and expanding consumer choice in the market of medical services, have been studied in the works of L. D. Popovich, I. M. Sheiman and S. V. Shishkin [Popovich et al., 2014:156-169]. Development of telemedicine in recent years have been actively explored by many foreign authors [See, for example: Jennett, 2003; Rao, 2009; Blaya, 2010].

Methodology

The principle method in the study of this issue is the analytical method. Based on the analysis of the current legislative base, the materials of the Federal Service for State Statistics of the Russian Federation (data from the Comprehensive Observation of Living Conditions of the Population – COLCP – and statistical yearbooks), as well as the publications of leading researchers on issues related to the availability of medical services to the population, the author's own point of view on the issues and differentiation of accessibility of telemedicine services was determined. As a result, conclusions are drawn and possible directions for solving the identified problems are outlined. The materials of the article can be used as recommendations for the development of scientific substantiation and

practical solutions for the development of the market of innovative medical services.

Research results

The state of the Russian healthcare system can now be characterized as extremely problematic. The macroeconomic situation of the past years and the deficit of the state budget predetermined a relatively low, when compared to developed countries, level of state financing of the healthcare system (3,2% in 2014, while expenditures in EU member states reach up to 15% of the GDP [Russia and EU member states, 2017]). The result was a reduction in availability of medical aid to the population and a shorter life expectancy of the population in the RF (life expectancy at birth in Russia in 2016 was less than 72 years while in the United Kingdom, Germany, Finland, and Japan it is over 80 years [Rosstat, 2017]). The urgency of this problem is emphasized by Russian researchers [Voskolovich, 2014: 226-234; Sheresheva (ed.), 2017: 189].

One in four (26.9%) of respondents of the Comprehensive Observation of Living Conditions of the Population, conducted by the Federal Service for State Statistics of the Russian Federation in 2016 noted the problem of inaccessibility of medical services [Comprehensive Observation, 2016]. The problem of accessibility is especially acute in rural areas — it is noted by over 37% of respondents (Fig. 1).

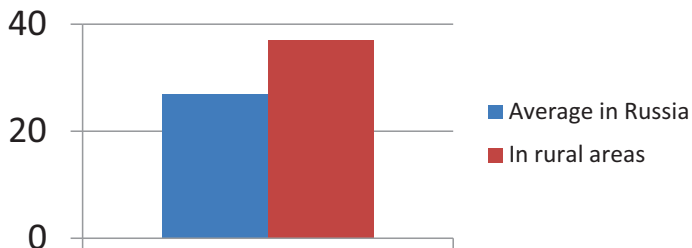


Fig. 1. The COLCP survey, 2016: Is there a problem of unavailability of medical services? (%) (%)

Against the background of a general decrease in the availability of services of healthcare organizations, morbidity of the population is increasing. According to the above mentioned COLCP-2016, 55.7% of respondents (in rural areas - more than 60%) assessed the state of their health from “satisfactory” to “very poor” (Fig. 2). At the same time, a quarter of respondents suffer from chronic diseases (the prevalence of chronic diseases is 26.2%).

Under these conditions, the development of telemedicine technologies can be considered as an instrument to reduce the severity of these problems.

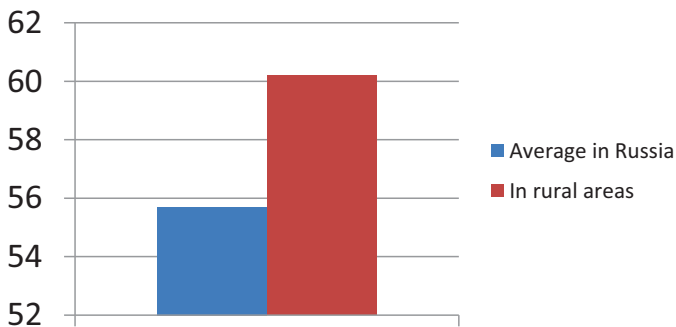


Fig. 2. The COLCP survey, 2016: Health status - from “satisfactory” to “very poor” (%)

According to the current legislation, telemedicine technologies are information technologies that ensure the remote interaction of medical workers among themselves, with patients and (or) their legal representatives, identification and authentication of these persons, documenting their actions during consultations, consultations, remote medical monitoring of the patient’s health. Such technologies enable providing highly qualified medical care from specialists of the leading medical centers to patients in remote areas, accelerate the exchange of current specialized information between medical workers. [FL No. 342 of July 29, 2017]

The main areas of telemedicine are [see, for example: Upatov, 2015]:

- video consultations and video conferencing, including emergency cases, in real time;
- tele-guidance and tele-tuition;
- remote examination;
- telemedical dynamic monitoring of patients’ health;
- telesurgery, etc.

The volume of the telemedicine services market is growing rapidly throughout the world. By 2019, the global telemedicine market will reach almost \$44 billion, showing an average annual growth of 17.7%. At the same time, the US telemedicine market is growing at an average rate of 67% per year - in 2018 it is to reach \$3.5 billion, with the number of online of 7.1 million people (in 2012 there were 344 thousand) [Upatov, 2015].

Russia should not be an exception in this process. So, in the implementation of the priority project “Improving the processes of organization of medical care based on the introduction of information technologies” for 2016-2025, approved by the Presidium of the Presidential Council for Strategic Development and Priority Projects on October 25, 2016, the proclaimed target indicator is improvement of medical assistance to citizens via:

- implementation of information technologies,

- monitoring the possibility of recording a doctor’s appointment,
- transition to management of medical records in digital form of at least 80% by 2020,
- performance of at least 10 digital services via a patient’s personal online “My Health” account on the Unified Public Services Portal (UPSP), which will be used by at least 30 million citizens in 2020.

In the end, the number of administrative regions of the Russian Federation, where the processes of rendering medical assistance using telemedicine technologies are organized, should increase from 7 (in 2017) to 85 (in 2025) [Passport of Priority Project..., 2016].

However, today we can state the presence of a number of problems that hamper the development of the national telemedicine market. Among them, undoubtedly, are insufficient legislative support for the development of the telemedicine market (the legal and regulatory framework is only at the stage of formation), and lack of competence of medical specialists in the field of telemedicine.

The problem of low economic and physical (technical) accessibility of telecommunication technologies to the population is a particular challenge. Obviously, telemedicine services, even if provided free of charge, require the availability of special devices, a stable Internet connection, etc., which under the conditions of impoverishment (Fig. 3) is a significant limitation for many potential consumers from remote areas.

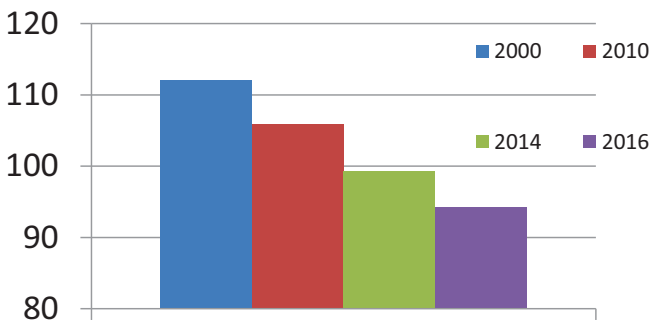


Fig. 3. Rosstat-2017: Real disposable monetary incomes of the population (in% to the previous year)

Another problem is the gerontological accessibility of telemedicine services. According to the COLCP-2016, among persons over the working age, only 35.5% of respondents have access to the Internet (in rural areas — 24.3%), whereas the average figure (for persons aged 15 and more) is twice as high — 70.9% (Fig. 4).

Similar is the situation with the “availability of skills for practical work with a personal computer” indicator — in general it is equal to 70.1%, while for people older than working age it is twice lower — 33.3% (in rural areas — 22, 2%) (Fig. 5).

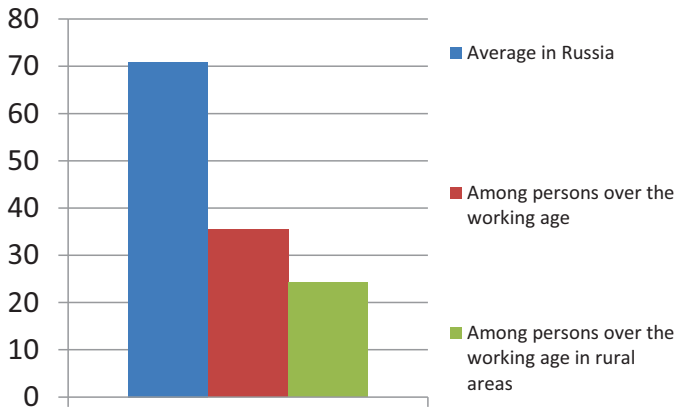


Fig. 4. The COLCP survey, 2016: Ability to access the Internet (%)

Doubtlessly, the presence of computing skills is primarily necessary for medical personnel, however, the specifics of telemedicine services call for the necessity of certain patient competence (“computing literacy”) in acquiring these services.

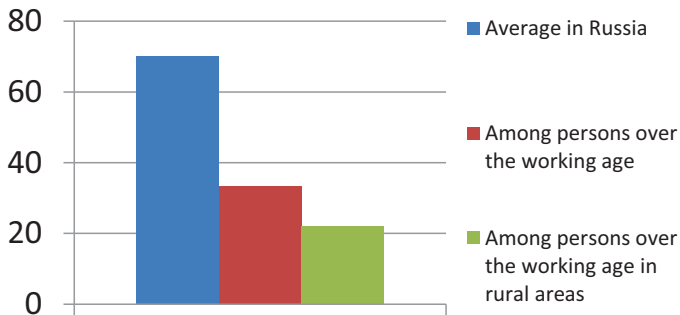


Fig. 5. The COLCP survey, 2016: Skills of practical work with a personal computer (%)

Conclusions and recommendations

The study shows that the availability of telemedicine services is much lower for residents of rural areas and for elderly people in comparison if the rest of population.

The priority direction of action to provide improved healthcare services is the development of the system of preventive activities; therefore, it is crucially important to use the abilities of telemedicine to provide population with prophylactic medical services, including consultations.

Thereupon, within the framework of resolving the above stated problems, we consider it expedient to develop network cooperation among structures such as medical prevention centers and telemedicine centers with educational institutions, primarily those located in rural areas (Fig. 6).

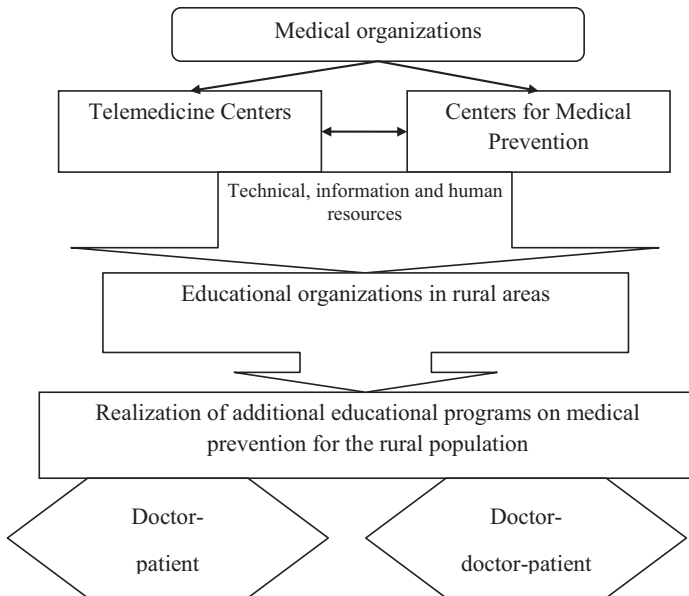


Fig. 6. Development of network interaction in the field of medical prevention

Currently, medical organizations interact with centers for medical prevention and telemedicine centers. They exist in each region, but are concentrated, as a rule, in regional and republican centers. Accordingly, their services, including those for preventive medicine, are more accessible to urban residents. Rural residents, for already mentioned reasons, are less able to use them.

In rural areas, at least in district centers, significant opportunities for the use of telecommunications technologies (the availability of computers, multimedia equipment, access to the Internet) exist in the educational organizations.

We suppose that network interaction should be manifested in the organization on a regular basis of videoconferences, webinars and other information and educational events as a form of preventive medical services in small groups in the form of additional educational programs. In fact, this means the “Doctor-Patient” option.

Currently, such projects are being implemented on television; there are specialized sites on the Internet, but they either do not have online feedback, or are inaccessible for the above mentioned reasons.

Another proposed direction of network cooperation between telemedicine centers, medical prevention centers and rural educational institutions is the formation of the “silver volunteer” (a type of volunteer movement, when the participants age exceeds 50 years [Sitdikov, 2018]). In this case, additional educational programs are implemented for small groups of students from the number of medical workers who retired. They develop competence in the field of medical prevention (its information and educational component), and then they act as organizers of educational activities to form the foundations of a healthy lifestyle, to improve the level of medical literacy of their fellow villagers. In this case, the principle of “cascade learning” is applied. We designated this option as “Doctor-Doctor-Patient”.

Currently, such projects are successfully implemented in the urban environment (for example, in Ulyanovsk, “Walks with the doctor” and “Steps to health” actions are regularly held), but for residents of rural areas such activities are extremely scarce.

Of course, the capabilities of telemedicine are much broader than the implementation of educational projects and programs. Telemedicine consultations held by the leading healthcare specialists for rural doctors and workers of paramedic and obstetric stations is relevant, as well as diagnostic work of mobile telemedicine complexes in rural areas of Russian. However, within the framework of this study, emphasis was placed on the issues of increasing the availability of the information component of prevention as an instrument to increase the level of individual responsibility for health.

Summarizing, we can state: telemedicine technologies are an effective instrument to increase the level of public health, however, the differentiation of the availability of such services in Russia is very high.

To increase the availability of preventative activities with the usage of telemedicine technologies, the development of network cooperation between centers for medical prevention, telemedicine centers, and educational institutions in rural areas is extremely important.

Reference list

1. Blaya J. A., Fraser H. S., Holt B. 2010. E-health technologies show promise in developing countries. *Health Affairs*. 29(2): 244–251.
2. Integrated monitoring of living conditions of the population [Electronic resource]. Available at: http://www.gks.ru/free_doc/new_site/kouz16/index.html. Date of reference - 25.02.18 (in Russian).
3. Jennett P.A. et al. 2003. The socio-economic impact of telehealth: a systematic review. *Journal of Telemedicine and Telecare*. 9(6): 311–320.
4. Passport of Priority project “Improving the processes of organization of medical care based on the introduction of information technology” for 2016–2025. Available at: <http://static.government.ru/media/files/9ES7jBWMiMRqONdJYVLPTyoVKYwgr4Fk.pdf> (in Russian).

5. Popovich L. D., Sheiman I. M., Shishkin S.V. et al. 2014. Modernization of healthcare: new situations and new tasks. Edited by I. M. Sheiman, S. V. Shishkin. M.: “DELO” publishing house of the Russian Academy of Sciences, (in Russian).
6. Rao B., Lombardi A. 2009. Telemedicine: current status in developed and developing countries. *Journal of Drugs in Dermatology*. 8(4): 371–375.
7. Russia and the member states of the European Union. 2017. M.: Rosstat. (in Russian).
8. Russian Statistical Yearbook. 2017. M.: Rosstat. (in Russian).
9. Sadovnichy V. A. Grigorieva N. S., Chubarova T.V. 2012. From tradition to innovation: health reform in the modern world. M.: Economy (in Russian).
10. Sheresheva M.Y. (ed.). 2017. Institutional changes in the social sphere of Russian regions. M.: Faculty of Economics, Lomonosov Moscow State University. (in Russian).
11. Sitdikov R. 2018. “Silver” volunteering: you can help at any age. // RIA Novosti website [Digital resource] Available at: https://ria.ru/sn_volunteers/20180131/1513516638.html. (reference date: 02.04.2018) (in Russian).
12. The Federal Law of July 29, 2017 N 242-FL “On Amendments to Certain Legislative Acts of the Russian Federation on the Application of Information Technologies in the Area of Health Protection” (came into force on January 1, 2018) (in Russian).
13. Upatov A. Telemedicine in Russia and abroad: short analysis // “MedAboutMe” portal. <https://medaboutme.ru> (in Russian).
14. Voskolovich N.A. 2014. Accessibility of medical care as the basis for the formation of a modern quality of life for the population. In *Interdisciplinary studies of the economy and society*. M.: Max Press. Pp. 226–234 (in Russian).