

# Assessment of the results of the municipal healthcare system reform (Russian experience)

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**Abstract.** The purpose of this article was to study and evaluate the results of the healthcare system modernization reform as one of the most important areas of social municipal policy. The main goal of the modernization program was to improve the health status of the population of the municipal district, to improve the system of medical care, to increase the availability and quality of medical care to the population, to increase the efficiency of the use and distribution of resources. To obtain the results of the reform evaluation, a sociological study was carried out on the basis of the analysis of documents (results of the Municipal Healthcare Modernization Program tasks, the identification of the level of provision of the population with qualified medical care), respondents' opinions identification (which brought reform) with the help of a questionnaire survey. The research results indicate the ambiguity of the reform assessment both from medical services consumers and from service providers as well. The research results indicate the need to find new approaches to the municipal healthcare management. The paper substantiates the hypothesis: only a comprehensive assessment of all influencing factors will make the right management decisions in healthcare reform, balance and smooth out negative influences, preserve, and possibly increase the existing level of medical care to the population of the municipality.

## 1 Introduction

The organization of the medical institutions is becomes significantly important at the present stage of Russian health care development. One of the most important tasks facing local self-government is to create conditions for the vital needs provision and the legitimate population interests, and measures for the social protection of the population. The municipal health care system activities are aimed at meeting the human need for medical care.

The concept of sustainable development has become widespread owing to the enhancing globalization of the world economy. Recently this concept has acquired a pronounced spatial character and spread to municipal, regional and national levels.

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This topic is an object of scientific knowledge for sociologists, economists, scientists in the field of state and municipal government, and medical care organizers. Experts in the field of state and municipal government V. B. Zotov [1], V.V. Ivanov and others view management as an interconnected system in various spheres of life. Economists I.N. Myslyayeva, T.A. Fedorov [2], S.V. Shishkin [3] consider these issues from the financing the industry point of view, finding ways to optimize in the health sector. Sociologists V.M. Nilov [5], V.I. Starodubov [6] study the opinions of the population about the ongoing socio-economic reforms. The candidate of medical sciences V.A. Minyaev studies the issues of organizing the healthcare institutions activities in his researches [7].

In 2011, the decision of the Nizhnekamsk municipal region Council adopted the main directions of modernization and further development of health care in the Nizhnekamsk municipal region for 2011-2013 [8]. The main program goal was to improve the health status of the population in the Nizhnekamsk municipal region, improve the medical care system, increase the availability and quality of medical care to the population, and use and allocate resources efficiently.

To achieve these goals, the following tasks were announced:

- creating a hospital diversified complex that meets European standards for the quality of medical care and personnel management;
- development and improvement of organizational forms and methods of medical care and care for the sick, improving the quality and professional culture;
- development and introduction of modern diagnosis, treatment and prevention of diseases methods into practice;
- early detection and treatment of acute forms of diseases, and prevention of their transition to the chronic form;
- providing the Nizhnekamsk municipal region residents with high-tech medical care;
- further development of an ambulatory-polyclinic medical organizations;
- centralization of highly specialized outpatient care and certain types of diagnostics and medical research;
- participation in the project "e-Health".

The purpose of this paper is to study and evaluate the results of the healthcare modernization reform in the Nizhnekamsk municipal region as one of the most important directions of social municipal policy based on comparative, systemic and sociological approaches. The study covers the period from 2011 to 2018.

The research is based on the following methodological approaches:

- comparative approach using the descriptive method, which allowed collecting theoretical material on the results of the healthcare modernization reform;
- systemic approach, the essence of which is to consider the reform carried out and its consequences in an integrated manner, where each element (for example, staff, technological equipment, restructuring of the patient movement logistics, etc.) are elements of one system and act interconnectedly;
- sociological approach using such methods of scientific knowledge as the analysis of documents, statistical data, as well as a questionnaire survey of the population and interviewing experts (medical workers).

The research object is documentation for the years 2011-2018 (that is, 1-3 periods of reform) on the ongoing health care reform, health experts (medical personnel - 100 people), population of the Nizhnekamsk municipal region.

The research subject is the results of the reform (data from the documentation, medical personnel opinions and the Nizhnekamsk municipal region population opinions).

The main hypothesis is that the carried out health care reform has an ambiguous assessment and required additional efforts in term developing the complex decision to problem solving.

Additional hypotheses:

- the Nizhnekamsk municipal region and the Nizhnekamsk population (the Tatarstan Republic) has an ambiguous results assessment of the carried out health care modernization reform;
- based on the reporting documents data and expert opinions (opinions of medical personnel), it can be assumed that the reform carried out and its results deserve a positive assessment.
- In accordance with the purpose and hypotheses of the research, the following tasks were set:
  - to identify the population opinion to the health care system organization in the Nizhnekamsk city and the Nizhnekamsk municipal region;
  - to identify the population attitude towards the innovations brought about by the health care reform;
  - on the basis of the documents analysis and expert opinions in the field of health care, analyze the results of the tasks fulfillment, which were set in the Modernization Program;
  - to analyze the results of management decisions in this area;
  - on the basis of the documents analysis, determine the degree of the population provision with available qualified and guaranteed outpatient care.
  - faster.

## 2 Materials and methods

All The research was conducted in the Nizhnekamsk municipal region and Nizhnekamsk city (the Tatarstan Republic). This research analyzed the healthcare modernization reform results in the Nizhnekamsk municipal region of the Tatarstan Republic. The study was based on the results of the documents analysis on the ongoing municipal health care reform. We also conducted a questionnaire survey of residents of the city and region, a questionnaire survey of medical personnel (100 people).

The survey involved the population of the Nizhnekamsk municipal regio from 15 to 70 years old. Their number on January 1, 2018 amounted to 168953 people. Of these, 100 people were interviewed.

Sampling error:

$$\mu = \sqrt{\frac{\sigma^2}{n \cdot (1 - \frac{n}{N})}}, \quad (1)$$

where n is the volume of the sample;  
 N is the volume of the general population;  
 $\mu$  is the average sampling error;  
 $\sigma^2$  is the variance of the controlled trait.

$$\mu = \sqrt{\frac{(0,5)^2}{100 \cdot (1 - \frac{100}{168953})}} = 0,05 \quad (2)$$

With a sample of 100 people, the sampling error was no more than 5%, which is sufficient for a pilot research.

Despite the fact that since 2012 all medical and preventive treatment facilities have come under the jurisdiction of the Ministry of Health of the Tatarstan Republic and have become autonomous state, the municipal health care system remains one of the most important components of social stability and comfort in cities and towns. This also affected

the health care of the Nizhnekamsk municipal district: 6 medical and preventive institutions: State Autonomous Healthcare Institution “Nizhnekamsk Central District General Hospital”, Children's City Hospital with Perinatal Center, Medical Investigation and Analytical Center “Kamsko-Polyanskaya District Hospital”, "Center for Medical Prevention", "Children's therapeutic sanatorium" - directly the Health Department of the Nizhnekamsk municipal region.

### **3 Results**

Thus, Based on the documents analysis, we obtained the following information about the health care reform results. The first and one of the most difficult stages of modernization was the unification of hospitals and the creation of two multidisciplinary complexes for childhood and the adult population.

At the first stage, the Nizhnekamsk Central Region General Hospital was established, which included three adult hospitals, a children's dental clinic, and ambulance services. As a result of hospitals merger the costs of maintaining the administrative apparatus were reduced, duplicate services were eliminated, and medical equipment was used more rationally. The resulting financial savings were directed towards compensation payments to hospital employees. The funds received as a result of the unused space rental were used to carry out repairs and purchase medical equipment.

The main modernization efforts were directed towards an outpatient unit. Two clinics have been created instead of the three clinics, where general practitioners and district physicians are concentrated. For the convenience of the population in these clinics, surgeons and infectious disease specialists are receiving; a blood sample is being taken; provide physiotherapy services. For all other specialized specialists, the Consultative and Diagnostic Center was established, where all diagnostic equipment was concentrated.

Thus, one of the main modernization condition was achieved - the differences in free guarantees for residents depending on the residence place were eliminated. The difference in the availability of highly specialized care for residents of the district has disappeared.

In the reform course, the patient movement logistics was changed. The patient is not worth the “live” queues to get an appointment with a specialist. The patient has a ticket with a designated date and time of admission. The concentration of narrow specialists and sophisticated diagnostic equipment in a single consulting and diagnostic center close to a hospital allowed reducing the severity of the shortage of these doctors in the city. In the absence of a specialist, he is replaced by a doctor from the hospital. The queue for standard clinical diagnostic examinations was reduced from two months to 2-3 weeks in the epidemiological season to 3-7 days on normal days. The time taken to receive one patient by a general practitioner has increased. Changing the schedule of the polyclinic and optimizing the logistics of the patient’s passing of research made it possible to take 400 people more every day. In the course of the reform, organizational changes took place, which went along with large-scale repair work.

Since 2011, the Nizhnekamsk region has been implementing the e-Health project. In all polyclinic institutions of the Nizhnekamsk municipal district, the “E-turn” system has been introduced.

To obtain a reliable assessment of the results of health care reform in the Nizhnekamsk municipal district in the period 2011-2018. we conducted a sociological study. The purpose of the study was to identify the opinions of medical workers and the population of the Nizhnekamsk municipal district on the results of the reform.

To study the opinions of medical personnel about the past reform, we conducted a survey using the questionnaire method. The survey covered 100 medical personnel. We obtained the following results.

An important factor in the effective and most importantly quality work of a medical personnel is the workplace where he spends more work time. The quality of the work depends on the conditions. The question of the questionnaire “How would you rate the attitude of medical personnel to the conditions in which they work?” The following answers were received:

- 20% of doctors and nurses are completely satisfied with the working conditions and have a positive attitude;
- 35.5% of doctors and 20.6% of nurses have a positive attitude rather than a negative one;
- 11.3% of doctors and 21.6% of nurses answered negatively.

In general, the result speaks of quite good conditions created for the work of medical personnel.

The question of the moral and psychological comfort of hospital workers is no less important than all the others. A positive attitude to work with a patient largely depends on the mood of a medical personnel. Therefore, we considered it no less important to identify the moral and psychological climate in the team, as assessed by the hospital staff themselves. According to the results obtained, a satisfactory assessment can be given. The moral and psychological climate was rated as “good” by 25.8% of doctors and 36.6% of nurses, as “satisfactory” by 53.2% of doctors and 47% of nurses.

The volume of work to be performed must comply with all standards and rules established by law. The amount of work that exceeds the existing standard may adversely affect the well-being of the employee, and his attitude towards the patient. To the question: “Please, estimate the amount of work you do”, 56% of doctors and 43.6% of nurses answered that the amount of work exceeds the existing standards.

In order to determine the depth of understanding of the problems, which concern to the medical personnel of the Nizhnekamsk municipal region, respondents were presented the positions that they had to be ranked by importance degree. This position was determined by three questions at once. The study showed the following results.

80.6% of doctors and 77.5% of nurses answered negatively to the question “Do you think that the level of your salary is adequate to the amount of work you do?”

To the question “What has changed for you over the reform years,” we received the following answers:

- the level of material remuneration increased (doctors - 22.1%, nurses 26.4%);
- career growth, self-realization at work (doctors - 37.1%, nurses 34.3%);
- nothing has changed (doctors - 40.8%, nurses 39.3%)

Next, we invited medical personnel to answer the following questions and place them in order of importance to them. We were interested to find out whether the reform had affected the opinions of the workers. “Rank by a 10-point system the factors that, in your opinion, can increase your labor productivity” respondents gave the following answers.

Among the doctors interviewed were received the following answers:

- stable income - 50%;
- payment related to the results of labor (differentiated wages - 33.9%);
- recognition and approval of a job well done by the management - 27.4;
- work that creates conditions for self-expression and makes them develop their abilities - 26%;
- communication with colleagues, partners and customers - 24.2%;
- work, allowing to think independently - 23%;
- good chances of promotion –19.4%;
- high degree of responsibility –17.7%;
- interesting work requiring creativity - 15%;
- difficult work - 15%.

Nurses set their preferences as follows:

- stable income - 69%;
- payment related to the results of labor (differentiated wages - 47.1%);
- recognition and approval of a job well done by the management - 34.3;
- work that creates conditions for self-expression and makes them develop their abilities – 28.4%;
- communication with colleagues, partners and customers - 22.5%;
- work, allowing to think independently – 18.6%;
- good chances of promotion –16%;
- high degree of responsibility –14.7%;
- interesting work requiring creativity – 11.7%;
- difficult work – 9.8%.

So, the greatest preference is given to the material factor, namely, stable earnings concern both doctors and nurses. The survey results allow us to understand that, above all, the employee is concerned about his material remuneration, recognition of his merits and the possibility of self-realization at work. We will significantly increase the motivation of medical personnel if we try to solve these issues.

Among the survey questions were the so-called “open questions”, where the employee himself was given the opportunity to express their opinions and wishes. The reform has passed, and the workers still worry about the following problems. These are, first of all, additional benefits:

- free training to improve professional skills;
- spa treatment;
- free travel in public transport;
- decent wages;
- pension increase to operating surgeons;
- reimbursement of cellular expenses;
- monetary remuneration as a premium, an increase in surcharges for the quantity and quality of operations, compensatory and therapeutic payments when taking leave;
- free medical services.

A sociological survey of the population conducted in April 2018 showed the following results of the attitude of the Nizhnekamsk municipal region population to the health care reform carried out. The survey was conducted among 100 people, the sample is quotas by gender and age.

To the question “How do you think the situation in the health care of Nizhnekamsk changed?” The respondent opinions were as follows. Almost 20% of respondents believe that the situation has worsened.

Analysis of the distribution of respondents' opinions on who is interested in health care reform is controversial. 23% believe that in the interests of ordinary city and region residents, 77% believe that the resident interests in carrying out this reform are not of the highest priority.

Important additional information about the population attitude to the ongoing health care reforms was given by analyzing the citizen opinions on the question of what, in their opinion, should be changed in health care in the first place and what has not changed over the years of reform. To the question “Do you think that in Nizhnekamsk health care needs to be changed first?” (Any number of answers could be given), the answers were distributed as follows. The problem of queues - this is what worries residents most of all. Residents are also concerned about the distinction between paid and free medical services. Quite a lot of respondents expressed a desire to draw the attention of hospital administration to indifference to patients by the medical personnel.

In April-May 2018 Nizhnekamsk town's inhabitants were surveyed to identify different opinions on whether environmental factors affect public health and quality of life or not. It surveyed 100 people aged 18-60 that included 46% of men and 54% of women. Assessments of the environmental situation in the city were distributed as follows: "normal" – 23%; "satisfactory" – 43%; "bad" – 17%; "don't know".

The vast majority of respondents expressed that the environmental impact on health is great. According to the opinion of 60% of respondents the urban living environment affects human health, 12% of respondents do not see the affect, while others failed to answer this question clearly.

The majority of respondents concerned about the problem of harmful emissions in the atmosphere – 48%. Ranked second as a relevant is dissatisfaction with the quality of drinking water. Third issue is soil pollution.

## **4 Discussion**

Social justice issues are particularly acute in the provision of medical care. On the population part, the requirements for state guarantees of medical care remain very extensive and unconditional. On the other hand, control over resources, structural policies, relations of property rights, as the basis of the rights and freedoms of people, including professional, legal and organizational forms, paid services, are among the issues that concern the economically active, responsible, competent medical community with centuries-old tradition and history.

The decision to make changes in the health sector of the Nizhnekamsk municipal region was timely and correct. The tasks were performed to some extent. It confirms the hypothesis put forward by us about the ambiguity of the results of the reform. The measures declared by the Program: the development of primary medical care, the development of the medical care preventive component, the provision of high-tech care to the population were implemented as part of the health care modernization reform of the Nizhnekamsk municipal region.

One of the reasons for the need for reform was to improve the medical services level in the Nizhnekamsk region. The reform involved the improvement of the all polyclinics and hospitals management system.

The main condition for health care improving f in the Nizhnekamsk municipal region is a conscious intervention in the labor process in order to develop recommendations for improving the quality of work, rational and economical use of working time, and proper distribution of the medical personnel functional responsibilities.

The reform program task on the entire health care system revision is directly related to the quality public services implementation. The social effect from the Modernization Program implementation is expressed in increasing the social importance of medical services provision as a result of:

- creating favorable conditions for obtaining high-quality medical care;
- qualified assistance provision at the initial stage of patients' treatment in the clinic;
- reducing the time spent in the clinic by reducing queues;
- expanding registry advisory work;
- increasing patient awareness of the necessary medical services in the city's medical institutions.

However, as the research showed, the two main "players", the consumers of the service (population) and the medical personnel, are not quite satisfied with the results. Consequently, the municipal authorities should take into account this circumstance and look for ways to solve the current situation.

To improve the environmental situation in town residents of the Nizhnekamsk municipal district proposed the following:

- «active engagement with municipal health care authorities on public health issues»;
- «organizing the environmental actions for sanitary cleaning of the town»;
- «natural resources management»;
- «installation of upgraded treatment plants»;
- «maximized greening of the town»;
- «demanding modern installations from manufacturers»;
- «educating people and developing the ecological culture».

The environmental policy of the municipality thus is related to the life quality of the population and is tremendously important for the human health.

## 5 Conclusion

Thus, despite the managerial decisions made, the municipal authorities have not yet fully managed to achieve the desired result in solving the tasks of reforming the health care system. The main task - meeting the population needs in providing quality medical care - is in the being solved process. As before, the leading problem of modern municipal healthcare is the financial resources lack, the qualified medical personnel shortage, the lack of an integrated management system that allows to solve the set tasks.

In the paper we did not address the issue of improving the organizational structure of municipal health care, this was not the subject of our research. This aspect is an important condition for the successful solution of the tasks facing the society. Also the personnel policy regarding the formation of qualified medical personnel requires further development. There are no long-term perspectives in the training and use of personnel in many Russian Federation regions,

Thus, in order to optimize the activities of the municipal health care system in modern conditions, to carry out local health care reforms, it is necessary to take into account all the factors influencing the performance of the system. In our opinion, the implementation of the health care system modernization program should be resolved as a whole. It is necessary to analyze the management system of medical organizations, included in the modernization program, and determine the reasons for partial results achievement. In our opinion, one of the ways to solve the problems that have arisen is to use an architectural approach [9], that allows us to comprehensively analyze the current situation, understand the causes of the difficulties encountered in modernizing the healthcare system, study the functional structure, the system of implemented business processes, existing IT support, etc. In the future, it is necessary to form the business model of the medical organization, to determine the target medical organization architecture and stages to achieve it. In addition, it is necessary to create a requirements system for medical personnel - the KPI system, which will allow us to create a transparent system for assessing the professional competencies of specialists. All that activities will reduce the cost of medical processes, improve the quality of services provided. This issues are planned to be studied in further researches.

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