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IMPROVEMENT OF ACTIVITIES MEDICAL ORGANIZATION IMPLEMENTING A NEW MODEL OF PRIMARY HEALTH CARE PROVISION HELP

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INTRODUCTION

Relevance of the dissertation research topic

To improve the healthcare system of the Russian Federation (hereinafter referred to as the RF), it is necessary to search for and implement new approaches to the organization of primary health care (hereinafter referred to as PHC) for the population, which plays a major role in preserving public health and the demographic sovereignty of the state [13, 41, 45, 47, 83, 95, 132]. Ensuring optimal accessibility and quality of primary health care becomes a priority of the healthcare development strategy in the Russian Federation until 2025 [163].

In order to improve the healthcare system and improve medical and demographic indicators in the Russian Federation, the national project «Healthcare» has been implemented since 2019. It includes 8 federal projects, one of which is the federal project «Development of the primary health care system» [104, 107, 145].

Currently, there are a significant number of approaches to improve the performance of medical organizations. The Ministry of Health of the Russian Federation (hereinafter referred to as the Ministry of Health of Russia) has identified tasks for creating a new model for the provision of primary health care (hereinafter referred to as the new model), which is based on the introduction of lean technologies within the framework of the federal project «Development of the system for the provision of primary health care» [66, 78, 79, 101, 107]. These events were a continuation of the pilot project «Lean Clinic», the federal priority project «Creation of a new model of a medical organization providing primary health care» [105, 135].

Since 2022, a new federal project has begun to be implemented – «Modernization of primary healthcare in the Russian Federation» [106]. As part of this project, additional funding was allocated for major repairs, the opening of new facilities providing primary health care, the attraction of qualified personnel and the renewal of outdated equipment [145]. Patient satisfaction with medical care is becoming an important indicator of the effectiveness of the healthcare system. The implementation of these projects can increase

the efficiency of primary health care provision and have a positive impact on the health indicators of the population of the Russian Federation [22, 64, 96].

Issues of organizing primary health care and its improvement are of interest to both domestic and foreign researchers. Their works cover various aspects, including the main stages of development, approaches to the formation of models for organizing this type of assistance [2, 10, 12, 13, 30, 37, 41, 47, 54, 55, 83, 85, 95, 132, 149, 157, 177, 184, 190, 208, 211]. Many works are devoted to improving the efficiency of outpatient work, including the introduction of lean manufacturing approaches [76, 117, 124, 143, 150, 151, 156, 194, 196, 197, 198, 199, 204, 206, 211, 212]. The experience of implementing the new model shows that improving the work of a clinic using lean technologies allows one to achieve significant results [42, 124, 143, 144, 145, 150, 151, 156, 171, 179].

With a large number of presented practices for the use of lean technologies in healthcare, a few works describe the problems that may arise in the implementation of a new model [60, 76, 77, 111, 127, 143, 171, 179]. Some authors note the lack of an integrated approach to the reorganization of activities within the framework of the implementation of the new model, the high formality of the ongoing reforms, and the lack of involvement of all participants in the process of providing primary health care [171, 179]. Lack of competencies among managers, lack of funding for activities, problems of informatization of the industry and resistance of employees of medical organizations to the introduction of new approaches are the limiting points that medical organizations face as part of the implementation of a new model [143]. In addition, there remains a need to improve approaches to improving the qualifications of managers and employees of medical organizations in the field of lean approaches and technologies [44, 45, 134, 166, 167].

The significance of conducting research in the field of improving the activities of medical organizations introducing a new model is due to the insufficiently developed methodological framework in the scientific literature and in the legal field. The problem of using valid and replicable approaches to assessing ongoing activities to improve primary health care continues to be relevant for specialists in the field of healthcare organization and public health. Thus, the choice of this topic for dissertation research is

due to its relevance both at the level of an individual region and at the level of the Russian Federation.

Degree of development of the research topic

Based on the current legislation and other documents, including existing methodological recommendations, it can be stated that the issues of introducing the new model have not been fully worked out at the theoretical and legislative levels. A methodology is proposed for assessing 8 criteria of the first level of the new model, which is not legally established. At this time, an assessment methodology is being developed for the remaining 16 criteria [66, 78, 79].

To date, no changes have been made to the Federal Law of November 21, 2011 No. 323-FZ «On the fundamentals of protecting the health of citizens in the Russian Federation», in 2020, for the purpose of discussion, a bill was published to amend this federal law on the issue of introducing a new model [111, 169]. The Russian Ministry of Health, together with Federal Service for Surveillance in Healthcare, has been developing for several years a procedure for determining compliance with the requirements that apply to medical organizations participating in activities to implement the new model, with future changes to the regulations on the organization of primary health care provision to adults and children [173].

Today, the problems of introducing a new model and assessing changes in the performance indicators of medical organizations are quite relevant [44, 143, 171, 179]. Most works by various authors present experience in assessing the achievement of the recommended criteria of the new model, the use of individual lean manufacturing tools to achieve them, and the results of implementation of improvement projects [19, 51, 69, 92, 94, 164]. Scientific publications contain a limited number of studies devoted to the study and assessment of the performance indicators of medical organizations participating in activities to implement the new model, and their impact on medical, statistical and demographic indicators of various territories [62].

In the literature available for analysis, there are no works that reflect a comprehensive assessment of primary health care to develop strategic directions for improving the implementation of a new model at the regional level. In addition, to assess the performance of medical organizations, indicators of accessibility, population satisfaction, as well as analysis of complaints and requests from patients are most often used [23, 99, 110, 142].

Despite the fairly long period of implementation of the new model in the Russian Federation, the presence of various publications on this topic, to date there is not enough research to assess the effectiveness of creating a new model. Based on this, the urgent task is to search for performance indicators of medical organizations implementing a new model, and assess their impact on the medical, statistical and demographic indicators of service areas in order to develop measures to improve the organization of primary health care.

The purpose and objectives of dissertation research

The purpose of the study is, based on a comprehensive assessment of the organization of medical care, to develop and evaluate measures to improve the activities of a medical organization introducing a new model of primary health care in the Sverdlovsk region.

To achieve this goal, the objectives of the dissertation research were formulated:

1. Conduct a comparative analysis of medical, statistical and demographic indicators of municipalities of the Sverdlovsk region.

2. Assess the degree of influence on the medical, statistical and demographic indicators of municipalities from the performance indicators of medical organizations introducing a new model of primary health care.

3. Perform an audit of the activities of medical organizations introducing a new model of providing primary health care.

4. Carry out a comprehensive assessment of the population’s satisfaction with medical care and identify the main factors determining its level.

5. Develop, test and evaluate the effectiveness of a system of measures to improve the activities of a medical organization introducing a new model of primary health care.

Scientific novelty of the research

The scientific novelty of the research lies in the development of specific strategies to improve the activities of medical organizations introducing a new model, based on the introduction of resource-saving approaches to employee engagement, methodological support, standardization of processes, organization of preventive medical measures, patient flow management, development of professional competencies of employees at the level of a specific subject of the Russian Federation.

For the first time, throughout all stages of implementation of the new model, starting in 2017, patient satisfaction was assessed and a methodology for assessing the involvement of employees of medical organizations that began to use lean manufacturing technologies was tested.

Based on an analysis of the performance indicators of medical organizations implementing the new model, indicators were proposed for calculating their final rating; this methodology was tested at the regional level. For the first time, a comprehensive assessment of the degree of influence of the performance indicators of medical organizations implementing a new model on the medical, statistical and demographic indicators of municipalities of the Sverdlovsk region was carried out. An analysis of the performance of a medical organization introducing a new model of primary health care was carried out.

For the first time, a comprehensive justification of management decisions in the field of introducing resource-saving technologies into the activities of medical organizations at the regional level was carried out.

Theoretical and practical significance of the work

The theoretical significance of this study lies in conducting a comprehensive analysis of the PHC organization system, which made it possible to identify the main directions for improving care provided in outpatient settings in the context of the introduction of a new model.

The practical significance of the work is determined in the development of specific proposals for improving the organization of primary health care, tested at the level of individual medical organizations in the region.

Based on the dissertation research, algorithms for the main processes of providing primary health care for managers of medical organizations and methodological recommendations for organizing preventive medical measures in medical organizations using lean manufacturing approaches were developed (approved by the Academic Council of the State Autonomous Educational Institution «Ural Institute of Healthcare Management named after A.B. Blokhin» (hereinafter referred to as the Blokhin Institute), protocol dated 04/28/2023 No. 2). The basic principles reflected in these guidelines were used in 2023 as part of training seminars and district meetings with medical organizations in the Sverdlovsk region.

Based on the study, professional advanced training programs «Introduction of lean technologies into the activities of medical organizations» for 36 hours, «Organization and management of primary health care» for managers of outpatient services for 144 hours were developed (approved by the Pedagogical Council of the Blokhin Institute, protocols dated 12/15/2021 No. 4, dated 04/05/2023 No. 3).

Developed, approved and introduced into the educational process of the Blokhin Institute methodological recommendations for improving the implementation of the new model: «Methodological recommendations for organizing a rational workplace in medical organizations using the 5C system», «Methodological recommendations for standardizing the work of medical organizations»; «Methodological recommendations for increasing the motivation and involvement of employees of medical organizations», «Methodological recommendations for inventory management in a medical

organization»; «Guidelines for the effective use of equipment in a medical organization» (approved by the Academic Council of the Blokhin Institute, protocol dated October 20, 2022 No. 2).

In the educational process of the Blokhin Institute included «process factory» training on current topics: «Vaccination against a new coronavirus infection», «In-depth medical examination after a new coronavirus infection», «Medical examination, preventive examination, clinical observation», «Prevention of infections associated with the provision of medical care» using the example of a hospital emergency department» [134].

Additionally, questions on lean technologies have been added to the work programs of the discipline «Hygiene» («05.31.01 General Medicine», «05.31.02 Pediatrics»), implemented at the Department of Hygiene and Ecology of the Federal State Budgetary Educational Institution of Higher Professional Education of the USMU of the Ministry of Health of Russia, and educational assignments have been developed for students.

The results of the audit of medical organizations implementing the new model served as the basis for developing proposals for methodological and methodological approaches to assessing the achievement of target values of two criteria of the new model for referral to the Ministry of Health of Russia (together with the Federal State Budgetary Educational Institution of Higher Professional Education USMU of the Ministry of Health of Russia, order of the Federal State Budgetary Educational Institution of Higher Professional Education USMU of the Ministry of Health of Russia dated 10/19/2023 No. 406-r) .

Methodology and research methods

The theoretical basis for developing measures to improve the implementation of the new model was the scientific and practice-oriented works of domestic and foreign authors specializing in studying the application of lean manufacturing approaches in healthcare.

The methodological basis of this work was an integrated approach to assessing the activities of medical organizations introducing a new model in the region and the scientific substantiation of the proposed strategies for improving primary health care. To conduct the study, mathematical, statistical, rating, analytical, sociological methods and audit methods were used.

Personal participation of the author in the study

The author personally carried out an analysis of domestic and foreign scientific articles, regulatory legal acts (hereinafter referred to as NLA) and other documents regulating the chosen research topic. The author's personal contribution included defining goals and objectives, developing research methodology, creating electronic databases, and conducting statistical analysis of the collected materials.

A research program, a methodology for assessing the degree of influence on the medical-statistical and demographic indicators of municipalities of the performance indicators of medical organizations participating in the creation of the new model, questionnaires for patients, doctors, receptionists, call center operators to assess satisfaction with the organization of making an appointment with a doctor have been developed.

As part of this work, a comprehensive study was carried out to assess medical, statistical and demographic indicators in the context of municipalities (80% of the author’s contribution to the collection of material); an audit of medical organizations providing primary health care to the children's population was conducted (100% author's contribution to the collection of material); a study to assess the indicator of population satisfaction within the framework of a new model and assess public opinion on population satisfaction with medical care in the Sverdlovsk region (monthly formation and statistical processing of final databases based on sociological surveys of medical insurance organizations in the Sverdlovsk region); assessment of the satisfaction indicator of patients, doctors, reception staff, call center operators with the organization of making an appointment with a doctor (100% author’s contribution to the collection of material),

assessment of the index of involvement of employees of medical organizations (95% author's contribution to the collection of material); analysis of patient requests regarding the provision of primary health care (based on data provided by higher departments), a SWOT-analysis program and the subsequent development of strategies to improve the implementation of the new model in medical organizations (100% author's contribution to the collection of material), assessment of the effectiveness of activities within the framework of the implementation of the new model (95% author's contribution), development of algorithms, methodological recommendations, professional advanced training programs on resource-saving technologies in healthcare, «process factory» type trainings (95% author's contribution to development).

The author carried out statistical processing of data, presentation of results, drawing conclusions, practical recommendations and suggestions personally (96%). The main provisions and results of the dissertation research are presented by the applicant personally and in co-authorship in 95% of scientific publications and reports at scientific and practical conferences at various levels. The preparation of implementation documents was carried out by the author personally 100%.

The share of personal participation in the process of planning, organizing and conducting research in all sections of the work was 90.0 %.

Publication of research results

14 works have been published on the topic of the dissertation research, including 4 scientific articles in peer-reviewed journals included in the list of the Higher Attestation Commission under the Ministry of Education and Science of Russia, as well as chapters in 2 monographs (co-authored).

Degree of reliability and testing of results dissertation research

The reliability of the results of the dissertation research is confirmed by a sufficient amount of analytical data, the number of representative samples in sociological research,

and the use of modern scientific research methods that corresponded to the set goals and objectives. Statistical processing of information and interpretation of the results obtained were carried out on the basis of modern approaches to analysis and statistical processing of data.

The research materials were reported and approved at all-Russian and international scientific and practical conferences, congresses, forums: at the 1st scientific and practical conference with international participation «Current aspects of medical activities among young people» (Kirov, 2021); VI All-Russian Scientific Conference «Clinical and theoretical aspects of modern medicine – 2021. #STA2021» (Moscow, 2021); XIII Ural Demographic Forum «Global Challenges to Demographic Development» (Ekaterinburg, 2022); Scientific and practical conference «Modern approaches to managing a medical organization» (Tyumen, 2022); International scientific and practical conference «Environment and public health» (Kursk, 2023); XIV Ural Demographic Forum «Demographic factors of population adaptation to global socio-economic challenges» (Ekaterinburg, 2023); The Second All-Russian Interdisciplinary Congress on Continuing Professional Education of Healthcare Workers «UMBRELLA: Health. Education. The science. Technologies» (Moscow, 2023); All-Russian conference with international participation, dedicated to the anniversaries of the departments of the pediatric faculty of the Federal State Autonomous Educational Institution of Higher Education Russian National Research Medical University named after. N.I. Pirogov Ministry of Health of Russia (Moscow, 2023).

The results of the dissertation were presented at the competition of best management practices «Smart Dialogue» (2023) with the project «Implementation of a system of training lean technologies for employees of medical organizations in the Sverdlovsk region» and at the «Third All-Russian competition of pedagogical excellence of teachers of departments of healthcare organization ...» with the project «Implementation of game , simulation and digital technologies in the educational process of the Blokhin Institute» (2023, the project was among the finalists).

Compliance of the dissertation research with the passport scientific specialty

The scientific provisions of the dissertation submitted for defense correspond to the passport of the scientific specialty 3.2.3. Public health, organization and sociology of healthcare, medical and social expertise, namely: 1) clause 12. «Analysis of the scientific foundations ... of providing medical care»; 2) paragraph 13. «Research into the problems of organizing medical care... assessing the effectiveness of their activities»; 3) clause 14. «Research of the resource base of medical organizations ... taking into account regional and sub regional characteristics»; 4) paragraph 16. «Research of medical and social ... on the quality of medical care «; 5) paragraph 17. «Development of theoretical and methodological foundations ... of medical care».

Scope and structure of the dissertation research

This thesis includes 248 pages of typewritten text, accompanied by 17 figures and 53 tables. The text is written in Russian and covers a wide range of issues related to the topic under study.

The dissertation has the following structure: introduction, literature review, proposed research methods, research results (5 chapters), conclusion, conclusions, recommendations, list of abbreviations and references, as well as additional 6 appendices. The list of references is compiled from 213 sources, including 183 domestic and 30 foreign authors.

Main scientific results

During the dissertation research, a number of scientifically significant theoretical and practical results were obtained.

1. Based on a comprehensive analysis of the PHC organization system, the main directions for improving care provided in outpatient settings were identified in the context of the introduction of a new model [145, p.441, paragraphs 1-2].

2. A methodology for assessing the performance indicators of medical organizations implementing a new model was proposed and tested at the regional level [101, p.36, paragraph 2; 75, p.86].

3. The features of the implementation of the new model at the level of the constituent entity of the Russian Federation were studied and it was found that in medical organizations providing primary health care to the child population, the lowest percentage of achievement was identified in relation to the criteria of the new model related to visual control of processes, calculation of the production load of equipment , revision of standards for improved processes", the process of supplying medicines and their consumption [75, p.82, paragraphs 8-9; p.83, paragraph 13].

4. A statistically significant increase in patient satisfaction with the length of wait for an appointment with a doctor, the attitude of attending physicians at the appointment, and the result of visiting a local doctor in medical organizations implementing a new model in the period from 2017 to 2022 has been proven. [162, p.89, paragraphs 5-6, p.90].

5. Based on the use of a scientific approach and the principles of representativeness, it was determined that in the Sverdlovsk region the most problematic issues for the population in the provision of medical care are related to the convenience of making an appointment with a doctor, the waiting time for medical care from the moment the need arises and in the queue before office [162, p.92, paragraph 2].

6. Measures have been developed to improve the activities of medical organizations implementing a new model, based on the introduction of resource-saving approaches to employee engagement, methodological support, standardization of processes, organization of preventive medical measures, patient flow management, development of professional competencies of employees at the regional level [75, p.85, paragraphs 1-2; 101, p.36, paragraph 3; 134; 144, p.465, paragraph 5; 145, p.441, paragraphs 1-2; 147; 162, p.94, paragraphs 5-6; 165].

Provisions for defense

1. Municipalities of the Sverdlovsk region have differences in medical, statistical and demographic indicators. These indicators are related to the performance indicators of medical organizations providing assistance to the population of these territories and introducing a new model of primary health care.

2. There is regional differentiation of the criteria of the new model according to the degree of achievement by medical organizations providing primary health care to certain categories of the population.

3. During the implementation of a new model for organizing primary health care, there has been an increase in patient satisfaction with the length of wait for an appointment with a doctor, the attitude of the attending physician at the appointment, and the result of visiting a local doctor.

4. Improving the activities of medical organizations introducing a new model for the provision of primary health care, based on the introduction of resource-saving approaches to employee engagement, methodological support, standardization of processes, organization of preventive medical measures, patient flow management and the formation of professional competencies employees leads to an increase in the performance of medical organizations in the Sverdlovsk region.

CHAPTER 1. CURRENT ISSUES AND PROSPECTS FOR THE DEVELOPMENT OF PRIMARY HEALTH CARE (LITERATURE REVIEW)

1.1. Organization of primary health care: current state

Primary health care is the first level and the most popular type of medical care for the population [10, 90, 54, 135, 178, 181]. This type of medical care is recognized by the World Health Organization (hereinafter referred to as WHO) as a priority area due to its effectiveness in preventing diseases and solving current problems in healthcare, which is confirmed by practical research experience [21, 22, 135].

Analysis of the results of scientific works shows that primary health care is the most widespread type of medical care, the development of which affects the efficiency of the entire healthcare system and helps in preserving public health and the demographic sovereignty of the state [13, 41, 45, 47, 83, 95, 126, 132].

Numerous scientific works are devoted to the development and establishment of primary health care, which reflect the main stages, historical aspects of reform and directions for its improvement [10, 37, 54]. Authors studying the organization of primary health care consider Alma to be one of the landmark events in the modern history of public health – Ata Declaration, adopted by WHO in 1978 and aimed primarily at the development of primary health care [2, 10, 22, 37, 45, 54, 56, 112, 126].

At the WHO conference in 2018 in Astana, the significant successes of primary health care and their impact on life expectancy and public health were highlighted [2, 22, 45, 126]. In 2019, at the World Health Assembly, experts again outlined the priority of improving primary health care [22, 45, 126, 139]. In 2023, WHO determined that PHC is the central element among a comprehensive set of health services [22].

In the Russian Federation, the basic principles of organizing medical care in an outpatient setting are defined by Federal Law No. 323-FZ of November 21, 2011 and orders of the Ministry of Health of the Russian Federation [120, 121, 122, 169].

Since 2019, the national project «Healthcare», 8 federal projects have been implemented, including the federal project «Development of the primary health care system», and since 2022 – an additional federal project «Modernization of primary health care in the Russian Federation» [104, 106, 107, 145, 163]. In the regions, major repairs are being carried out, new facilities providing primary health care are being built, qualified personnel are being attracted, and outdated equipment is being replaced [106, 145]. Thus, projects currently being implemented at various levels indicate significant attention and the allocation of large resources to primary health care. In the Sverdlovsk region, measures to improve primary health care are being implemented within the framework of the strategy, regional projects and programs [115, 116, 135].

Guarantees of medical care for citizens of the Russian Federation are enshrined in the Program of State Guarantees of Free Medical Care to Citizens [114]. In many Western countries, there is legislative regulation of the availability of medical care aimed at reducing waiting times [3].

Many researchers believe that the ability to make an appointment with a doctor is an important indicator of access to medical care [2, 80, 182]. Identifying the problems faced by both employees of medical organizations and the population when recording is an important task that needs to be solved at the present stage [18, 20, 38, 80, 182]. Thus, A. Yu. Veselkova et al. note that the conditions for achieving high rates of accessibility of medical care are associated with making an appointment, if medical personnel have the skills to use digital technologies and new communications with patients [20].

Based on the results of a study by A. P. Davitadze (2023), the reasons for attendance and the attitude of patients towards public and private medical organizations were studied. Almost 90% of respondents reported that the main reasons for not receiving care in public clinics were precisely the lack of an appointment with the right doctor, or it was possible at an inconvenient time for them [38]. When assessing the rating of problems in the Russian healthcare system by M. V. Valenteenko (2023), it was revealed that there was a lack of appointments with doctors, coupons for specialists, technical difficulties when making appointments due to the possible incorrect operation of

registration sites, long queues in front of the doctor's office, disrespectful attitude towards patients, etc. [18].

Recently, many studies have noted the relevance of introducing digital information technologies related to one of the strategic directions of healthcare development [24, 25, 43, 80, 159, 168, 170, 182]. Experts confirm that the use of digital technologies makes it possible to solve a number of problems in the organization of primary health care by increasing the availability and quality of medical services, simplifying the procedure for making an appointment with a doctor, and reducing the waiting time for an appointment with a specialist [43, 159]. The works of D.V. Voshev (2023) describe issues of legal regulation of digitalization of primary health care, models of digital maturity in medical organizations providing primary health care, and limiting factors affecting the implementation of digital technologies in healthcare [24, 25, 168].

In order to improve the accessibility of primary health care for the population, the Russian Ministry of Health, with the participation of a large number of experts, in 2022 developed methodological recommendations for organizing an appointment with a doctor [80]. The Sverdlovsk region joined the implementation of the project to implement these recommendations in the second quarter of 2023.

Issues of organizing primary health care and its improvement are of interest to both domestic and foreign researchers, who note a large number of approaches and concepts [10, 12, 13, 41, 47, 76, 83, 95, 117, 132, 143, 150, 151, 156, 184, 198, 199, 211].

Models for organizing primary health care vary across countries, due to the historical characteristics of the development of national health care systems [30, 85, 145]. According to some domestic and foreign researchers, the multidisciplinary clinic model that has developed in Russia has both its advantages and serious disadvantages [2, 157, 177, 190]. At the same time, the model of individual medical practice adopted abroad as an alternative to primary health care is criticized by part of the scientific community [2]. In this regard, the study by V.I. Shevsky et al. is interesting. (2022), which compares multidisciplinary clinic and individual practice models [177]. According to the authors, this model has its advantages, which relate to receiving medical care in one place, the possibility of consultations with narrow specialists and conducting diagnostic and

laboratory tests, effective use of diagnostic equipment, etc. The model of individual medical practice, which most often operates in Western countries, is an alternative to a clinic; the authors associated the main disadvantage of this model with the limited list of medical and preventive care provided [177].

S. V. Shishkin et al. (2022) describe new models of primary health care organization that may be developed in the Russian Federation in the future [97]. The work of A. S. Timofeeva (2023) focuses on a clinic management model based on the introduction of lean and digital technologies, a team approach, and the transfer of functional responsibilities to specialists with non-medical education [157]. The author emphasizes that many of the developed models have proven their effectiveness. At the same time, it is very difficult to choose an optimal and universal model for the management and organization of primary health care.

Thus, the analysis shows that primary health care throughout the history of the development of medicine is considered one of the most important links in the functioning of the health care system, while being one of the most problematic. At the present time, there are a large number of foreign and domestic organizational concepts and models to improve the performance of medical organizations in outpatient settings. In recent years, the Ministry of Health of the Russian Federation has identified methodological approaches to improve primary health care, including the introduction of a new model.

1.2. A new model of primary health care as a mechanism for implementing the basic principles of lean manufacturing

The basic principles of lean production were defined in 2014 in GOST R 56020-2014 «Lean production. Fundamentals and Vocabulary» [32]. They include 13 areas that are aimed at improving processes, reducing losses, creating a corporate culture in the organization, etc. [33].

When analyzing foreign scientific literature, a large number of publications on the use of lean technologies in healthcare are noted [194, 196, 197, 198, 204, 206, 212]. For example, Brazilian scientists found that in healthcare, lean manufacturing tools were most

often used, such as value stream mapping, Ishikawa diagram, 5C for organizing workplaces. Researchers have found positive results in terms of reduced time, cost, workload, and increased number of specialist consultations [196]. In another study by South American scientists NY Eiro et al. (2015) described a comparative study of the implementation of a total quality model and a lean implementation model in healthcare and [191]. In Sweden in 2016, M. Kaltenbrunner et al. (2019) conducted a study to study the so-called lean maturity of medical organizations and its impact on the quality of primary care [198].

When analyzing domestic literature until 2016, numerous scientific works were devoted to the use of lean production in the industrial sector of the economy, in the management of state and commercial enterprises, which reflected practical experience in the implementation of these principles [53, 87, 103, 141]. Single research papers on the experience of applying lean manufacturing approaches in healthcare are presented in open access electronic libraries [40, 58, 148]. Thus, the prospects for introducing a system of total equipment maintenance (TPM – Total Productive maintenance) in healthcare was discussed in the work of N. V. Knyazyuk (2011) [58]. Y. V. Danilchenko et al (2014) covered the use of lean manufacturing technologies in conjunction with the use of a quality management system [40]. Preserving the health of workers when introducing health and resource-saving technology, including the principles of lean production, was described in a study by G. G. Onishchenko et al. (2015) [148].

Based on the analysis of the regulatory legal acts, it can be noted that the use of lean manufacturing approaches in healthcare of the Russian Federation began in 2016 with the testing of the pilot project «Lean Clinic», then the priority project «Creation of a new model of a medical organization providing primary health care», a federal project «Development of the primary health care system» [79, 104, 105, 107].

Regional Centers for the Organization of Primary Health Care (hereinafter referred to as RC PHC) began to be created in 2018 [81, 134]. In 2019, the Russian Ministry of Health recommended 22 criteria for the new model. In 2023, the third edition of the methodological recommendations «A new model of a medical organization providing primary health care» was published; it developed 24 criteria. The names of some criteria

and their target values for different levels of implementation of the new model were changed. All 24 criteria were divided into 9 blocks [78, 79, 135]. When analyzing publications, many researchers described the results of achieving the criteria of the new model. Thus, in the work of N. A. Pestushko (2020), the criteria of the new model were analyzed from the perspective of their functional significance and applicability in healthcare institutions [66]. In the works of A. A. Kurmangulov et al. (2019, 2021, 2022) highlight the issues and problems of achieving the criteria of the new model regarding information systems, navigation, and inventory management in medical organizations [19, 67, 70, 71, 86].

Currently, based on the study of legal regulations and other documents, including methodological recommendations, the issues of introducing the new model have not been fully worked out at the theoretical and legislative levels. An assessment methodology is proposed for only 8 criteria of the first level of the new model. During this period, an assessment methodology is being developed for the remaining 16 criteria [66, 78, 79].

In addition, no changes have yet been made to the Federal Law of November 21, 2011 No. 323-FZ; in 2020, a bill on amending this federal law on the implementation of a new model was published for discussion [111, 169]. The Russian Ministry of Health, together with Federal Service for Surveillance in Healthcare, is developing a procedure for determining the compliance of medical organizations with certain requirements of the new model, and in the future introducing changes to the regulations on the organization of primary health care provision to adults and children [173]. Thus, many questions remain regarding the legal regulation of the implementation and evaluation of the new model.

Based on the achievement of the criteria of the new model, it was proposed to determine its level: first, second or third [79]. To achieve the target values of these criteria, improvement projects are implemented in medical organizations based on methodological recommendations and the proposed list of processes (subprocesses) for optimization and improvement [82, 134].

An analysis of scientific works devoted to the implementation of the new model shows an increase in the effectiveness of primary health care provision and significant

achievements [42, 124, 143, 144, 145, 150, 151, 156, 171, 179]. Thus, as part of the implementation of improvement projects, the work of the registry, drug provision for patients, organization and conduct of vaccination, diagnostic studies, etc. are being improved [42, 124, 135, 144, 145, 150, 151, 156]. The experience of introducing a new model and implementing improvement projects in various departments is reflected in the works of A. Sh. Senenko et al. (2020), A. V. Smyshlyaeva et al. (2020), I. V. Potapova et al., A. K. Fedoskina et al. (2022) and others [29, 143, 165, 156, 171, 179].

With a large number of presented practices for the use of lean technologies in healthcare, a few works describe the problems that may accompany the work on introducing a new model [11, 60, 76, 77, 127, 179]. Today, the problems of introducing a new model and assessing changes in the performance indicators of medical organizations participating in the creation of a new model are quite relevant [44, 143, 171, 179]. Thus, A.K. Fedoskina et al. (2022) notes the lack of an integrated approach to the reorganization of activities as part of the implementation of the new model, the high formality of the ongoing reforms, and the insufficient involvement of all participants in the processes of providing primary health care [171]. A. V. Smyshlyaev et al. (2020) described difficulties in implementing a new model associated with lack of funding, insufficient level of management competencies of the head of a medical organization, informatization of the industry, staff resistance during project implementation, etc. [143]. D. V. Piven (2020) presented in his study the risks that may arise in work when introducing a new model [111]. In addition, some experts additionally note the relevance of improving approaches to improving the qualifications of managers and employees of medical organizations on lean manufacturing issues in healthcare [45, 44].

One of the important aspects of implementing lean technologies is the financial component. Thus, in Canada, a study was conducted to estimate the costs of introducing lean technologies in the Saskatchewan health care system in 2012–2014. The total cost of implementing lean manufacturing over two years (2012–2014) ranged from CAD 44 million to CAD 49.6 million [185]. It is worth noting that similar studies have not been found in the domestic literature in open databases.

One of the problems in implementing the new model is the lack of involvement of medical organization personnel in the implementation of lean technologies and project management [28, 57, 101, 117, 147]. One of the principles of lean manufacturing is associated with building a corporate culture in an organization and increasing employee involvement in activities [33]. Personnel involvement is one of the blocks of evaluation criteria of the new model [79]. The management of a medical organization is recommended to annually participate in the implementation of personal improvement projects (at least one project per year) [79, 82].

At the same time, I would like to note that the concept of engagement first appeared in 1990; before that, personnel management services were studying employee satisfaction [48]. Most researchers identify 3 levels of employee commitment to the organization: satisfaction, loyalty and involvement [4, 27, 48, 61, 155, 158]. Satisfaction means that the employee is satisfied with the working conditions, team and manager. Loyalty shows that the employee has a friendly attitude towards the employer, the work itself and the accepted rules. Involvement is the highest level of commitment, when an employee strives to do his job as best as possible and achieve results [4, 27]. There are no unified approaches to understanding the term «involvement»; there are a large number of definitions. As the most compromise, one can imagine staff involvement as a complex indicator that characterizes the system of relationships between employees and the organization [155].

In modern conditions in the field of healthcare, the issue of personnel involvement in the activities of domestic medical organizations has not been sufficiently studied [147, 158]. Most of the work on the study of involvement was carried out in the market sector of the economy [4, 61, 155]. The results of some studies show that employee engagement is an important condition for improving the efficiency and effectiveness of companies [27, 48, 61].

Based on the authors' research, it has been established that no attention is paid to such an important parameter for the implementation of lean production as the involvement of employees in the process of implementing new projects. Most often, the involvement of employees in the healthcare reform process or motivation is mentioned,

but practical measures and specific indicators are not described [28, 57, 108, 117]. Only a few publications use the satisfaction or motivation of medical personnel as a criterion for the successful implementation of the objectives set within the framework of the study [28, 57, 108, 146]. According to E. A. Pereverzentseva et al. (2020) when implementing a set of motivating activities, the development and application of a system of material and non-material incentives based on understandable and achievable criteria is of key importance when implementing lean manufacturing approaches [108]. N. S. Davydova et al. (2019, 2020) considers it relevant to introduce a personnel motivation system in medical organizations based on the basic principles of the lean production management system and the effective involvement of personnel in project management [39, 146].

The analysis of scientific sources showed that there are a large number of methods for measuring employee engagement and various options for its assessment. The most common are periodic surveys: Aon Hewitt model, The Gallup Q12, Utrecht Work Engagement Scale, Oldenburg Burnout Inventory, May, Gilson and Harter Method, A. Sachs Method, Rich, Lepine and Crawford Method, Towers Watson model (exponential engagement model), etc. [26, 61, 136, 176]. It should be noted that to measure employee engagement, the Q12 questionnaire, developed by the international consulting company The Gallup and including twelve questions about working conditions, career growth and relationship with management, has been widely used [73, 101, 207]. Survey data prove statistically significant dependences of labor productivity, employee satisfaction and growth of company capitalization on the employee engagement index [36, 73, 152, 193, 207]. In the Sverdlovsk region, since 2018, this methodology has been refined for employees of medical organizations and was used to assess the engagement of employees of medical organizations as part of the implementation of a new model [101, 147].

In the Russian Federation, additionally, as part of the creation of a new model, a mechanism for motivating employees of medical organizations was implemented [134]. In April 2019, the Russian Ministry of Health and the Federal Compulsory Medical Insurance Fund recommended that regions introduce incentive payments under compulsory medical insurance for medical organizations participating in the creation of a new model if they achieve 11 performance indicators of the Lean Clinic; in 2020 – 22

performance indicators. Sverdlovsk region made such changes to the wage system among the first in the Russian Federation. Based on the results of work in 2019, payments were made to 20 medical organizations in the Sverdlovsk region, in 2020 – to 12 medical organizations, in 2021 – 14 medical organizations, which made it possible to motivate the management and staff of medical organizations as part of the implementation of the new model [101].

In 2022, these payments to medical organizations were stopped. In order to motivate the staff of medical organizations implementing the new model, from 2022, only internal incentive mechanisms remain in medical organizations of the Sverdlovsk region, including material (social support measures, provision of housing, payment of rent, payment of utilities, incentive monthly payments) and non-material (awarding diplomas at various levels, joint cultural and sports events, opportunities for advanced training, career opportunities) [101].

Another of the basic principles of lean manufacturing is process standardization [33, 35]. The standardization system extended to the provision of medical services at the end of the 19th and beginning of the 20th centuries; the activity on the application of medical care standards received greater development in the second half of the 20th century [63, 88]. The centers of greatest development in the standardization of medical care were the United States and Japan, where national standardization institutes were created, standards were developed and implemented in various areas of medical care (standards for the organization of medical services and organizations, health care resources, technological, medical-economic, comprehensive, organizational standards and etc.) [63].

Based on the analysis of the legal acts, it was established that currently standardization in the Russian Federation is regulated by the Federal Law of June 29, 2015 No. 162-FZ «On standardization in the Russian Federation» Basic terms and definitions are described in GOST 1.1-2002 «Interstate standardization system. Terms and definitions», GOST R 1.12-2020 «Standardization in the Russian Federation. Terms and Definitions». In addition, the standardization of work was reflected and set out in GOST standards for lean production [31, 33, 34, 35].

In healthcare, approaches to standardized work are described in the methodological recommendations of the Russian Ministry of Health for the implementation of improvement projects using lean manufacturing tools. These guidelines define the following concepts: standard, work standard [82]. They define standardization in a medical organization as an activity aimed at creating and implementing improved processes based on standards.

The process of standardization in a medical organization as part of the implementation of a new model is completed after consolidation of the results and closure of the project. In accordance with the methodology for implementing an improvement project, after monitoring the stability of the implemented improvements and the necessary adjustments, standard operating cards for the improved process are developed according to the recommended form [82].

Among the evaluation criteria developed by the Russian Ministry of Health as part of the creation of a new model, the block «Standardization of processes» includes two criteria: the share of improved processes in the clinic, the share of standards of improved processes, with target values of at least 100% [79]. It is noted that the activities of medical workers must comply with approved standards, which are reviewed at least once a year [79].

As part of the analysis of literary sources, it was found that standardization of work is used as one of the tools of lean production as part of the implementation of a new model [33, 35, 82]. The authors describe the use of standardization at the implementation stages of projects [52]. The experience of the process of standardization of visualization and navigation systems in medical organizations is presented [68, 71].

According to many authors, compliance with standards is a necessary condition for effective operation and continuous improvement of processes [59, 63, 88]. Standardization of work is used to reduce losses and optimize the process [33, 34, 35]. This method can be used at different levels, including inter-organizational, organizational, process or operations levels [35].

Experts note that standardization in healthcare is manifested in unified approaches to standardization, licensing and certification of medical activities. Organizational

standards determine the requirements for the efficient use of healthcare resources, the organization of management systems, quality control, the treatment process, etc. The processes of providing medical care are reflected in technological standards [59, 156, 180].

Standards are divided at the level of organization, region, country and have international status. In healthcare, standards are classified into resource standards, organization of medical services, technological, medical-economic, comprehensive standards, etc. [59]. On the territory of the Russian Federation there are rules, recommendations, norms, regulations and other documents [31].

In the healthcare system, there are difficulties in applying standards due to the lack of special knowledge among patients to assess the quality of medical care, so the development of regional standards is necessary [49]. An example of the development of regional standards in healthcare is the standard of the Tomsk region polyclinic, «Tatarstan Standard», «Moscow polyclinic standard» [59, 65, 119]. The experience of applying various types of standards in the organization of medical care shows that standardization brings positive results and shows greater efficiency [59, 119, 156].

From the analysis of the literature it follows that the introduction of lean technologies and a new model helps to overcome the main problems associated with organizing the work of primary health care, and at the same time demonstrates high effectiveness in improving the processes of providing medical care in the clinic. [42, 77, 124, 135, 143, 144, 150, 151, 156, 171, 179]. According to A. V. Metelskaya (2020), not all problems in healthcare can be solved by lean technologies; other measures require solving the issues of shortage of medical personnel and provision of medical organizations with funds from the budget, increasing the level of wages of medical workers, competition with the commercial sector of medicine, the reluctance of medical workers to learn digital technologies, and patients' compliance with «flow discipline» [77, 145]. However, O. L. Zadvornaya (2021), in her study of the problems and directions of development of primary health care, notes that the shortage of medical services is associated with an insufficiently rational distribution of the workload between medical and non-medical personnel [45]. These problems, in turn, can be solved through the use

of lean technologies and tools based on calculating the workload of personnel, identifying losses in the process of providing medical care, and developing standard operating cards for employees of medical organizations [156].

Thus, based on the study of legal acts and other documents regulating this area, including methodological recommendations, we can conclude that at present the issues of introducing the new model have not been fully worked out at the theoretical and legislative levels. Despite the relatively long period of implementation of the new model in the Russian Federation, the presence of a large number of publications on this topic, which reflect the methodology, experience, problems, there is still an insufficient number and quality of studies assessing the effectiveness and/or efficiency of the implementation of the new model. In connection with the above, an urgent task is to search and evaluate indicators characterizing the activities of medical organizations implementing lean technologies, and analyze their impact on the medical-statistical and demographic indicators of specific service areas for the development and evaluation of measures to improve the organization of primary health care.

1.3. Methodological and methodological approaches to assessing measures to improve the activities of a medical organization introducing a new model of primary health care

An analysis of scientific literature shows that the results of measures to improve outpatient services are analyzed from the standpoint of medical, social and economic efficiency. M. G. Karailanov et al. (2016) believe that there is a relationship and interdependence between these types of effectiveness [55, 135]. Medical and statistical indicators of territories are formed under the influence of demographic, socio-economic and medical-organizational factors. Among them, the resources of primary health care facilities have a great influence [46, 85].

Many studies evaluate basic health and demographic indicators, morbidity indicators and health care staffing [6, 16, 135, 172]. In addition, changes in the main indicators of the health status and demographic characteristics are often analyzed in the

context of municipalities (hereinafter referred to as municipalities) of territories. Thus, in the Tambov region, municipalities were ranked according to 3 medical and demographic indicators: birth rate, death rate and natural population growth to identify unfavorable territories [118]. And in the Krasnodar Territory, the results of an analysis of the demographic situation made it possible to identify negative trends in individual municipalities, which also affect their economic development [138]. Mortality statistics were studied in the Republic of Tatarstan for municipalities and two settlements of urban districts and 43 municipal districts (hereinafter referred to as MR). Features of the formation of the levels and structure of mortality in the population of the MR have been identified, which in some cases are radically different under comparable natural-climatic, political-economic, medical-social conditions [9]. In the Republic of Sakha (Yakutia), resource availability in the regions was analyzed in terms of medical personnel, round-the-clock hospital beds, etc. [133].

The performance indicators of medical organizations should be assessed from the standpoint of medical, social, and economic efficiency [55, 113].

When analyzing foreign sources, special attention is paid to the initiative to improve the efficiency of primary health care, put forward in 2015. by the Bill & Melinda Gates Foundation, the World Bank Group and WHO to stimulate improvements in primary health care systems in 135 low- and middle-income countries. The initiative developed a conceptual framework based on literature reviews and consultation with a committee of international experts, and identified two sets of PHC performance indicators. The first set of performance indicators consisted of 36 indicators. The second set of indicators consisted of 56 diagnostic indicators revealing the main factors of PHC performance. A major challenge has been the lack of available data on some indicators and the lack of validated indicators for important aspects of PHC quality [204, 187].

Domestic researchers have repeatedly proposed a list of indicators and methods that could be used to assess the level of primary health care provision [50, 55, 101, 143, 183]. Experts believe that the number of indicators should be minimal and determined based on an analysis of the institution’s accounting and reporting documentation and patient surveys [55]. Each indicator must be compared with a standard value or with a

value in the previous period. To assess the activities of outpatient departments of medical organizations, indicators of the volume and type of visits, the workload of medical personnel, etc. are more often used [55].

In many methodological recommendations and manuals for medical universities on the organization of primary health care, the main indicators of the activities of medical organizations providing primary health care to the population include: the staffing of therapists at the sites, the part-time ratio, the number of visits, the share of preventive visits to outpatient medical organizations, etc. [5, 98].

In the studies of S.A. Budarin et al. (2022) presented the experience of developing a methodology for rating medical organizations and the results of its testing on the example of medical organizations providing primary health care to the adult population, based on clustering [15]. In the Moscow region, performance indicators for outpatient services with per capita financing were determined based on data from registers and accounts. The indicators characterized the quality and effectiveness of therapeutic and preventive work among the assigned population, morbidity and mortality [84]. In the Stavropol Territory, a comprehensive analysis and assessment of the dynamics of integral indicators of the quality and accessibility of primary health care, effectiveness was carried out using an improved methodology for forming indices of the well-being of medical organizations [62]. In 2020, R. N. Terletskaya et al. (2021) described a study assessing the performance indicators of outpatient child healthcare services in 31 constituent entities of the Russian Federation, such as the availability and staffing of pediatricians, local pediatricians and pediatric surgeons, their qualifications and part-time ratio, etc. [7].

To determine the relationship between various indicators, many authors used correlation analysis with the construction of a correlation matrix [1, 17, 125, 186]. Based on the analysis of scientific sources and available databases, no similar studies were found as part of the implementation of the new model.

Analysis of the literature made it possible to identify the main methods for assessing the activities of medical organizations: statistical, expert assessments, clinical and economic analysis, sociological [55]. One of the widely used methods in social and hygienic research at present, according to many researchers, is the sociological method

[14, 101]. One of the integral tools for assessing the effects of ongoing activities in medical organizations is measuring the level of population satisfaction [3, 8, 11, 102, 188, 189, 192, 195, 200, 201, 202, 203, 209, 210].

In the Standard for the management system of a medical organization, developed by specialists from the FRIHOI of MoH of Russia, patient satisfaction refers to the assessment of the activities of medical organizations by patients, covering all components and stages of medical care [128]. The analysis of the normative legal acts determined that the indicator of population satisfaction with the medical care delivery system is currently a criterion for the effectiveness of the activities of health care authorities [114, 129].

The currently relevant value-based healthcare model is more aimed at ensuring long-term patient satisfaction and organizing patient feedback [109, 131]. The use of information technologies in patient surveys and analysis of results allows for prompt monitoring of patient satisfaction indicators [72].

At the federal level, to ensure control over the quality and availability of free medical services, standards for the provision of medical services are being developed and methodological recommendations are being approved. In the approved methodological recommendations, the authors' works propose various systems of indicators and methods for monitoring consumer satisfaction with the quality of medical services [102, 188].

In the Russian Federation, data on patient satisfaction with medical care has been collected since 2015 using questionnaires [127]. Since 2017, insurance medical organizations (hereinafter referred to as IMOs) have conducted surveys of citizens to assess satisfaction with the provision of primary health care as part of the implementation of a new model [101].

Since 2022, an additional target indicator for assessing public opinion on the population's satisfaction with medical care has been included in the national project «Healthcare» in order to determine the impact of infrastructural changes on people's attitudes towards the healthcare system [104, 123]. To calculate this indicator, the Ministry of Health of the Russian Federation has developed a new assessment methodology [123].

Extensive experience in studying issues of population satisfaction with medical care is presented in studies by foreign authors. Based on their analysis of publications, scientists around the world are currently conducting scientific research aimed at increasing the level of satisfaction of the population [3, 192, 202, 203, 213]. An interesting study by specialists from Greece, which covers 31 countries for 2007, 2008, 2009 and 2012. Based on the results of the study, S. Xesfingi (2016) determined that there is a strong positive relationship between the level of patient satisfaction and indicators of health service delivery, such as the number of nurses and doctors per 100,000 inhabitants. Among socioeconomic variables, government spending on healthcare plays a significant role, which has a positive effect on patient satisfaction; the older the patient, the more satisfied he is with the country's healthcare system [213].

In a study of patient satisfaction by Lithuanian researchers, R. Kavalnienė et al. (2018) note that low ratings of PHC services were more typical for men, older patients, residents of district centers and villages, people with a lower level of education (secondary or below secondary), patients with chronic diseases, higher satisfaction with PHC services observed in respondents who lived in the city rather than in rural areas [202]. Thus, P. L. Ferreira (2020), describes the results of assessing patient satisfaction in Portugal, which show that the larger the size of the primary care department, the lower the satisfaction; in rural areas the level of satisfaction is higher than in cities [192]. In another study conducted in India, D. Persai et al. (2022) assess patient satisfaction with primary health care services at various levels of the public health system in three states. In one state, there was a decrease in patient satisfaction with increasing age and level of education; patient satisfaction was higher in primary health care organizations compared to secondary and tertiary care facilities in three states [203].

Over the past few years, a significant amount of data has been accumulated in the constituent entities of the Russian Federation on the study of patients' opinions about the healthcare system, which can be used as an information base for such scientific research [8]. Patient experience and perspectives are increasingly recognized as essential to successful health care delivery, along with patient safety and clinical effectiveness [11]. According to the results of numerous studies, the level of satisfaction of the population

of the Russian Federation in different years varied between 45-81% [3, 8, 11, 14, 101, 102]. The reasons for the decrease in the level of satisfaction were studied, which formed directions for taking corrective measures [14].

In 2023, D. A. Shelegova et al. (2023) summarized research and theoretical constructs describing the concept of patient satisfaction with medical care to formulate approaches aimed at increasing this indicator [154]. Based on the analysis, a theoretical construct of patient satisfaction with medical care was formed. O. S. Kobyakova et al. (2023) reviewed the major health care satisfaction survey instruments, quality assessments, and related studies published between 1970 and 2015 [161].

Satisfaction includes certain parameters, and in recent years, academic researchers have been developing various lists of them included in the evaluation criteria. Some authors suggest considering patient satisfaction as one of the main indicators for assessing the performance of the entire healthcare system [130, 174].

A. B. Tsvetkova et al. (2021) note that satisfaction ratings are sometimes criticized for being partial and too subjective. The assessment of satisfaction depends on gender, age, level of education, income and profession, health status, etc. [174]. S. A. Suslin et al. (2023) propose the development of an organizational model for increasing the level of satisfaction and the creation of a computer program for monitoring patient satisfaction, indicators for assessing the effectiveness of activities [130].

FRIHOI of MoH of Russia (2023) analyzed the factors influencing the assessment of population satisfaction based on by IMOs data. This study determined the relationship between the level of satisfaction with medical care and gender, age, timing of receipt of medical care, and place of residence of the respondent [160].

A large number of domestic articles are devoted to the study of patient satisfaction in different departments of medical organizations. Thus, in Astrakhan, an assessment of the satisfaction of primary health care patients was carried out. The work included a questionnaire survey in which 111 patients participated; more than 60% of patients noted the correctness, friendliness, politeness and attentiveness in the communication of doctors with patients, satisfaction with the conditions in the clinic, and the availability of medical care at home [100]. In Moscow, a comparative assessment of the accessibility of

primary health care was carried out based on the results of a sociological study of public opinion and data from the «Unified Medical Information and Analytical System of the City of Moscow» (hereinafter referred to as UMIAS). As part of the study, an index of patient loyalty to a medical organization was calculated. The established correlations indicate a coincidence of the opinions of doctors and citizens and UMIAS data on the issue of assessing the accessibility of primary health care. According to research, the number of dissatisfied patients is mainly influenced by the process of organizing medical care and its availability [175].

According to the results of a study conducted in the Samara region, rather low patient satisfaction in outpatient settings was noted. Patients are not satisfied with the work of the registry, the provision of medical care by a local doctor, a specialist doctor, or paramedical staff [153].

M. G. Karailanov et al. (2016) note that monitoring population satisfaction helps develop activities and make management decisions [55]. As part of the creation of a new model, many authors note an increase in satisfaction rates [89, 91, 93]. According to the Ministry of Health of the Russian Federation, the satisfaction of the population with primary health care in the Russian Federation before the start of the implementation of the Lean Clinic project in 2016 was only 45.7% [105]. However, an international study conducted in Sweden examining patient satisfaction when implementing lean manufacturing did not show significantly better results in patient satisfaction in primary care centers using these approaches compared to those not using them. Additionally, health centers implementing lean technologies did not show significant improvements in patient satisfaction over time [205].

Based on the opinions of researchers, one of the possible tools for assessing the effectiveness of providing primary health care under the conditions of implementing the model can be the analysis of citizens' appeals, which is especially important for medical organizations providing this type of care [42].

The study of patient satisfaction is complicated by the fact that there is no generally accepted definition of «satisfaction» and uniform tools for measuring it [22]. The satisfaction indicator is subjective and depends on the individual characteristics

of a person, gender, age [55]. The results of studying the opinions of patients based on sociological surveys, as a rule, coincide with the results of a study of citizens' appeals regarding dissatisfaction with medical care. The greatest dissatisfaction with medical care is most often determined in the outpatient setting [22, 55, 96].

Thus, one of the most accessible indicators of the effectiveness of a medical organization may be the number of complaints and requests from patients assigned to a given medical organization. According to experts, the study and analysis of citizens' requests can act as the main indicator for assessing the quality of medical care, one of the aspects of which is satisfaction [77]. In addition, the «Feedback Platform» allows citizens through a form on the State Services portal, the State Services mobile application. Let's decide together» widgets on government websites to send requests on a wide range of issues.

As a result of the analysis of the literature, it was established that the analysis of indicators characterizing the activities of medical organizations providing primary health care is a pressing problem that researchers use to assess the effectiveness of ongoing measures to improve this area of healthcare. There are many methods and approaches for assessing the performance of such medical institutions. These methods evaluate a significant number of indicators and use different methods for collecting and processing statistical information. At the moment, there are no unified methods for assessing ongoing activities to improve primary health care. An analyzed review of domestic and foreign scientific literature showed that the indicator of patient satisfaction with medical care is quite often used to evaluate the performance of medical organizations. In addition, in the available databases, work on the issue of a comprehensive assessment of indicators characterizing the activities of medical organizations implementing the new model and their impact on the medical-statistical and demographic indicators of specific service areas was not found, which requires additional research in this area.

Chapter Summary

The literature review shows that primary health care throughout the history of healthcare development is considered one of the most important links in the functioning of the healthcare system and at the same time is one of the most problematic.

At this stage, there are a large number of foreign and domestic organizational concepts to increase the effectiveness of the outpatient department. The Ministry of Health of the Russian Federation has identified methodological approaches to improve primary health care, based on the application of lean manufacturing principles as part of the creation of a new model. The issues of introducing the new model have not been fully worked out at the theoretical and legislative levels. There remains a need to improve approaches to advanced training of managers and employees of medical organizations in the field of resource-saving management approaches.

Despite the fairly long period of implementation of the new model in the Russian Federation, the presence of a large number of publications on this topic, which reflect the methodology, experience, problems, to date there is not enough research to assess the effectiveness of creating a new model. Based on this, an urgent task is to search for performance indicators of medical organizations implementing a new model and assess their impact on the medical, statistical and demographic indicators of service areas in order to develop improvement measures in the context of applying methodological approaches of lean production.

Indicators characterizing the activities of medical organizations are used by many researchers to assess the effectiveness of ongoing activities to improve primary health care. The indicator of patient satisfaction with medical care is often used to evaluate the performance of medical organizations; there are a large number of methods and approaches for assessing it. In addition, there was a lack of research results on a comprehensive assessment of indicators characterizing the activities of medical organizations implementing the new model, which determines the basis for the development of additional methodological and methodological approaches to assessing ongoing activities to improve primary health care.

CHAPTER 2. MATERIALS AND METHODS OF RESEARCH

2.1. Research program and materials

2.1.1. General program and stages of research

The dissertation research consists of developing measures to improve primary health care in terms of introducing a new model. The study is based on an analysis of scientific literature sources that relate to the issues of improving primary health care and the use of lean technologies in medical organizations providing primary health care. The work is based on regulatory legal acts and other documents, including methodological recommendations of the Russian Federation, which establish requirements for the organization of primary health care, the criteria of the new model, and approaches to the implementation of lean technologies.

To conduct the dissertation research, methodological and methodological approaches were selected and justified, the main stages, methods, volume, algorithm and design of the individual program at a specific stage were identified. The study to improve the implementation of the new model was conducted from 2017 to 2023. In accordance with the purpose and objectives, a step-by-step plan was determined and a comprehensive research program was drawn up (Table 1).

The methodological basis of the dissertation research was a set of methods of scientific knowledge and a systematic approach. The following general scientific methods and approaches were used in the work, including:

1) historical-medical method in analyzing the problems of development and improvement of primary health care, introducing a new model;

2) organizational and legal when studying the legislative regulation of the implementation of a new model;

3) a medical-statistical approach in the process of collecting, studying, and analyzing medical-statistical and demographic indicators in the context of municipalities

of the Sverdlovsk region and performance indicators of medical organizations providing primary health care, including correlation analysis;

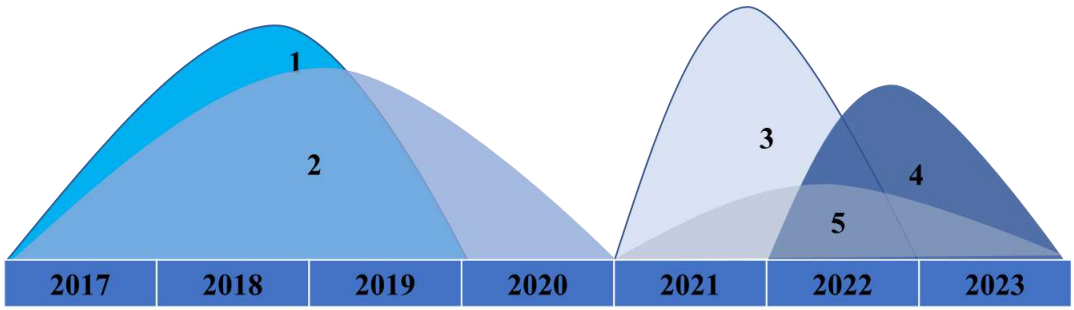
4) an audit method with an independent and documented process of obtaining objective evidence and assessing it to establish the degree of compliance of medical organizations providing primary health care to the child population with the criteria of the new model recommended by the Ministry of Health of the Russian Federation;

5) the rating method in the formation of generalized ratings of municipalities of the Sverdlovsk region according to medical-statistical and demographic indicators and medical organizations providing primary health care according to key performance indicators;

6) medical and sociological method of surveying patients and employees of medical organizations in terms of introducing a new model.

Objects of the study: medical organizations of the Sverdlovsk region (74 medical organizations), municipalities of the Sverdlovsk region (59 municipalities), employees of medical organizations, patients of medical organizations.

Figure 1 shows the main stages of the dissertation research.



1 – first stage; 2 – second stage; 3 – third stage;

4 – fourth stage; 5 – fifth stage.

Figure 1 – Main stages of dissertation research

Table 1 – Research program

Task	Research method	Scope of study, unit of observation	A source of information	Stages, terms (years)
1	2	3	4	5
1) Conduct a comparative analysis of medical, statistical and demographic indicators of municipalities of the Sverdlovsk region	Analytical, statistical, rating	Municipalities (n = 59), medical-statistical and demographic indicators (n = 7)	MIAC statistical databases	2017 – 2019, 2nd stage
2) Assess the degree of influence on the medical-statistical and demographic indicators of municipalities of the performance indicators of medical organizations introducing a new model of primary health care	Analytical, statistical, rating, correlation analysis method	Medical organizations providing primary health care (n = 74), performance indicators of medical organizations (n=6)	Statistical databases MIAC, TFCMI	2017 – 2020, stage 2
3) Perform an audit of the activities of medical organizations introducing a new model of providing primary health care	Observational, audit method, statistical	Medical organizations providing primary health care to children (n = 8); criteria for the new model (n = 22); indicators activities of medical organizations providing primary health care assistance to the child population (n = 11)	Checklists, statistical databases of ASMMS, TFCMI, MIAC	2021-2022, stage 3

Table 1 continued

1	2	3	4	5
4) Carry out a comprehensive assessment of the population's satisfaction with medical care and identify the main factors determining its level	Statistical, sociological, analytical, comparison method	Sociological surveys (n = 6856); respondents (n = 211686); medical organizations (n = 86); r respondents (n = 3666); respondents (patients) (n = 354); respondents (doctors) (n = 840); respondents (call center operators) (n = 149); respondents (recorders) (n = 349); medical organizations (n = 117); citizens' appeals to the Ministry of Health and Social Protection (n = 20329); citizens' appeals to the self-regulatory organization (n = 21,529); citizens' appeals to the SOG (n = 4917); messages from citizens in the PIC (n = 221,701); messages from citizens in the POS category «Medicine» subcategory «making an appointment with a doctor» (n = 15678).	Database of TFCMI, IMOs, MZSO, CAOG, MIAC; questionnaires	2022 – 2023, 4th stage
5) Develop, test and evaluate the effectiveness of a system of measures to improve the activities of a medical organization introducing a new model for the provision of primary health care	analytical, comparative, SWOT-analysis, methodological	Respondents (employees of medical organizations) (n = 15363); improvement strategies (n = 7); medical organizations (n=2)	Questionnaires, legal acts, databases of ASMMS, TFCMI, MIAC	2021 – 2023, stage 5

Program consisted of five main stages. At the first stage of the work, the goals, objectives, subject, objects of research and the main methods for conducting the research are identified. Domestic and foreign scientific sources on the issues of improving primary health care and the application of lean technologies in healthcare are analyzed.

The second stage of the study consisted of an analysis of medical, statistical and demographic indicators for the municipality of the Sverdlovsk region for the period 2017-2019, starting from the period when the implementation of the pilot federal project «Lean Clinic» began. The information base was electronic statistical data from the Medical Information and Analytical Center of the State Autonomous Institution of Additional Education «Ural Institute of Health Care Management named after A.B. Blokhin» (hereinafter referred to as MIAC) for 2017-2019. Next, the final ratings of the Sverdlovsk Region municipality were formed based on medical, statistical and demographic indicators.

Subsequently, an analysis was carried out of the activities of medical organizations participating in the creation of the new model from 2017 to 2019, based on the selected 6 indicators for evaluation. A final rating of medical organizations based on these indicators has been formed.

A correlation analysis was carried out to determine the relationship between the performance indicators of medical organizations participating in the creation of the new model and the medical-statistical and demographic indicators of the Sverdlovsk Region (a detailed description is presented in section «2.1.2. Medical-statistical research program»).

Based on the results obtained, an audit of medical organizations participating in the creation of the new model and providing assistance to the child population was determined (the research program is described in detail in section «2.1.3. Audit program of medical organizations providing primary health care to the child population»).

The results obtained at the previous stages determined the importance of conducting and evaluating sociological research. Therefore, at the fourth stage, a comprehensive assessment of the population’s satisfaction with the availability and quality of medical care in terms of the implementation of the new model was carried out.

This assessment included the conduct and/or evaluation of sociological research. Additionally, a study was conducted to assess satisfaction with the organization of appointments. A detailed description of the methods and designs of sociological research is described in section «2.1.4. Sociological Research Programs» At this stage, an assessment of citizens' appeals through various feedback channels was carried out (the research program is described in detail in section «2.1.5. Program for analysis of citizens' appeals regarding the provision of primary health care, sent through various feedback channels» Based on the results of the fourth objectives, directions for improving primary health care were identified.

At the fifth stage, a SWOT-analysis of the activities of medical organizations in the Sverdlovsk region implementing the new model was carried out (the research program is described in detail in section «2.1.6. SWOT-analysis program»). Based on the results of the analysis, 6 strategies were developed to improve primary health care, including increasing the involvement of employees of medical organizations as part of the implementation of a new model (a detailed description is presented in section «2.1.7. Program for assessing the involvement of employees of medical organizations as part of the implementation of a new model for the provision of primary health care – sanitary care»). Using the example of two medical organizations, an assessment was made of the effectiveness of measures taken to improve the implementation of a new model in the Sverdlovsk region (the research program is described in detail in section «2.1.8. Program for assessing the effectiveness of measures to improve the activities of a medical organization introducing a new model of primary health care»).

2.1.2. Medical and statistical research program

The medical-statistical study was an analytical one-time study in 2021 and covered the analysis of medical-statistical and demographic indicators of the Ministry of Defense and performance indicators of medical organizations implementing the new model for the period 2017-2019.

The purpose of the study is to assess the degree of influence of the performance indicators of medical organizations implementing lean technologies as part of the creation of a new model on medical, statistical and demographic indicators of medical organizations

To achieve this goal, the objectives for this study were formulated: 1) to evaluate 7 medical, statistical and demographic indicators for the Sverdlovsk region; 2) evaluate 6 performance indicators of medical organizations providing primary health care; 3) conduct a correlation analysis between the selected indicators.

The object of the medical and statistical study was 59 municipalities of the Sverdlovsk region, for which the main calculations of medical and statistical indicators were carried out, and 76 medical organizations providing primary health care. The study sample size for analysis was 2607 units (59 municipalities of the Sverdlovsk region, 7 medical-statistical and demographic indicators of municipalities, 76 medical organizations, 6 performance indicators of medical organizations and 3 years of observations). The information base was the electronic data of MIAC, the Territorial Fund of Compulsory Medical Insurance of the Sverdlovsk Region (hereinafter referred to as TFCMI).

An analysis of 7 medical-statistical and demographic indicators was carried out for 59 municipalities for the period 2017-2019. To assess the Ministry of Health, 7 indicators were selected, characterizing demographic trends, morbidity in the territory, implementation of medical preventive measures, resources of the health care system, including personnel in the territories. These indicators were chosen due to the possibility of carrying out calculations and analysis not for the Sverdlovsk region as a whole, but in the context of municipalities (Table 2). Next, the final ratings of the Sverdlovsk Region municipality were formed based on selected indicators.

To evaluate 76 medical organizations providing primary health care, 6 main performance indicators were selected, and the final ratings of medical organizations providing primary health care were calculated (Table 3).

Table 2 – Medical-statistical and demographic indicators for municipalities of the Sverdlovsk region

№	Indicators
1.	Total population mortality, per 1000 population
2.	Mortality of the working age population, per 1000 population
3.	General morbidity rate of the population by municipalities, per 1000 population
4.	Share of preventive visits to doctors by municipalities, %
5.	Ratio of planned capacity to actual capacity of outpatient departments of medical organizations in municipalities, units.
6.	Availability of doctors, per 10 thousand population
7.	Availability of nursing staff, per 10 thousand population

Table 3 – Indicators used to analyze the activities of medical organizations providing primary health care

No.	Indicators
1.	Number of visits per person per year, units.
2.	Medical examination coverage of the adult population, %
3.	Coverage of minors with preventive examinations, %
4.	Actual implementation of the Territorial Compulsory Health Insurance Program (hereinafter referred to as the Compulsory Medical Insurance Program) for outpatient care (hereinafter referred to as the APP), volume of financing, thousand rubles, % of implementation
5.	Actual implementation of TP compulsory medical insurance for AMS assistance by volume of medical care, % of implementation
6.	Share of fines/deductions/withdrawals for AMS, collected by health insurance organizations, TFCMI based on the results of medical and economic control (hereinafter – MEC), examination of the quality of medical care (hereinafter – EGMC) from the actual implementation of compulsory medical insurance for AMS, amount of financing, %

This research program used analytical and statistical methods. Microsoft Excel-2013 was used to analyze the data, and relative indicators were calculated. The use of a large number of indicators to describe complex, systemic phenomena creates difficulties for their generalization and subsequent interpretation of the results obtained. To collapse multidimensional information, an approach was used to calculate generalizing, rating indicators, which is often used in many areas of science and practice, where the objects or phenomena under study are described by a large number of parameters. The choice was due to the following reasons: simplicity, availability of software, extensive testing.

According to this methodology, the calculation was carried out using the following algorithm:

1) a set of characteristics is formed (primary indicators for municipalities, medical organizations) used in calculating a specific rating;

2) the selected features are normalized to the interval from 1 to 59 and from 1 to 76 (according to the number of medical organizations, medical organizations) depending on the direction of the feature, which allows us to get rid of the a priori inequality of features due to the presence of each of them having its own interval of accepted values;

3) the value of the final rating of medical organizations and medical organizations is calculated as the sum of the ratings of all the primary characteristics used in the calculation, then a re-ranking is carried out according to the total rating.

To conduct a correlation analysis, two indicators were taken: the final rating of the municipality for medical-statistical and demographic indicators and the final rating of the performance indicators of medical organizations providing primary health care and serving the population of these municipalities. To characterize the level of connection, a scale was used: strong – correlation connection from + 1.0 to +0.7; average – from + 0.699 to + 0.3; weak – from + 0.299 to 0. Statistical significance was assessed using the table of standard correlation coefficients.

2.1.3. Audit program for medical organizations providing primary health care to children

The reason for conducting an audit of medical organizations providing primary health care to the children's population was the list of instructions for the implementation of the Presidential Address to the Federal Address (approved by the President of the Russian Federation of February 26, 2019 No. Pr-294), concerning the transition of children's outpatient departments to a new model by 2021.

An audit of the achievement of the criteria of the new model and performance indicators of medical organizations in the Sverdlovsk region that provide primary health care only to the child population for 2021 was carried out.

The purpose of the study is to evaluate the activities of 8 medical organizations providing primary health care to the children's population in terms of introducing a new model.

Research objectives: 1) conduct an audit of the achievement of the criteria of the new model; 2) conduct an assessment of performance indicators.

As part of this study, the following was carried out: an audit of medical organizations providing primary health care to the children's population, an assessment of 19 criteria of the new model and 11 performance indicators of medical organizations.

8 medical organizations have been identified that provide primary health care only to the children's population and are located in large cities of the Sverdlovsk region, having a similar organizational structure: GAUZ SO «Children's Hospital of Kamensk-Uralsky», GAUZ SO «Children's Hospital of Nizhny Tagil», GAUZ SO «Children's Hospital of the city of Pervouralsk», State Autonomous Institution of Public Institution «Children's City Clinical Hospital No. 8» (until 2020 – MAU «Departmental City Clinical Hospital No. 8»), State Autonomous Institution of Public Institution «Departmental City Clinical Hospital No. 9» (until 2020 – MAU «Departmental City Clinical Hospital No. 9»), State Autonomous Institution of Public Institution «Departmental City Clinical Hospital No. 9» 11» (until 2020 – MAU «DGKB No. 11»), GAUZ SO «DGP No. 13» (until 2020 – MAU «DGP No. 13»), GAUZ SO «DGB No. 15» (until 2020 – MAU «DGB No. 15»).

To conduct the audit, the methodology developed by the Ministry of Health of the Russian Federation for assessing the achievement of the criteria of the first level of the new model was taken (edition of methodological recommendations, 2019). For the remaining 11 criteria, checklists were compiled based on the recommended criteria of the new model and sources of information for their assessment.

Based on data from MIAC, TFCMI, and the Ministry of Health of the Sverdlovsk Region, 11 performance indicators of medical organizations providing primary health care to the child population for 2021 were analyzed, and final ratings of these medical organizations were formed (Table 4).

Table 4 – Indicators used to analyze the activities of medical organizations providing primary health care to the children's population within the framework of the new model

№	Indicators
1.	Number of visits per person per year, units.
2.	Medical examination coverage of children staying in inpatient institutions, orphans and children in difficult life situations, %
3.	Medical examination coverage of orphans and children left without parental care, including those adopted, taken under guardianship (trusteeship), in a foster or foster family, %
4.	Coverage of preventive examinations of minor children, %
5.	Level of satisfaction with the length of wait to see a pediatrician, %
6.	Level satisfaction with the attitude of the attending pediatrician, %
7.	Level of satisfaction with the result of visiting a local pediatrician, %
8.	Level of involvement of medical organization personnel, %
9.	Number of citizens' appeals to the Ministry of Health of the Sverdlovsk Region (primary health care topics) per 1000 attached population

Table 4 continued

№	Indicators
10.	Share of fines/withholdings/withdrawals for emergency medical insurance collected by self-inspectorate, compulsory medical insurance based on the results of the MEC, EGMC from the actual implementation of compulsory medical insurance for emergency medical insurance, volume of financing, %
11.	Share of entries made without visiting the registry, %

Additionally, reports from medical organizations from the Automated System for Monitoring Medical Statistics (hereinafter referred to as ASMMS) were analyzed on achieving the criteria of the new model and on the results of project implementation.

The information base was electronic data from the ASMMS, TFCMI, MIAC, the Ministry of Health of the Sverdlovsk Region, sociological research, and audit of medical organizations. The sample size was 240 units. The work used statistical, rating methods, audit methods, etc. Microsoft Excel-2013 was used to analyze the data.

2.1.4. Sociological research programs

2.1.4.1. Assessing patient satisfaction as part of the implementation of a new model of primary health care delivery

A survey to assess population satisfaction in 2017 was initiated by the Federal Compulsory Medical Insurance Fund as part of the implementation of the pilot federal project « Lean Clinic». This study aimed to evaluate the effectiveness of interventions to improve primary health care.

The purpose of the sociological study is to assess patient satisfaction in medical organizations implementing lean technologies as part of the creation of a new model, based on monthly data from surveys of health care organizations in the Sverdlovsk region.

Within the framework of this study, the following tasks are identified: 1) assess patient satisfaction in general for medical organizations participating in the creation of

the new model; 2) assess the dynamics of patient satisfaction indicator in the period from 2017 to 2022.

The object of the sociological study was residents of the Sverdlovsk region receiving medical care in the divisions of medical organizations participating in the creation of the new model. The target for overall satisfaction by 2023 should be at least 70%.

In 2017, the questionnaire to assess patient satisfaction with the quality and accessibility of primary health care consisted of 10 questions, in 2018 – of 12 questions.

In 2019 and through 2022 the survey was conducted based on 4 indicators. Patients' satisfaction with the waiting time for an appointment at the local doctor's office (correspondence between the actual appointment time and the appointment time), the attitude of the local doctor during the appointment, the result of contacting the local doctor in general, and the satisfaction of insured persons during medical examination was assessed [101, 145].

The survey was carried out by insurance medical representatives by distributing an anonymous questionnaire directly to the departments involved in the creation of the new model starting from 2019 on a monthly basis. Respondents completed the questionnaire in person in writing (direct survey).

An assessment of population satisfaction was carried out based on surveys conducted by the IMOs for the period 2019-2022. The health service surveyed 211,686 people from 218 departments of 86 medical organizations, 6,856 pieces of information were analyzed. To collect a general database, patient satisfaction was monitored on a monthly basis in the Sverdlovsk region as a whole, in the context of medical organizations and structural divisions.

To assess the significance of differences between two independent groups, the nonparametric χ^2 test was used; at a significance level of $p > 0.05$ between samples, the «null» hypothesis was accepted that there were no differences between patient satisfaction indicators in different periods of the study.

2.1.4.2. Assessment of public opinion on population satisfaction with medical care in the Sverdlovsk region

Since 2022, at the level of the Russian Federation, a new methodology for calculating an additional indicator for assessing public opinion on the population's satisfaction with medical care, developed by the FRIHOI of MoH of Russia, has been used. As part of the dissertation research, consolidated data on recording the results of telephone surveys conducted by the IMOs and uploaded by the TFCMI into the ASMMS system, downloaded from the ASMMS system for the period August 2022 to January 2023, were analyzed.

The purpose of this sociological study is to identify regional features of assessing public opinion on population satisfaction.

To achieve this goal, the following tasks were set: 1) to assess public opinion on the satisfaction of the population as a whole in the Sverdlovsk region, separately by age groups and groups formed by gender, place of residence and location of residence to the administrative district; 2) identify issues on which respondents are most dissatisfied; 3) assess respondents' opinions about problems at the level of a medical organization and at the regional level.

The objects of sociological research were residents of the Sverdlovsk region.

The subject of this study is the public opinion of the population on the issue of satisfaction with medical care in the Sverdlovsk region.

The IMOs of the Sverdlovsk region surveyed 3,666 people over 6 months (for the period from August 2022 to January 2023). Based on statistical processing of the database, Table 5 presents the characteristics of the group of respondents in this study.

The assessment was carried out by the IMOs in the form of a telephone survey of the population. The questionnaire «Public Satisfaction with Medical Care» consisted of 21 questions [123].

Table 5 – Characteristics of the surveyed groups of respondents, in absolute terms. numbers (in %)

Floor		Place residence		Age					
Male	Female	City	Village	18-24	25-34	35-44	45-54	55-64	> 65
1632 (44.5)	2034 (55.5)	3102 (84.6)	564 (15.4)	306 (8.3)	654 (17.8)	744 (20.3)	625 (17.0)	581 (15.8)	756 (20.6)

Ten questions of the questionnaire, directly or indirectly (No. 6-12, and No. 14-16) aimed at determining the satisfaction of respondents on various aspects of the provision of medical care, provided for obtaining answers in points from 1 to 6. One of the widely used methods for analyzing responses to Such questions involve the calculation and interpretation of average scores for all respondents or for individual target groups segmented by any criterion. In this case, it seemed interesting to find out whether there were differences in answers and, accordingly, in the degree of satisfaction in groups of respondents segmented by gender, age and place of residence (urban-rural, Yekaterinburg, administrative districts of the Sverdlovsk region). A total of 17 groups were formed, including the «all respondents» group, for each of which the average score was calculated for the answers to each of the ten questions.

The indicator «Evaluation of public opinion on population satisfaction with medical care, percentage» was calculated for the entire region for 6 months, separately by age groups (from 18-24 years old, 25-34 years old, 35-44 years old, 45-54 years old. , 55-64, 65 or more years old) and groups formed by gender , place of residence (city or village) and location of residence in the administrative district (Southern, Gornozavodskoy, Northern, Western, Eastern, Yekaterinburg).

This study used analytical and statistical methods. The survey data was analyzed using Microsoft Excel-2013 spreadsheets; the distribution of respondents by answer options and relative indicators were calculated. Calculations of criteria for the significance of differences and construction of graphs were carried out using the Statistica 10.0 program.

To assess the significance of differences between two independent groups, the nonparametric two-sample Mann-Whitney test was used. At a significance level of $p > 0.05$, the «null» hypothesis of no differences was accepted between samples. To test statistical hypotheses about the equality of means for three or more groups of quantitative data, one-way analysis of variance is usually used. For ordinal variables, the nonparametric Kruskal-Wallis test was used to analyze between-group differences in this study.

2.1.4.3. Assessing the satisfaction of patients, doctors, reception staff, call center operators with the organization of making an appointment with a doctor

The survey was conducted on behalf of the Ministry of Health of the Sverdlovsk Region in 2023 in medical organizations of the Sverdlovsk Region providing primary health care and specialized medical care as part of the project to implement federal guidelines for organizing an appointment with a doctor in the second quarter of 2023 [80].

The purpose of the proposed study is to conduct a comprehensive assessment of the satisfaction of patients and employees of medical organizations in terms of managing patient flows at the stage of making an appointment with a doctor.

To achieve this goal, the following tasks were identified: 1) develop questionnaires to assess satisfaction with the organization of making an appointment with a doctor for patients, doctors, registrars, call center operators (hereinafter referred to as operators); 2) conduct surveys in medical organizations of the Sverdlovsk region; 3) analyze the obtained databases of questionnaires.

The objects of the study are patients, doctors, registrars, operators working in medical organizations of the Sverdlovsk region.

The subject of the study is satisfaction with the organization of the appointment process.

During the development of the methodology of this study, anonymous questionnaires were developed separately for patients, doctors, registrars, operators (Appendices A, B, C, D).

The questionnaire for patients consisted of 22 questions regarding the methods and possibility of making an appointment with a specialist, the possibility of making an appointment when first contacting a medical organization, assessing the availability of confirmation of the fact of registration in the medical organization, a preliminary reminder of the appointment, inclusion in the «Waiting List», and the possibility of using federal portal «State Services» and the difficulties of making an appointment through it, assessing overall satisfaction with making an appointment with a doctor, wishes and suggestions for improving the quality of the organization.

Questionnaires for employees of medical organizations consisted of 21-24 questions, their number depended on the position of the employee. The questions (open, closed multivariate and scale) concerned the assessment of satisfaction with the organization for managing the flow of patients at the stage of making an appointment with a doctor, the implementation of organizational decisions on the redistribution of functions between employees, the time costs of making an appointment in the Medical Information System (hereinafter – MIS) and the difficulties encountered when making an appointment, assessing solutions to the issue in the absence of free slots, signing up for the «Waiting List», organizing a reminder system for patients, the difficulty of making an appointment with specialists, proposals for improving the quality of the appointment organization.

For medical specialists, the questionnaire contained additional questions aimed at assessing the appointment in accordance with the time prescribed in the coupon, compliance with the recommended time standards when visiting patients for various reasons. For receptionist and call center employees, questions are included regarding the assessment of the availability of action algorithms and speech modules and interaction with the patient when he contacts the receptionist or call center and their use in work, training with these algorithms.

A voluntary anonymous online survey was carried out by sending official letters from the Ministry of Health of the Sverdlovsk Region with the attachment of QR codes and

links for conducting the survey. The survey was completed by 354 patients, 840 doctors, 349 registrars, 149 call center operators from 117 medical organizations in the Sverdlovsk region. The characteristics of the respondents are presented in Table 6.

Table 6 – Characteristics of respondents (in absolute numbers)

Group of respondents	Number of respondents by group	Number of medical organizations	Average age	Work experience
Patients	354	52	-	-
Doctors	840	111	44 (from 19 to 73 years old)	15.6 years (from 1 year to 49 years old)
Registrars	349	100	45 years (from 18 to 69 years old)	8.6 years (from 1 month to 40 years)
Operators	149	54	44 (from 18 to 69 years old)	7.1 years (from 1 month up to 46 years old)

Among the doctors surveyed, the majority were local pediatricians (36%) and local general practitioners (23.7%), while among operators there were specialists without medical education (83.2% of specialists).

The overall satisfaction of respondents with the organization of making an appointment was analyzed on a 10-point scale, where 1 – not at all satisfied, 10 – completely satisfied, from 0 to 5 points – respondents are more or less dissatisfied with making an appointment with a doctor, from 6 to 10 points – more satisfied.

Data processing was carried out using Microsoft Excel-2013 spreadsheets and descriptive statistics methods.

2.1.5. Program for analyzing citizens' appeals regarding the provision of primary health care, sent through various feedback channels

The rationale for conducting this study was the analysis of citizens' requests, primarily regarding the provision of primary health care, sent through different feedback channels, during the implementation of the new model from 2017 to 2023.

The purpose of the study is to analyze citizens' requests regarding the provision of primary health care, sent through various feedback channels.

The tasks were formulated to achieve the set goal: 1) evaluate citizens' appeals to the Ministry of Health of the Sverdlovsk Region on the topic of «PHC»; 2) evaluate citizens' appeals to the health insurance service and the federal compulsory medical insurance system on the topic of «primary health care»; 3) evaluate citizens' appeals sent to the «Citizens' Appeals» system (hereinafter – SOG); 4) evaluate citizens' messages on the Feedback Platform (hereinafter referred to as the POS) ; 5) evaluate citizens' messages on the POS in the «Medicine» category of the «Make an appointment with a doctor» subcategory.

The objects of the study were citizens of the Sverdlovsk region who sent requests regarding the provision of primary health care through various feedback channels.

The subject of the study is citizens' appeals sent through various feedback channels.

The volume of generalized databases of requests analyzed through different feedback channels and study periods are presented in Table 7.

Table 7 – Number of requests from citizens regarding the provision of primary health care, through various feedback channels in the period from 2017 to 2023.

Category of requests	2017 г.	2018 г.	2019 г.	2020 г.	2021 г.	2022 г.	2023 г.
1	2	3	4	5	6	7	8
1. Appeals from citizens to the Ministry of Health of the Sverdlovsk Region on the topic of «PHC»							
Number of analyzed requests, units.	1969	2890	3543	5212	6713	-	-

Table 7 continued

1	2	3	4	5	6	7	8
2. Citizens' appeals to self-government organizations and the Federal Compulsory Medical Insurance Fund on the topic of «PHC»							
Number of analyzed requests, units.	-	-	17822	2894	813	-	-
3. Appeals from citizens to the SOG							
Number of analyzed requests, units.	-	-	-	-	-	-	4917
4. Messages from citizens on the POS							
Number of messages analyzed, units.	-	-	-	-	162294	33046	26361
5. Messages from citizens on the POS in the «Medicine» category, subcategory «Make an appointment with a doctor»							
Number of messages analyzed, units.	-	-	-	-	-	-	15678

The source of information was data from the Federal Compulsory Medical Insurance Fund, IMOs, the Ministry of Health of the Sverdlovsk Region, and the Center for the Analysis of Citizens' Appeals (hereinafter referred to as CAOG).

Data processing was carried out using Microsoft Excel-2013 spreadsheets and descriptive statistics methods.

2.1.6. SWOT analysis program

In order to develop strategies for improving primary health care when introducing lean technologies into the activities of medical organizations in the Sverdlovsk region, the method SWOT-analysis, which made it possible to study the strengths and weaknesses in the activities of medical organizations and formulate the main directions of development.

The construction of an extended SWOT-matrix was used, consisting of an assessment of the state of the external and internal environment of medical organizations providing primary health care, and the development of strategies for improvement. To draw up strategies, pairs of the following indicators were compared: strengths «S» –

opportunities «O»; forces «S» – threats «T»; weaknesses «W» – opportunities «O»; weaknesses «W» – threats «T».

2.1.7. Program for assessing the engagement of employees of medical organizations as part of the implementation of a new model of primary health care

In the Sverdlovsk region, since 2018, to assess the engagement of employees of medical organizations implementing a new model, they began to use a methodology developed by the international consulting company The Gallup – the Q12 questionnaire for assessing the employee engagement index, consisting of 12 questions.

The purpose of the proposed study was to assess the employee engagement index of medical organizations implementing a new model.

Within the framework of this study, it was proposed to solve the following tasks: 1) organize a survey of employees of medical organizations to assess engagement; 2) identify the most problematic issues for employees of medical organizations to answer questions to assess their understanding of their tasks and functions, work evaluation criteria, and expectations of the organization's management; 3) assess the dynamics of changes in the engagement index of employees of medical organizations as part of the implementation of the new model.

The subjects of the study are employees of medical organizations.

The subject of the study is the involvement of employees of medical organizations.

As part of the development of the research methodology, the composition of the abstracts was adapted for employees of medical organizations by sociologists of the Municipal Autonomous Institution «City Center for Medical Prevention» (Appendix E). When answering the questionnaire, employees expressed their agreement or disagreement with the statements. The result of the survey was to obtain a generalizing index of employee engagement. For optimal results, the engagement index is 70% or more. If the positive answers are 50% or less, this is an alarming signal for the head of a medical organization.

To study the engagement of employees of medical organizations, the method of a one-time anonymous online survey was used. Letters with links to complete the survey were sent through the Ministry of Health of the Sverdlovsk Region. During the study, 1,489 employees from 20 medical organizations were surveyed in 2018, 3,640 employees from 46 medical organizations in 2019, and 9,533 employees in 78 medical organizations in 2022. Characteristics of the research base and groups of respondents are presented in Table 8.

Table 8 – Characteristics of the research base and groups of respondents [101]

List of questions	2018 Stage 1	2019 Stage 2	2022 Stage 3
1. Number of medical organizations, units.	30	46	78
2. Number of respondents in medical organizations, ppl.	2190	3640	9533
3. Gender distribution, %			
Female	92.7	92.1	92.2
Male	7.3	7.9	7.8
4. Age distribution, %			
18-24	7.0	5.1	6.5
25-34	18.8	18.8	19.6
35-44	24.7	25.1	23.5
45-54	25.3	27.6	29
55-64	20.0	18.9	16.9
65 and older	4.1	4.3	4.7
5. Distribution by area of activity, %			
Medical worker	83.4	83.6	81.4
Non-medical worker	16.6	16.4	18.6
6. Distribution by position, % (for medical workers)			
Doctor	25.4	30.6	24.1
Paramedic	20.9	19.2	21.3
Nurse	53.7	50.2	54.6
7. Distribution by education, % (for non-medical workers)			
Higher	19.8	22.7	28.8
Unfinished higher education	7.2	5.9	5.0
Specialized secondary	44.6	53.9	48.9
Overall average	25.6	15.9	14.7
Incomplete secondary or primary	2.8	1.5	2.6

When analyzing employee engagement, the percentage of positive answers to questions assessing their understanding of their tasks and functions, job evaluation criteria, and the expectations of the organization's management was assessed. The significance of the differences was assessed using the χ^2 criterion; with a $p \leq 0.05$, the differences were considered statistically significant [101].

2.1.8. Program to evaluate the effectiveness of measures to improve the activities of a medical organization introducing a new model of primary health care

In order to assess the effectiveness of ongoing improvement measures implementation of the new model, two medical organizations were selected that provide primary health care to the adult population and have been participating in the creation of the new model since 2017, Central City Hospital No. «X» and Central City Hospital No. «Y», with different levels of actual implementation of the new model, achievement of the criteria of the first, the second and third levels of the new model, participation in methodological and organizational activities of employees of these medical organizations.

In 2017, the medical organizations selected for evaluation had similar overall ratings in terms of performance indicators at the second stage of the dissertation research and provided assistance to the adult population (a difference of one rank). A comparison was made of medical organizations among themselves and over time from 2017 to 2023.

In terms of implementing the criteria of the new model, indicators were selected to evaluate ongoing activities to improve primary health care:

1) number of visits per person per year, units;
2) medical examination coverage of the adult population, %;
3) level of patient satisfaction, %;
4) level of involvement of medical organization personnel, %;
5) the share of entries made without visiting the registry, %;

6) actual implementation of compulsory health insurance technical support for the AMS, volume of visits, % of implementation;

7) the share of fines/deductions/withdrawals for AMS collected by the health insurance organization, TFCMI based on the results of the EGMC from the actual implementation of the compulsory medical insurance TP for AMS (volume of financing), %.

2.2. Characteristics of the research base

2.2.1. Sverdlovsk region as a research base

The territory of the Sverdlovsk region is 194.3 thousand square kilometers (17th place among the constituent entities of the Russian Federation). According to the Office of the Federal State Statistics Service for the Sverdlovsk Region and the Kurgan Region (hereinafter referred to as Sverdlovskstat) the average annual permanent population of the Sverdlovsk region at the beginning of 2022 was 4,251,426 people (5th place in the Russian Federation among the constituent entities). 3,648,823 people, or 85.8% of the population, lived in urban areas, 602,603 people, or 14.2% of the population, lived in rural areas. 1,587,182 people lived in the municipal district «Ekaterinburg city».

There are 94 municipalities located on the territory of the Sverdlovsk region; assessments based on medical and statistical indicators are carried out for 59 combined municipalities. The Health Development Strategy of the Sverdlovsk Region identifies the main problem areas [115]. One of the problems is considered to be the outdated industrial base of healthcare in the Sverdlovsk region and non-compliance with SanPiN requirements [137].

2.2.2. Assessment of medical and demographic indicators in the Sverdlovsk region

Information on life expectancy at birth in the period 2017 – 2022 in general, for the Sverdlovsk region are presented in Table 9; the corresponding indicator in the context of municipalities is not developed. There is an increase in life expectancy in the period from 2017 to 2019, a decrease in the indicator in the period 2020 to 2021 associated with the spread of a new coronavirus infection (hereinafter referred to as NKVI), in 2022 the value of the indicator returned to the value of 2018.

Table 9 – Life expectancy from 2017 to 2022 in the Sverdlovsk region, years

Index	2017	2018	2019	2020	2021	2022
Life expectancy, years	71.23	71.29	71.81	70.15	68. 8	71.3

In 2022, in the Sverdlovsk region, the infant mortality rate, according to Sverdlovskstat, was 4.7 cases per 1000 live births (Table 10), which is 9.3% higher than the established indicator.

Table 10 – Dynamics of infant mortality rate in the Sverdlovsk region in 2017–2022 (number of children who died under one year of age per 1000 live births)

Index	2017	2018	2019	2020	2021	2022
Infant mortality	4, 9	4, 7	4.7	4.1	4.02	4.7

Mortality rates for the population of the Sverdlovsk region are given according to data from the Federal State Statistics Service and data from the regional database of medical death certificates. The increase in overall mortality observed in 2017–2018 gave way in 2019 to a decrease and stabilization until 2020, when the number of deaths in the Sverdlovsk region per year increased by 10,251 compared to 2019, and in 2021. – at 9122 (Table 11). In 2022, the situation changed: the number of deaths compared to 2021

decreased by 17,533 people. The overall mortality rate was 13.9 cases per 1000 population, which is 22.3% lower than the 2021 level, and 11.5% lower than the 2020 level. The natural population decline in 2022 was 19,399 people (4.5 cases per 1000 population).

Table 11 – Change in the overall mortality rate of the population in the Sverdlovsk region, for 2017-2019 (per 1000 population)

Index	2017	2018	2019	2020	2021	2022
Total population mortality rate	13.3	13.5	13.4	15.7	17.9	13.9

According to Sverdlovskstat, in 2022 the mortality rate in working age was 6.19 cases per 1000 working-age population, which is 10.8% lower than in 2021 (Table 12).

Table 12 – Change in mortality rate in the working age population 2017–2022 in the Sverdlovsk region (per 1000 working-age population)

Index	2017	2018	2019	2020	2021	2022
Mortality rate in working age per 1000 working age population	5.81	5.76	5.53	6.38	6.94	6.19

The share of the working-age population in the number of deaths of all ages in 2022 was 24.9% (higher than for the period from 2017 to 2021), indirectly demonstrating that in 2021 the age structure of excess mortality was largely contributed by older age groups, and in 2022, with a decrease in the overall mortality rate, this situation has changed.

2.2.3. Analysis of the organization of primary health care in the Sverdlovsk region

In 2022, the network of state medical organizations of the Sverdlovsk region and their structural divisions providing primary health care is presented in Table 13 [145].

Table 13 – Structural divisions of medical organizations in the Sverdlovsk region providing primary health care, 2017-2022

Structural units	2017	2018	2019	2020	2021	2022
Polyclinics (outpatient departments)	136	117	114	114	115	112
Children's clinics	63	81	81	90	82	88
Independent clinics	4	5	5	5	5	5
Women's consultations	49	49	51	52	52	52
Dental clinics	27	27	27	27	27	27
Outpatient clinics	21	24	26	27	27	30
District hospitals as part of medical organizations	7	6	5	5	5	5
Medical health centers	5	6	6	6	6	7
Health centers for paramedics	8	8	8	8	7	7
Medical and midwifery stations (including mobile ones)	561	556	574	580	580	579
Paramedic stations (including mobile ones)	-	4	6	5	5	5
Departments (offices) of a general practitioner	259	241	230	222	222	207
Emergency medical care departments (rooms)	99	98	100	132	135	144

According to TFCMI data, the number of citizens insured under compulsory medical insurance as of 01/01/2024 was 4313.9 thousand people. The list of medical organizations participating in the implementation of the Compulsory Medical Insurance TP included 235 medical organizations (in 2018 – 215, in 2019 – 223, in 2020 – 238, in 2021 – 236 medical organizations), of which 18 federal, 153 regional and 64 private medical organizations. In 2022, 219 medical organizations provided free medical care to the population within the framework of compulsory medical insurance.

The Sverdlovsk region is one of the 10 unfavorable regions of Russia in terms of the level of provision of the population with doctors (85th place in the Russian Federation for 2022). The supply of doctors in the region is lower than in the Russian Federation – by 22.8% and in the Ural Federal District – by 17.2% (Table 14). More than 35% of doctors in the Sverdlovsk region are concentrated in the regional center of the region;

3.3% of doctors work in rural areas. Women doctors make up 68.4% of the total number of doctors [145].

Table 14 – Indicator of the supply of doctors in medical organizations of the Sverdlovsk region, Ural Federal District and the Russian Federation in 2022, in absolute terms. numbers, per 10,000 population

Territory	Number of doctors	Availability of doctors (per 10 thousand population)
URFO	42096	34.3
RF	541530	36.8
Sverdlovsk region	12098	28.4

The results of a study of the provision of local physicians, local pediatricians, and general practitioners showed that in 2022 these indicators were lower than in the Urals Federal District and the Russian Federation (Table 15) [145].

Table 15 – Availability of local physicians, local pediatricians, general practitioners in state medical organizations of the Sverdlovsk region in 2022 (in absolute numbers, per 10,000 population)

Speciality	Number (individuals)			Security (per 10 thousand population)		
	RF	Ural Federal District	SR*	RF	Ural Federal District	SR*
Local therapist	38456	2792	571	3.30	2.94	1.71
Local pediatrician	28547	2246	584	9.42	8.06	6.29
General doctor	9139	306	101	0.62	0.25	0.24

*SR – Sverdlovsk region

In 2022, the number of visits to doctors per resident per year to medical organizations in the Sverdlovsk region is lower than the indicators for the Urals Federal District by 29.7% and the Russian Federation by 18% and amounted to 6.4 visits (Table 16).

Table 16 – Dynamics of the number of visits per resident per year in the Sverdlovsk region, the Urals Federal District and the Russian Federation in 2017-2022 (in absolute numbers)

Territory	2017	2018	2019	2020	2021	2022
URFO	8.2	8.1	8.1	6.8	7.8	9.1
RF	8.4	8.3	8.4	6.9	7.8	7.8
Sverdlovsk region	6.9	6.7	6.7	5.4	6.4	6.4

The dynamics of visits to public medical organizations for preventive purposes, at home, in an emergency form are presented in Table 17. There is an increase in the value of the indicator of visits to home, in an emergency form in the period from 2017 to 2022.

Table 17 – Dynamics of the population's appeal to medical organizations in the Sverdlovsk region in 2017-2022 (per 1000 attached population)

Index	2017	2018	2019	2020	2021	2022
Number of doctor visits, including:	6422.0	6291.9	6277.4	4829.9	5816.1	5910.0
- for preventive purposes	2325.6	2234.6	2301.3	1882.7	2421.4	2358.1
- at home	204.7	183.5	170.4	417.7	396.9	330.8
- in an emergency form	183.7	176.1	222.5	213.0	240.8	237.9

In 2022, 26 departments and 118 emergency medical care rooms operated in medical organizations of the Sverdlovsk region; their task was to reduce the load on the local service. The volume of emergency visits in 2022 amounted to 2,625,100 (0.599 visits per resident per year) (in 2021 – 0.535, in 2020 – 0.24, in 2019 – 0.396), including in departments and emergency rooms – 1,872,501 (71.3%). Thus, in 2022, the standard indicator for the provision of emergency medical care to the population established by the Compulsory Medical Insurance TP was exceeded by 11% – 0.54 visits per resident. An additional direction for improving the provision of primary health care is the opening of pre-medical care rooms in medical organizations providing primary health care.

The availability of primary health care is related to the size of the attached population at medical sites. In 2022, the number of attached populations in the areas of 39 out of 70 medical organizations providing primary health care to the adult population was greater than the recommended values and in 34 of 63 medical organizations providing primary health care to the child population. Of the 44 medical organizations that have general medical practices in their structure (hereinafter referred to as GMP), in 32 an excess of the attached population was determined. In 8 medical organizations out of 16, which have complex areas in their structure, the standards were exceeded, in 5 of them – by more than 20%. In 22 medical organizations out of 41 that have paramedic areas in their structure, the standards were exceeded, in 19 of them – by more than 20%.

The effectiveness of the organization of work of medical organizations providing primary health care in the prevention and treatment of diseases is determined by the health indicators of the population served. In 2017–2020 the level of general morbidity in the population was relatively stable, but in 2021–2022. exceeded the annual average over the past 10 years [145].

The coverage of different population groups with preventive measures is used to assess the effectiveness of the organization of primary health care. After the weakening of anti-epidemic measures associated with a decrease in the intensity of the spread of NKVI, the number of people who underwent medical examinations and medical examinations increased compared to 2021 (for example, in 2022, 1,169,384 people underwent all types of preventive medical examinations and medical examinations, in 2021 city – 608 891).

These indicators are for the period from 2017 to 2022 were not achieved, but an increasing trend was observed. In 2022, primary health care volumes were achieved at the level of 2021 (87% of the plan). The implementation of the volume of preventive measures for 2022 is higher than in 2021.

In 2022, in the structure of preventive measures, there was a clear positive trend in the implementation of preventive measures for the adult population. Preventive measures for the child population are always carried out in accordance with the plan, which makes

it possible to achieve maximum coverage of children with preventive measures, including carrying them out under conditions of the threat of the spread of NKVI.

In 2016, the introduction of lean technologies began to be implemented in 2 clinics in the city of Yekaterinburg. As of 2022, 94 medical organizations participated in the implementation of measures to implement the new model, of which: 8 – emergency medical care stations (hereinafter referred to as EMS), 6 – specialized medical organizations, 80 – medical organizations providing primary health care (including 1 dental clinic). The number of structural units involved in the creation of the new model is 306 (of which emergency medical services units are 50 (including emergency medical services stations – 8), outpatient departments are 256), including 123 children's departments, including 2 children's dental departments , 1 pediatric and adult dental department, 5 pediatric and adult outpatient departments; 100 – adults, including 3 dental clinics, 2 first-aid posts, 1 outpatient clinic, 3 emergency departments; 1 hospital emergency room of the clinic; 32 antenatal clinics, including prenatal diagnostic rooms. The dynamics of the share of medical organizations implementing the new model in the Sverdlovsk region and the Russian Federation is presented in Table 18 [145].

In the Sverdlovsk region, improvement projects are being implemented using lean manufacturing approaches: in 2019, 857 projects were opened, in 2020 – 1664 projects, in 2021 – 691 projects, in 2022 – 688 projects [101].

Table 18 - Dynamics of the share of medical organizations introducing a new model in the Sverdlovsk region and the Russian Federation, %

Territory	2019	2020	2021	2022
RF	35.2	61.7	70.8	75.1
Sverdlovsk region	61.1	73.7	81	83.6

Data for all analyzed indicators are not presented for 2023 due to the lack of this data in the public domain on the websites of departments responsible for generating statistical reporting at the time of writing the dissertation.

CHAPTER 3. ANALYSIS OF MEDICAL-STATISTICAL AND DEMOGRAPHIC INDICATORS OF MUNICIPAL ENTITIES OF THE SVERDLOVSK REGION

Based on the results of an analysis of 59 municipalities in the period from 2017 to 2019 positive dynamics of the overall mortality rate was established in 25 municipalities (the maximum rate of decrease was 21% in the Volchansky urban district (hereinafter – GO)), negative dynamics were established in 33 municipalities (the maximum growth rate was 81% in Makhnevsky municipal district), in 1 municipal district this indicator was without dynamics. The highest rank in 2019 was determined in the Closed Administrative Territorial Entity (hereinafter – ZATO) Svobodny, Municipal Municipality Ekaterinburg, Kamyshlovsky Municipal District, including Municipal Municipality Kamyshlovsky Municipal District, Verkhnyaya Pyshma municipal district, including Sredneuralsk municipal district, Berezovsky municipal district. The lowest rank in 2019 was determined in Kushvinsky municipal district, Kirovgrad municipal district, Severouralsky municipal district, Makhnevsky municipal district, Alapaevsk municipal district (Figure 2). In Makhnevsky municipal district in 2019, a significant increase in the overall mortality rate of the population was recorded due to an increase in all main causes of death. The coefficient of variation of the overall mortality rate in 2019 was 15.1%, which indicates the relative homogeneity of the studied population of municipalities on this basis. In 2018, an increase in this indicator was observed in 36 municipalities, a decrease in 22 municipalities, and no changes in 1 municipality.

During the period 2017 to 2019 positive dynamics in terms of mortality in working age were determined in 36 out of 59 municipalities (the maximum rate of decline was 38.9% in the Reftinsky municipality), negative dynamics - in 23 municipalities (the maximum growth rate was 55% in the Malyshevsky municipality). The highest rank in 2019 was determined in the GO ZATO Svobodny, GO Reftinsky, Ekaterinburg, Kamyshlovsky GO, including Kamyshlovsky MR, Berezovsky GO. Lowest rank – in Makhnevsky municipal district, Shalinsky GO, Severouralsky GO, Kirovgrad GO, Bisertsky GO (Figure 3). In the Berezovsky municipal district in 2018, there was an

increase in the mortality rate in working age; the municipal district moved from 5th place in the ranking to 14th place. In the Bisertsky municipality there was a similar growth trend in the indicator. When analyzing the structure of mortality in working age in the MO data, the increase occurred due to an increase in mortality from cancer. The value of the oscillation coefficient of this indicator in 2019, equal to 148.8%, allows us to conclude that there are territorial differences in mortality in working age in the Sverdlovsk region. In 2018, 26 municipalities experienced an increase in the indicator mortality in working age, in 33 municipalities – a decrease.

No.	Territory	No.	Territory
1	Alapaevskoe municipal district	31	Kamensky GO
2	Aramilskoye GO	32	Kamyshlovsky GO
3	Artemovsky GO	33	Kachkanarsky GO
4	Artinsky GO	34	Kirovgrad GO
5	Asbestovsky GO	35	Krasnoturinsk GO
6	Achitsky GO	36	Kushvinsky GO
7	Baikalovsky MR	37	Malyshevsky GO
8	Berezovsky GO	38	Makhnevskaya MO
9	Bisertsky District	39	Municipal district of Alapaevsk
10	Verkhnesaldinsky GO	40	Irbit municipal district and Irbit municipal district
11	Volchansky GO	41	Municipal district of Kamensk-Uralsky
12	GO Beloyarsky	42	Municipal District of Nizhny Tagil
13	GO Bogdanovich	43	MO Ekaterinburg
14	GO Verkhneyvinsky	44	Nevyansky District
15	GO Verkhniy Tagil	45	Nizhneserginsky municipal district
16	GO Verkhnyaya Pyshma	46	Nizhneturinsky GO
17	GO Verkhnyaya Tura	47	Novolyalinsky district
18	GO Verkhotursky	48	Polevskoy GO
19	GO Degtyarsk	49	Pyshminsky GO
20	GO ZATO Svobodny	50	Rezhevskaya GO
21	GO Karpinsk	51	Severouralsky GO
22	GO Krasnouralsk	52	Serovsky GO
23	GO Krasnoufimsky	53	Slobodo-Turinsky MR
24	GO Nizhnyaya Salda	54	Sysertsky GO
25	GO Pervouralsk	55	Tavdinsky GO
26	GO Revda	56	Talitsky GO
27	GO Reftinsky	57	Tugulymsky GO
28	GO Sukhoi Log	58	Turinsky GO
29	Gornouralsk GO	59	Shalinsky GO
30	Ivdelsky GO		

Shade of color scheme				
Range of indicator values	less 14.0	14.0 - 16.0		more than 16.0
Ranking range	2017	1 - 18	19 - 41	42 - 59
	2018	1 - 13	14 - 34	35 - 59
	2019	19	10 - 38	39 - 59

2017 2018 2019

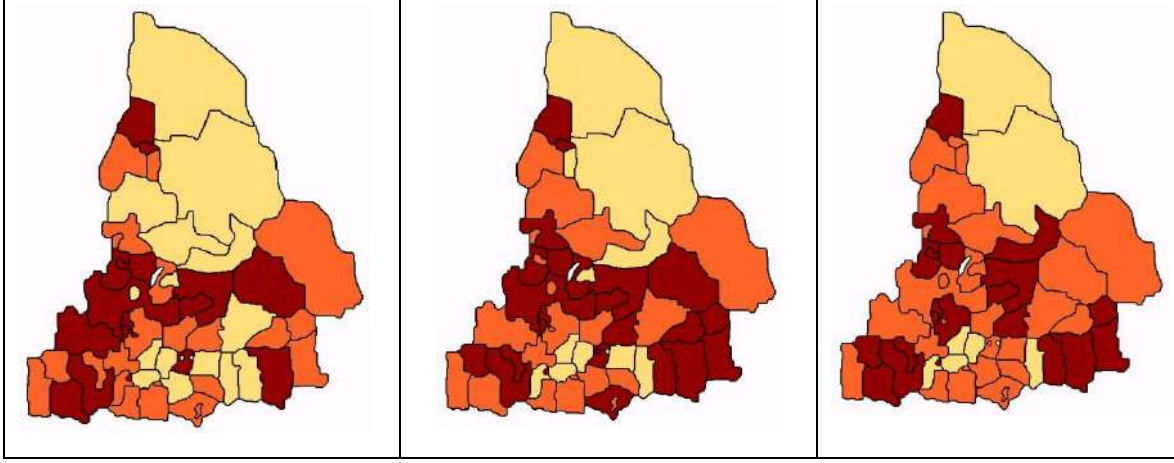
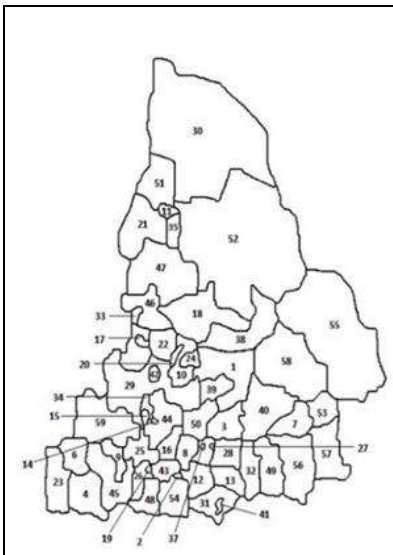


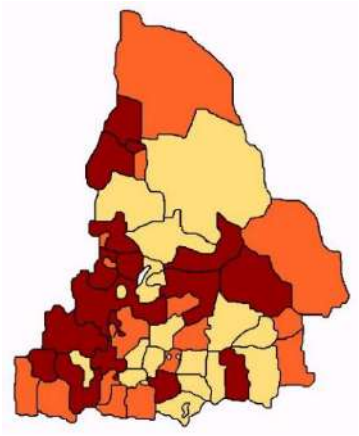
Figure 2 – Ranking of municipalities by overall mortality rate in the Sverdlovsk region, 2017-2019 (per 1000 population)

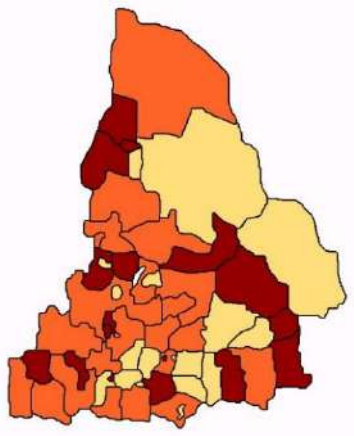


No.	Territory	No.	Territory
1	Alapaevskoe municipal district	31	Kamensky GO
2	Aramilskoye GO	32	Kamyshlovsky GO
3	Artemovsky GO	33	Kachkanarsky GO
4	Artinsky GO	34	Kirovgrad GO
5	Asbestovsky GO	35	Krasnoturinsk GO
6	Achitsky GO	36	Kushvinsky GO
7	Baikalovsky MR	37	Malyshevsky GO
8	Berezovsky GO	38	Makhnevskaya MO
9	Bisertsky District	39	Municipal district of Alapaevsk
10	Verkhnesaldinsky GO	40	Irbit municipal district and Irbit municipal district
11	Volchansky GO	41	Municipal district of Kamensk-Uralsky
12	GO Beloyarsky	42	Municipal District of Nizhny Tagil
13	GO Bogdanovich	43	MO Ekaterinburg
14	GO Verkhneyvinsky	44	Nevyansky District
15	GO Verkhniy Tagil	45	Nizhneserginsky municipal district
16	GO Verkhnyaya Pyshma	46	Nizhneturinsky GO
17	GO Verkhnyaya Tura	47	Novolyalinsky district
18	GO Verkhotursky	48	Polevskoy GO
19	GO Degtyarsk	49	Pyshminsky GO
20	GO ZATO Svobodny	50	Rezhevskaya GO
21	GO Karpinsk	51	Severouralsky GO
22	GO Krasnouralsk	52	Serovsky GO
23	GO Krasnoufimsky	53	Slobodo-Turinsky MR
24	GO Nizhnyaya Salda	54	Sysertsky GO
25	GO Pervouralsk	55	Tavdinsky GO
26	GO Revda	56	Talitsky GO
27	GO Reftinsky	57	Tugulymsky GO
28	GO Sukhoi Log	58	Turinsky GO
29	Gornouralsk GO	59	Shalinsky GO
30	Ivdelsky GO		

Shade of color scheme				
Range of indicator values	less than 650.0	650.0 – 800.0		more than 800.0
Ranking range	2017	1 - 23	24 - 39	40 - 59
	2018	1 - 19	20 - 41	42 - 59
	2019	1 - 17	18 - 46	47 - 59

2017	2018	2019





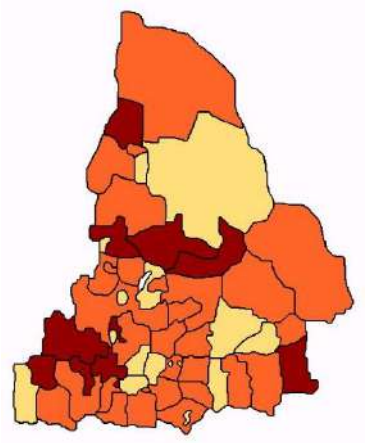


Figure 3 – Ranking of municipalities by mortality rate in working age in the Sverdlovsk region, 2017-2019 (per 100 thousand working age population)

According to the general morbidity rate of the population in the period 2017 to 2019 positive dynamics were established in 8 out of 59 municipalities (the maximum rate of decrease was 42% in the municipality of Pervouralsk, including the municipality of Staroutkinsk), negative dynamics were established in 51 municipalities (the maximum growth rate was 97.5% in the municipality of the closed city of Svobodny). Significant differences in the overall morbidity of the population may reflect heterogeneity in the health status of the population in the Moscow region, the level of quality and conditions of medical care. Therefore, the lowest population morbidity rates recorded in 2019 were

Makhnevsky municipal district, GO Verkhotursky, GO Verkh-Neyvinsky, Pyshminsky GO, Ivdelsky GO may indicate insufficient detection of diseases in the population. High values of the incidence rate in 2019 were determined in the Volchansky GO, Krasnoufimsky GO, including the Krasnoufimsky DA, Artinsky GO, Aramil GO (Table 19). In 2018, compared to 2017, there was an increase in the indicator in 43 municipalities and a decrease in 16 municipalities.

Table 19 – Ranking of municipalities of the Sverdlovsk region in terms of general morbidity rate of the population, per 1000 population* (ranks 1-5, ranks 55-59, sorted by rank 2019)

Municipality	2017		2018		2019	
	Indicator value	Rank	Indicator value	Rank	Indicator value	Rank
Makhnevskoe municipal district	601.1	1	519.2	1	523.8	1
GO Verkhotursky	810.1	4	811.4	4	836	2
GO Verkh-Neivinsky	684.4	2	772.3	2	886.9	3
Pyshminsky GO	902.8	5	845.2	5	977.7	4
Ivdelsky GO	986.9	9	1006	10	987.9	5
……	...	...	...	...	...	...
Aramilsky GO	1777.7	51	1782.5	52	2095.3	55
Artinsky GO	1372.7	37	1441.3	35	2106.3	56
GO Revda	2142.6	58	2117.6	59	2280.5	57
Krasnoufimsky municipal district, including Krasnoufimsky municipal district	2079.5	57	2046.3	57	2298.6	58
Volchansky GO	2012.6	56	2062.2	58	2452.2	59

** ranking of 59 municipalities of the Sverdlovsk region is given in Appendix F*

During the period 2017 to 2019 in terms of the ratio of planned capacity to actual capacity of outpatient departments of medical organizations (independent and structural units), positive dynamics were observed in 35 out of 59 municipalities (the maximum growth rate was 2507.86% in Makhnevsky municipal district), negative dynamics were established in 24 municipalities (maximum the rate of decline was 35.3% in Malyshevsky

GO). The highest rank in 2019 was determined in Makhnevsky municipal district, GO ZATO Svobodny, Achitsky GO, Ekaterinburg municipal district, Baikalovsky MR. The lowest rank is in the Ivdelsky District, GO Krasnouralsk, GO Verkh-Neivinsky, Gornouralsk GO, Kamensky GO (Table 20). In 2018, 23 out of 59 municipalities experienced an increase in this indicator.

Table 20 – Ranking of municipalities of the Sverdlovsk region according to the ratio of planned capacity to actual capacity of outpatient departments of medical organizations in municipalities *, (ranks 1-5, ranks 55-59, sorted by rank 2019)

Municipality	2017		2018		2019	
	Indicator value	Rank	Indicator value	Rank	Indicator value	Rank
Makhnevskoe municipal district	0.15	58	0.15	58	3.81**	1**
GO ZATO Svobodny	1.82	1	2.03	1	1.6	2
Achitsky GO	1.08	2	1.15	2	1.22	3
Ekaterinburg	1.07	3	1.05	3	1.06	4
Baikalovsky MR	0.48	22	0.93	4	0.88	5
……	...	...	...	...	...	...
Kamensky GO	0.22	51	0.21	53	0.21	55
Gornouralsk GO	0.18	55	0.2	54	0.21	56
GO Verkh-Neivinsky	0.2	53	0.2	55	0.2	57
GO Krasnouralsk	0.18	56	0.18	57	0.17	58
Ivdelsky GO	0.08	59	0.06	59	0.07	59

** ranking of 59 municipalities of the Sverdlovsk region is given in Appendix F*

*** data presented in official statistics; during the analysis, an error was identified in the presentation of data by a medical organization*

During the period 2017 to 2019 in the Sverdlovsk region there is a slight increase in the share of preventive visits to doctors by 0.6%: from 35.2% to 35.8%. In 2018, compared to 2017, there was a slight decrease of 0.6% (to 34.6%). This indicator is recommended for at least 30% of all medical visits [74]. The indicator of the share of preventive visits to doctors for this period had a positive trend in 31 out of 59 municipalities (the maximum growth rate was 60.5% in the Verkhnyaya Tura

municipality), negative dynamics were established in 28 municipalities (the maximum rate of decline was 50% in the Makhnevsky municipal district). In 2018, in 25 municipalities there was an increase in this indicator compared to 2017. The highest rank in 2019 was determined in the Kachkanarsky municipal district, the Verkhotursky municipal district, Kamyshlovsky GO, including in the Kamyshlovsky MR municipal district, GO Krasnouralsk GO Verkhnyaya Tura. The lowest rank is in the Volchansky GO, Gornouralsky GO, Kamensky GO, Reftinsky GO, Degtyarsk GO (Table 21).

Table 21 – Ranking of municipalities of the Sverdlovsk region by the share of preventive visits to doctors in medical organizations of the Sverdlovsk region, % (ranks 1-5, ranks 55-59, sorted by rank 2019)

Municipality	2017		2018		2019	
	Indicator value	Rank	Indicator value	Rank	Indicator value	Rank
Kachkanarsky GO	43.74	13	49.77	6	57.21	1
GO Verkhotursky	60.23	2	60.57	1	56.56	2
Kamyshlovsky municipal district, Kamyshlovsky municipal district	39.02	23	45.53	11	55.4	3
GO Krasnouralsk	54.8	5	49.89	5	51.81	4
GO Verkhnyaya Tura	31.76	50	37.01	29	50.99	5
……..	...	...	...	...	...	...
GO Degtyarsk	33.89	41	32.85	44	26.5	55
GO Reftinsky	27.52	58	23.55	58	26.46	56
Kamensky GO	35.91	33	30.23	55	23.68	57
Gornouralsk GO	30.8	54	27.55	56	23.06	58
Volchansky GO	34.17	39	32.72	45	19.26	59

** ranking of 59 municipalities of the Sverdlovsk region is given in Appendix F*

Indicator of carelessness with doctors in the period 2017 to 2019 in 13 municipalities (the maximum growth rate was 51.1% in Verkh-Neivinsky municipality) had positive dynamics, in 46 municipalities (the maximum rate of decline was 22.1% in Achita municipality) negative dynamics were established. In 2018, only 11 municipalities out of 59 municipalities recorded an increase in this indicator. The best situation regarding

the supply of doctors is in the regional center, Western and Southern administrative districts.

The highest figures were registered in 2019 in the Ekaterinburg municipal district, Bisertsky municipal district, Pervouralsk municipal district including Staroutkinsk municipal district, Aramilsky GO, Asbestovsky GO. The lowest indicators of the supply of doctors were established in the Ivdelsky GO, Makhnevsky MR, Volchansky GO, Verkhnyaya Tura GO, Kamyshlovsky GO, including the Kamyshlovsky MR, belonging to the Northern, Eastern and Gornozavodsky administrative districts (Figure 4). This may be due, first of all, to different socio-economic development of the territories and distance from the regional center. The results obtained are confirmed in the studies of other authors. Using the example of the Kursk region municipal district in the period 2015-2019. The supply of doctors was considered as a criterion of the socio-economic potential of individual territories of the region. The level of availability of medical personnel is determined by a number of factors and is not determined solely by the level of wages in the region. The problem of low development of social infrastructure in rural areas is associated with the lack of investment and the low attractiveness of these territories both as an object for development and for residential purposes [140].

The decrease in the supply of doctors in the region in terms of medical institutions may be associated with the optimization of the structure of the bed capacity in some medical organizations, the transfer to effective contracts and system of continuous medical education, outflow to non-state medical organizations, in addition, in municipalities located remotely from the regional center, a shortage of medical personnel is registered more often. Differences in the shortage of medical personnel in remote areas may be associated with the implementation of social support measures to attract employees to work in government health care institutions located in areas remote from the administrative center (since 2012, the «Zemsky Doctor» program has been implemented in the Sverdlovsk region).

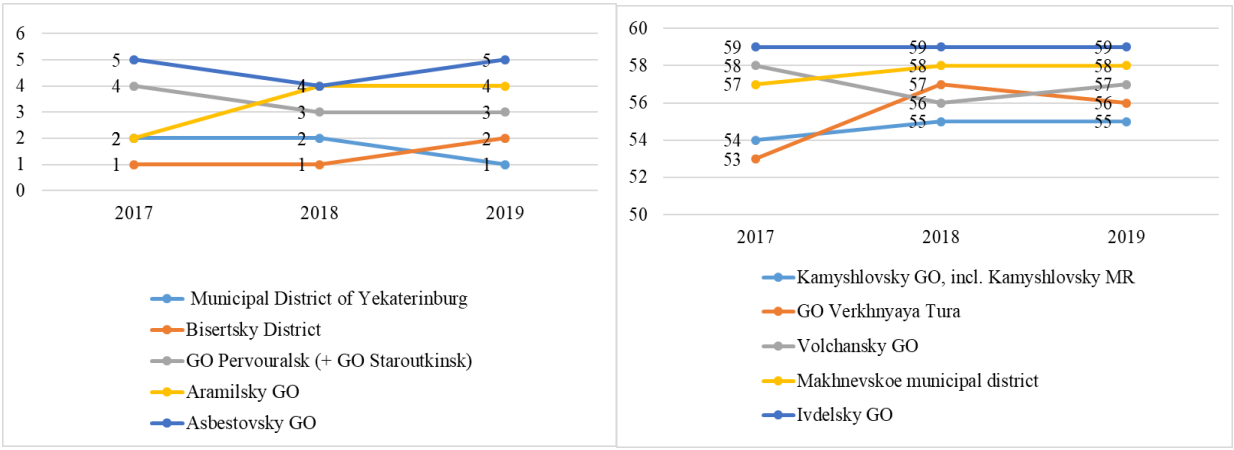


Figure 4 – Ranking of the Sverdlovsk region's municipalities by the supply of doctors in the Sverdlovsk region's municipalities, 2017-2019, (per 10 thousand population) (ranks 1-5, ranks 55-59)*

** ranking of 59 municipalities of the Sverdlovsk region is given in Appendix D*

Positive dynamics were observed in 17 out of 59 municipalities in terms of provision of paramedical personnel during the period 2017 to 2019 (the maximum growth rate was 18.8% in the Verkh-Neyvinsky municipal district), negative dynamics were established in 41 municipalities (the maximum rate of decline was 18.9% in the Nizhneturinsky municipal district). From 2017 to 2018 there was an increase in the provision of paramedical personnel only in 16 municipalities. Indicator of provision of paramedical personnel had the smallest values in the Nizhnyaya Salda municipality, Degtyarsk municipality, Verkh-Neyvinsky municipality, Gornouralsky municipality, Kamensky municipality in the period from 2017 to 2019. The first five places for this indicator were occupied and had the highest rank in the Krasnoturinsk municipal district, the Irbit municipal district, including the Irbit municipal district, the Alapaevsk municipal district, the Asbestovsky municipal district, Slobodo-Turinsky MR (Figure 5). Since 2018, the «Zemsky Paramedic» program has been operating in the Sverdlovsk region and provides one-time compensation payments to medical paramedics and other support measures at the level of the Moscow Region. Yekaterinburg is less in demand for purchasing housing and does not have such compensation programs to support medical workers.

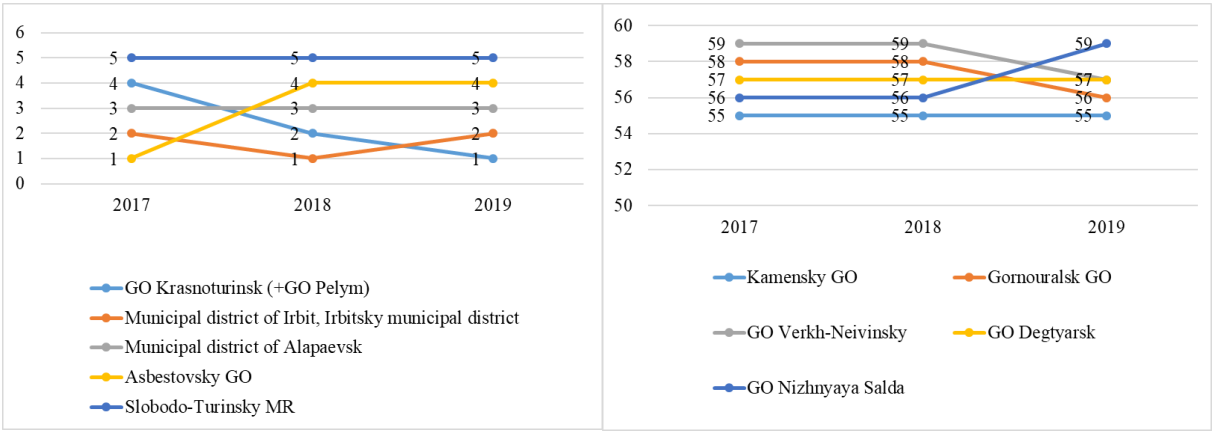


Figure 5 – Ranking of the Sverdlovsk region municipalities by the provision of paramedical personnel in the Sverdlovsk region municipalities, 2017-2019, (per 10 thousand population) (ranks 1-5, ranks 55-59)*

** ranking of 59 municipalities of the Sverdlovsk region is given in Appendix D*

The analysis of 7 medical-statistical and demographic indicators made it possible to form the final ranking of municipalities of the Sverdlovsk region in ascending order from those occupying higher positions to lower ones [135]. The results of ranking municipalities by medical, statistical and demographic indicators are presented in Table 22. Of the 59 municipalities in the period 2017 to 2019 positive dynamics for 7 selected indicators were observed in 23 municipalities (the maximum rate of decrease was 22.7% in the Kachkanarsky municipal district), negative dynamics were established in 36 municipalities (the maximum growth rate was 73.7% in the municipality of the closed city of Svobodny). In 2018, compared to 2017, positive dynamics were recorded in 32 municipalities.

The lowest sums of points for 7 assessed indicators in 2017, 2018, 2019 had 2 municipalities: Volchansky District, Gornouralsk District, occupying 57-59 places in the overall ranking by year. Kamensky GO in 2018-2019 took 58-59 places. In 2017, the Verkhnyaya Tura municipality took 58th place. GO CATO Svobodny took the leading 1-2 places in 2017-2018, in 2019 it dropped to 26th place due to an increase in the overall morbidity rate of the population and a decrease in the share of preventive visits to doctors in 2019.

Table 22 – Ranking of municipalities of the Sverdlovsk region according to medical, statistical and demographic indicators in the period 2017-2019 (presented in alphabetical order)

Municipality	2017		2018		2019	
	Sum of ranks	Final rank	Sum of ranks	Final rank	Sum ranks	Final rank
1	2	3	4	5	6	7
Alapaevskoe municipal district	244	44	246	42	249	46
Aramilsky GO	183	17	158	8	197	24
Artemovsky GO	205	34	215	35	167	13
Artinsky GO	184	18	160	9	193	20
Asbestovsky GO	187	20	194	25	162	10
Achitsky GO	155	8	180	19	177	16
Baikalovsky MR	196	26	189	22	162	10
Berezovsky GO	164	10	169	13	161	9
Bisertsky District	165	11	216	36	194	21
Verkhnesaldinsky GO	215	36	249	43	209	33
Volchansky GO	347	59	341	59	317	58
Beloyarsky municipal district, including Verkhneye Dubrovo municipal district, settlement municipal district. Ural	188	21	214	34	213	36
GO Bogdanovich	224	38	229	40	210	34
GO Verkh-Neivinsky	309	56	249	43	273	51
GO Verkhniy Tagil	253	49	279	55	237	43
Verkhnyaya Pyshma municipality, including Sredneuralsk municipality	122	3	121	5	119	3
GO Verkhnyaya Tura	340	58	282	56	290	55
GO Verkhotursky	154	7	172	14	198	26
GO Degtyarsk	286	55	271	52	281	54
GO ZATO Svobodny	114	1	105	2	198	26
GO Karpinsk	245	46	222	38	199	28
GO Krasnouralsk	255	51	252	45	235	42

Table 22 continued

1	2	3	4	5	6	7
Krasnoufimsky municipal district, including Krasnoufimsky municipal district	190	22	197	26	151	7
GO Nizhnyaya Salda	185	19	182	20	240	45
GO Pervouralsk, including GO Staroutkinsk	237	42	222	38	224	38
GO Revda	204	32	178	18	194	21
GO Reftinsky	201	29	189	22	186	17
GO Sukhoi Log	134	5	104	1	131	4
Gornouralsk GO	334	57	319	57	298	57
Ivdelsky GO	277	54	271	51	255	48
Kamensky GO	268	53	328	58	328	59
Kamyshlovsky municipal district, including Kamyshlovsky municipal district	220	37	208	31	197	24
Kachkanarsky GO	194	24	172	14	150	6
Kirovgrad GO	253	49	274	53	292	56
Krasnoturinsk GO	131	4	108	3	105	1
Kushvinsky GO	260	52	265	48	252	47
Malyshevsky GO	207	35	274	53	204	30
Makhnevskoe municipal district	226	40	264	47	262	50
Municipal district of Alapaevsk	199	28	201	27	211	35
Irbit municipal district and Irbit municipal district	117	2	120	4	118	2
Municipal district of Kamensk-Uralsky	178	14	167	12	171	15
Municipal District of Nizhny Tagil	203	31	192	24	196	23
Ekaterinburg	144	6	147	6	136	5
Nevyansky District	225	39	201	27	255	48
Nizhneserginsky MR	245	46	217	37	237	43
Nizhneturinsky GO	204	32	269	50	278	53
Novolyalinsky district	182	16	213	33	226	40

Table 22 continued

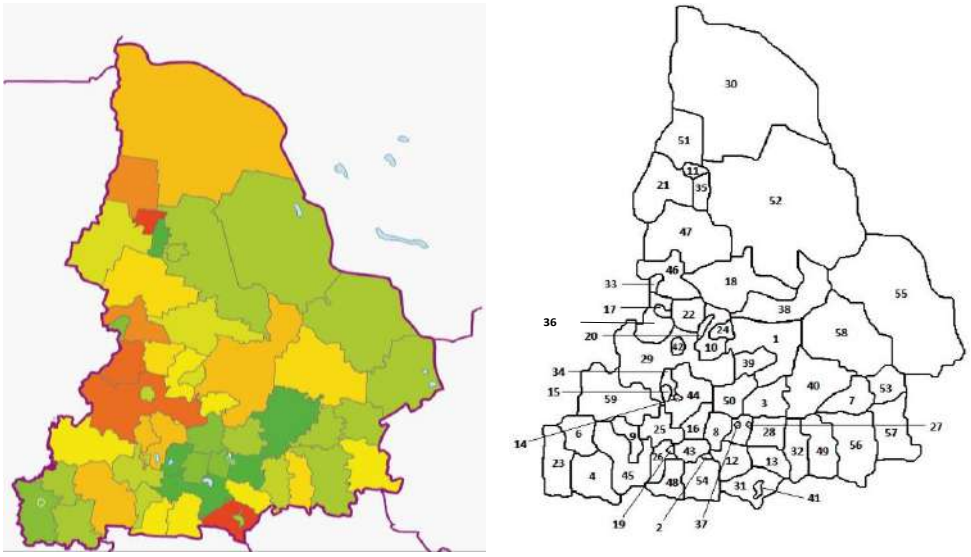
1	2	3	4	5	6	7
Polevskoy GO	244	44	203	29	206	31
Pyshminsky GO	194	24	236	41	219	37
Rezhevskaya GO	169	12	156	7	157	8
Severouralsky GO	247	48	254	46	275	52
Serovsky GO	202	30	163	10	162	10
Slobodo-Turinsky MR	156	9	184	21	191	18
Sysertsky GO	227	41	210	32	208	32
Tavdinsky GO, including Taborinsky MR	180	15	175	16	168	14
Talitsky GO	176	13	175	16	191	18
Tugulymsky GO	192	23	203	29	225	39
Turinsky GO	237	42	259	47	234	41
Shalinsky GO	198	27	164	11	200	29

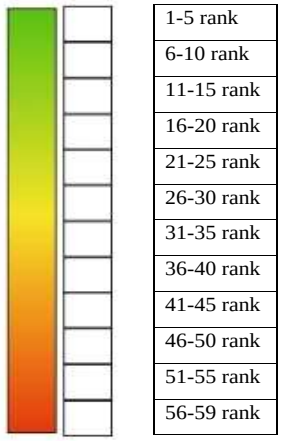
Krasnoturinsk GO became a leader in 2019 based on the results of a total assessment of 7 indicators, rising from 4th place to 1st place in the ranking. In 2019, the Irbit municipal district and the Irbit municipal district, the Verkhnyaya Pyshma municipal district, including the Sredneuralsk municipal district took 2 and 3 places, respectively. The Yekaterinburg municipality took 5th place according to 7 medical, statistical and demographic indicators in 2019.

A graphical visualization of the ranking of the final ranking of municipalities by medical, statistical and demographic indicators is presented in Figure 6. Based on this cartogram, it can be seen that the best final rankings for the analyzed indicators were registered in the administrative center of the Sverdlovsk region and the territories adjacent to it and in a large administrative entity in the north of the region. I would like to note that the most unfavorable territories were identified in the Northern, Southern and Gornozavodsky districts.

The cartogram (Figure 6) shows the peculiarities of some territories. In three administrative centers of the administrative districts of the Sverdlovsk region, favorable final ratings are noted for 7 assessed indicators: Kamensk-Uralsky municipal district, Nizhny Tagil municipal district, Nizhny Tagil municipal district. Krasnoturinsk,

Kachkanarsky district. The most unfavorable areas are located around these MOs. Thus, around the municipal district of Kamensk-Uralsky there is the Kamensky municipal district with a fairly low rating. The Krasnoturinsk municipal district is adjacent to the Volchansky municipal district with one of the lowest ratings. The same feature is determined near the Nizhny Tagil municipal district and the nearby Gornouralsk municipal district; Kachkanarsky GO and the nearby Nizhneturinsky GO and Kushvinsky GO.





1-5 rank
6-10 rank
11-15 rank
16-20 rank
21-25 rank
26-30 rank
31-35 rank
36-40 rank
41-45 rank
46-50 rank
51-55 rank
56-59 rank

No.	Territory	No.	Territory
1	Alapaevskoe municipal district	31	Kamensky GO
2	Aramilskoye GO	32	Kamyshlovsky GO
3	Artemovsky GO	33	Kachkanarsky GO
4	Artinsky GO	34	Kirovgrad GO
5	Asbestovsky GO	35	Krasnoturinsk GO
6	Achitsky GO	36	Kushvinsky GO
7	Baikalovsky MR	37	Malyshevsky GO
8	Berezovsky GO	38	Makhnevskaya MO
9	Bisertsky District	39	Municipal district of Alapaevsk
10	Verkhnesaldinsky GO	40	Irbit municipal district and Irbit municipal district
11	Volchansky GO	41	Municipal district of Kamensk-Uralsky
12	GO Beloyarsky	42	Municipal District of Nizhny Tagil
13	GO Bogdanovich	43	MO Ekaterinburg
14	GO Verkhneyvinsky	44	Nevyansky District
15	GO Verkhniy Tagil	45	Nizhneserginsky municipal district
16	GO Verkhnyaya Pyshma	46	Nizhneturinsky GO
17	GO Verkhnyaya Tura	47	Novolyalinsky district
18	GO Verkhotursky	48	Polevskoy GO
19	GO Degtyarsk	49	Pyshminsky GO
20	GO ZATO Svobodny	50	Rezhevskaya GO
21	GO Karpinsk	51	Severouralsky GO
22	GO Krasnouralsk	52	Serovsky GO
23	GO Krasnoufimsky	53	Slobodo-Turinsky MR
24	GO Nizhnyaya Salda	54	Sysertsky GO
25	GO Pervouralsk	55	Tavdinsky GO
26	GO Revda	56	Talitsky GO
27	GO Reftinsky	57	Tugulymsky GO
28	GO Sukhoi Log	58	Turinsky GO
29	Gornouralsk GO	59	Shalinsky GO
30	Ivdelsky GO		

Figure 6 – Ranking of municipalities of the Sverdlovsk region in 2019 according to the final ranking of medical, statistical and demographic indicators

We can conclude that around the large administrative centers of the administrative districts of the Sverdlovsk region there are territories with the most unfavorable final ratings, which may be due to different socio-economic levels of the territories, with the migration of human resources to larger and more developed administrative entities.

Chapter Summary

Based on the results of the analysis of 7 assessed indicators in the context of municipalities of the Sverdlovsk region in the period from 2017 to 2019 negative dynamics were observed in terms of general morbidity of the population (in 51 municipalities), the supply of doctors (in 46 municipalities), the provision of paramedical personnel (in 41 municipalities), and overall mortality (in 33 municipalities). Positive dynamics were recorded in terms of mortality in working age (in 36 municipalities), the ratio of planned capacity to actual capacity of outpatient departments of medical organizations (in 35 municipalities), and the share of preventive visits to doctors (in 31 municipalities).

At the next stage of the study, using the method of formal logical analysis, ratings of the Sverdlovsk region's municipalities were formed according to the assessed indicators. There was differentiation of territories and different contributions to overall indicators in the Sverdlovsk region. The best indicators were recorded in the administrative center of the Sverdlovsk region and the territories adjacent to it and in a large administrative entity in the north of the subject of the Russian Federation. Between 2017 and 2019 minor fluctuations in indicators were established, and in general, most of them remained stable in the context of municipalities. Difference in rank values between 2017-2019 in terms of indicators did not exceed more than 10 ranks in terms of: provision of paramedical personnel – in 100% of municipalities, provision of doctors – in 95% of municipalities, general morbidity of the population - in 93% of municipalities, ratio of planned capacity to actual capacity of outpatient departments of medical organizations – in 95% of municipalities, the share of preventive visits to doctors – in 68% of municipalities, overall mortality in – 64% of municipalities, mortality in working age –

in 63% of municipalities. Changes in these indicators on the territory of each municipality influenced the final ratings for the study period.

The organization of medical care and the activities of medical organizations are key factors influencing the main medical, statistical and demographic indicators of the territories. In the Sverdlovsk region, a pilot project «Lean Clinic» began in 2017. The implementation of projects using resource-saving technologies involves improving the organization of medical processes, which can lead to an increase in the availability of medical care and preventive measures. This, in turn, can have an impact on the medical, statistical and demographic indicators of the serviced territory, contributing to the early detection of diseases and an increase in the number of patient visits to medical organizations, and a decrease in the overall mortality rate of the population.

Activities include the introduction of ergonomic principles and the creation of conditions for maintaining the volume of work space for employees of medical organizations. This is aimed at improving the working conditions of medical personnel, which helps eliminate personnel shortages and increase the level of engagement of employees of medical organizations. As a result, these improvements in the activities of medical organizations can influence the overall picture of medical, statistical and demographic indicators in the service area.

One of the next tasks was to analyze the activities of medical organizations in the Sverdlovsk region, providing primary health care and participating in the creation of a new model, on the territory of the in the period from 2017 to 2019.

CHAPTER 4. ASSESSMENT OF THE DEGREE OF INFLUENCE OF THE ACTIVITIES OF MEDICAL ORGANIZATIONS INTRODUCING A NEW MODEL OF PROVIDING PRIMARY HEALTH CARE ON THE MAIN MEDICAL-STATISTICAL AND DEMOGRAPHIC INDICATORS OF MUNICIPAL ENTITIES

4.1. Comparative assessment of medical organizations implementing a new model of primary health care based on key performance indicators

To evaluate medical organizations providing primary health care, 6 main performance indicators were selected (5 performance indicators for medical organizations providing primary health care only to children or adults).

The main indicator for assessing the volume of emergency medical services provided to the assigned population is the average number of visits performed per resident per year. Table 23 for this indicator presents the results of the ranking of medical organizations providing primary health care to children, adults and children and adults. Of the 8 medical organizations providing primary health care to the children's population, in 2019, in 1st place in terms of the average number of visits per person per year was the Nizhny Tagil Children's City Hospital, and in 2nd place was the Children's City Hospital No. 13. «, in which there has been an increase in the number of visits since 2017, associated with the accession in 2017 of all outpatient departments of MAU «Children's Hospital No. 10» to this medical organization and reorganization changes. MAU «DGKB No. 11» has the lowest rank for this indicator and there has been a decrease since 2017, which could be due to structural changes. Among the medical organizations providing primary health care to the adult population, the highest ranks were held by the State Budgetary Institution of the Municipal Hospital of Kamensk-Uralsky, the State Budgetary Healthcare Institution of the State Clinical Hospital of the City of Pervouralsk , and among the medical organizations providing primary health care to adults and children - the State Budgetary Healthcare Institution of the State Clinical Hospital of the

Closed Administrative District of Svobodny», GBUZ SO «Nizhnesaldinsk Central City Hospital» (Table 23).

Table 23 – Ranking of medical organizations by average number of visits per person per year for 2017–2019* (ranking for 2019)

Name of medical organization	2017		2018		2019	
	Indicator value	Rank	The value of the indicator	Rank	The value of the indicator	Rank
Medical organizations providing primary health care to children						
GBUZ SO «Children's Hospital of Nizhny Tagil»	17.72	2	17.49	2	17.57	1
MAU «DGP No. 13»	14.54	6	17.88	1	17.15	2
...	...	...	...	...	...	...
MAU «DGB No. 15»	13.03	8	14.10	8	13.52	7
MAU «DGKB No. 11»	24.71	1	14.12	7	13.51	8
Medical organizations providing primary health care to adults						
GAUZ SO «GB of Kamensk-Uralsky»	6.07	2	5.96	1	6.05	1
GBUZ SO «GB Pervouralsk»	6.03	3	5.91	2	5.97	2
...	...	...	...	...	...	...
MBU «TsGKB No. 6»	4.83	10	4.99	10	5.05	11
GBUZ SO «GP No. 4, Nizhny Tagil»	5.85	4	5.75	3	4.90	12
Medical organizations providing primary health care to children and adults						
GBUZ SO «GB ZATO Svobodny»	8.79	5	8.64	5	10.81	1
GBUZ SO «Nizhnesaldinskaya Central City Hospital»	8.73	6	8.59	6	10.62	2
...	...	...	...	...	...	...
GBUZ SO «Degtyarskaya GB»	6.67	45	6.59	44	5.67	52
GBUZ SO «Nizhneturinsk Central City Hospital»	5.40	53	5.32	53	4.69	54

** ranking of medical organizations in the Sverdlovsk region is given in Appendix G*

In 2019, 60.8% of medical organizations did not ensure the implementation of compulsory medical insurance for the AMS in terms of volumes of medical care. The greatest failure in the volume of medical care in outpatient settings in 2019 was registered in the Kachkanarskaya Central City Hospital, MAU Central City Clinical Hospital No. 24, and the Nizhny Tagil Children's Hospital (Table 24). Positive dynamics from 2017 to 2019 were registered in 36.5% of medical organizations (the maximum growth rate was 20.2% in the Bogdanovichi Central District Hospital). Negative dynamics were registered in 63.5% of medical organizations (the maximum rate of decline was 16.8% in the Kachkanar Central City Hospital).

Table 24 – Ranking of medical organizations according to the actual implementation of compulsory health insurance technical support for AMS by volume of medical care (visits), % of implementation (ranking for 2019)

Name of medical organization	2017		2018		2019	
	Indicator value	Rank	The value of the indicator	Rank	The value of the indicator	Rank
Medical organizations providing primary health care to children						
GBUZ SO «Children's Hospital of Pervouralsk»	100.66	7	100.51	5	107.33	1
MAU «DGB No. 8»	106.09	5	104.68	3	104.32	2
...	...	...	...	...	...	...
MAU «DGKB No. 11»	107.12	4	91.81	8	94.35	7
GBUZ SO «Children's Hospital of Nizhny Tagil»	105.88	6	97.11	6	90.97	8
Medical organizations providing primary health care to adults						
MAU «GKB No. 14»	95.88	7	100.77	2	116.51	1
GBUZ SO «GB Pervouralsk»	98.96	5	99.47	3	104.18	2
...	...	...	...	...	...	...
MBU «Central City Hospital No. 2 named after. A.A. Mislavsky»	83.13	12	94.63	5	83.45	11
MAU «TsGKB No. 24»	97.39	6	89.84	10	82.64	12

Table 24 continued

1	2	3	4	5	6	7
Medical organizations providing assistance to children and adults						
GBUZ SO «GB ZATO Svobodny»	119.01	2	130.66	1	109.96	1
GBUZ SO «Nizhnesaldinskaya Central City Hospital»	121.07	1	122.64	2	109.88	2
...	...	...	...	...	...	...
GBUZ SO «Shalinskaya Central City Hospital»	89.67	52	78.05	53	82.44	53
GBUZ SO «Kachkanarskaya Central City Hospital»	94.80	42	86.85	51	78.86	54

** ranking of medical organizations in the Sverdlovsk region is given in Appendix G*

According to the TFCMI, data for 2017-2019 were analyzed by the number and amount of fines/deductions/withdrawals for AMS collected by health insurance organizations, TFCMI for each medical organization [101]. Of greater informative value is the analysis not of the number and number of fines for AMS collected by health insurance organizations, TFCMI, but of the analysis of the share of fines/withholdings from the actual volume of financing of a medical organization. The analysis showed that over this period of time, in 68% of medical organizations, the share of fines/withholdings for AMS, collected by health insurance organizations, TFOM S, from the actual amount of financing decreased [101]. Results of ranking medical organizations in ascending order from those occupying higher to lower positions for this indicator for 2017-2019 are shown in Table 25. According to it, in 2019, the highest ratings among medical organizations providing primary health care to children were MAU «DGKB No. 11», among medical organizations providing PHC to adults – MAU «GKB No. 14», MBU «Central City Hospital No. 7», among the medical organizations providing primary health care to both the adult and child population is the State Autonomous Institution of Public Health «Asbest City Hospital» [75].

Table 25 – Share of fines/withholdings/withdrawals for AMS, collected by the health insurance company, TFCMI based on the results of the IEC, EGMC from the actual implementation of the TP compulsory medical insurance for AMS, amount of financing, % (first two and last two ranks, sorted by 2019)

Name of medical organization	2017		2018		2019	
	Indicator value	Rank	Indicator value	Rank	Indicator value	Rank
Medical organizations providing primary health care to children						
MAU «DGKB No. 11»	0.15	5	0.11	3	0.05	1
MAU «DGB No. 8»	0.14	4	0.07	1	0.06	2
...	...	...	...	...	...	...
GBUZ SO «Children's Hospital of Pervouralsk»	0.11	2	0.12	4	0.15	7
GBUZ SO «Children's City Hospital of Kamensk-Uralsky»	0.18	6	0.22	8	0.18	8
Medical organizations providing primary health care to adults						
MAU «GKB No. 14»	0.01	1	0.01	1	0.04	1
MBU «Central City Hospital No. 7»	0.04	2	0.19	8	0.05	2
……	...	...	...	...	...	...
MBU «TsGKB No. 6»	0.18	8	0.23	10	0.21	11
MAU «TsGKB No. 24»	0.20	9	0.15	6	0.23	12
Medical organizations providing primary health care to children and adults						
GAUZ SO «GB Asbest»	0.08	2	0.03	2	0.02	1
GBUZ SO «Reftinskaya GB»	0.14	9	0.22	22	0.04	2
……	...	...	...	...	...	...
GBUZ SO «Turin Central District Hospital named after. O.D. Zubova»	0.39	41	1.02	54	0.52	53
GBUZ SO «Slobodo-Turinskaya RB»	0.28	34	0.91	53	0.58	54

** ranking of medical organizations in the Sverdlovsk region is given in Appendix G*

In 2019, medical examination coverage of the adult population was more than 80% or higher, all medical organizations providing care to the adult population, and preventive examination coverage for minors 80% or less was in the Nizhneturinsk Central City Hospital, GBUZ SO «Gornouralsk RP». In all medical organizations, there is an increase in the coverage of medical examinations of the adult population and the coverage of children in the first year of life with preventive examinations in medical organizations in the period from 2017 to 2019. Additionally, these indicators were ranked by medical organizations.

Thus, the meaning of ranks according to the analyzed indicators in the context of medical organizations differs from each other. For example, in the State Budgetary Healthcare Institution SO «Children's Hospital of Nizhny Tagil» in 2019, in terms of the average number of visits per person per year, it took first place, and in terms of the actual implementation of compulsory medical insurance for the AMS in terms of volumes of medical care (visits), it took the last place 8 place in the ranking of medical organizations providing assistance only to children. For this reason, it is necessary to calculate the final rating of medical organizations providing primary health care, which will take into account the contribution of all key performance indicators.

4.2. Formation of the final rating of medical organizations implementing a new model of primary health care, according to key performance indicators

Based on an analysis of the activities of medical organizations in the Sverdlovsk region, the final ratings of medical organizations providing primary health care were calculated for the main 6 performance indicators, depending on the nature of the indicator in ascending or descending order in general and separately for medical organizations providing primary health care to children, adults and child-adult populations.

Results of the final ranking of medical organizations providing primary health care according to performance indicators in ascending order from those occupying higher to lower positions are presented in Table 26. At the end of 2019, higher ratings were given

to: among medical organizations providing primary health care to the children's population – MAU «Children's City Hospital No. 8», GBUZ SO «Children's Hospital of Pervouralsk»; among medical organizations providing primary health care to the adult population – MAU «Central City Hospital No. 20»; among medical organizations providing primary health care to children and adults – GAUZ SO «Asbest city hospital», GAUZ SO «Krasnoturinskaya city hospital».

Table 26 – Final rating of performance indicators of medical organizations providing primary health care in 2017-2019

No.	Name of medical organization	2017		2018		2019	
		Sum of ranks	Rank	Sum of ranks	Rank	Sum of ranks	Rank
1	2	3	4	5	6	7	8
1.	GBUZ SO «Children's City Hospital of Kamensk-Uralsky»	84.0	5	101.0	7	121.0	10
2.	GBUZ SO «Children's Hospital of Pervouralsk»	57.0	1	79.0	5	70.0	2
3.	GBUZ SO «Children's Hospital of Nizhny Tagil»	70.0	4	137.0	14	140.0	15
4.	MAU «DGKB No. 9»	183.0	37	148.0	18	101.0	8
5.	MAU «DGKB No. 11»	65.0	2	155.0	22	96.0	7
6.	MAU «DGB No. 15»	86.0	6	102.0	8	83.0	6
7.	MAU «DGB No. 8»	66.0	3	46.0	1	31.0	1
8.	MAU «DGP No. 13»	119.0	14	105.0	9	74.0	4
9.	GBUZ SO «GP No. 4, Nizhny Tagil»	243.0	63	186.0	37	226.0	60
10.	MBU «Central City Hospital No. 2 named after. A.A. Mislavsky»	323.0	75	228.0	59	210.0	53
11.	MAUZ «Central City Hospital No. 3»	326.0	76	224.0	57	175.0	36
12.	MAU «Central City Hospital No. 20»	165.0	29	223.0	56	158.0	25
13.	GAUZ SO «GB of Kamensk-Uralsky»	210.0	52	202.0	44	174.0	35
14.	GBUZ SO «GB Pervouralsk»	221.0	57	213.0	51	186.0	42
15.	MBU «TsGKB No. 6»	195.0	43	244.0	67	211.0	54

Table 26 continued

1	2	3	4	5	6	7	8
16.	MBU «Central City Hospital No. 7»	200.0	45	248.0	69	179.0	39
17.	MBU «TsGKB No. 1»	283.0	73	236.0	65	231.0	62
18.	MAU «TsGKB No. 24»	190.0	40	251.0	70	263.0	71
19.	MAU «TsGKB No. 23»	254.0	66	283.0	74	233.0	63
20.	MAU «GKB No. 14»	258.0	68	168.0	29	137.0	12
21.	GBUZ SO «Alapaevskaya GB»	220.0	38	186.0	22	188.0	23
22.	GBUZ SO «Artemovskaya Central District Hospital»	206.0	32	100.0	6	183.0	21
23.	GAUZ SO «GB Asbest»	152.0	16	146.0	13	93.0	5
24.	GBUZ SO «Artinskaya Central District Hospital»	120.0	8	85.0	2	195.0	29
25.	GBUZ SO «Serovskaya GB»	206.0	32	220.0	36	165.0	13
26.	GBUZ SO «Alapaevsk Central District Hospital»	248.0	48	189.0	25	167.0	14
27.	GBUZ SO «Irbitskaya Central City Hospital»	208.0	34	261.0	53	264.0	57
28.	GAUZ SO «Rezhevskaya Central District Hospital»	197.0	28	256.0	52	242.0	49
29.	GBUZ SO «Berezovskaya Central City Hospital»	141.0	12	130.0	10	246.0	50
30.	GBUZ SO «Kamyshlovskaya Central District Hospital»	217.0	35	248.0	48	188.0	23
31.	GBUZ SO «Malyshevskaya GB»	242.0	46	264.0	55	301.0	69
32.	GAUZ SO «Sukholozhskaya RB»	170.0	22	246.0	46	156.0	11
33.	GAUZ SO «Verkhnepyshminskaya Central City Hospital named after. P.D. Borodin»	196.0	27	202.0	30	201.0	32
34.	GBUZ SO «Krasnoufimskaya RB»	124.0	10	179.0	19	184.0	22
35.	GBUZ SO «Revdinskaya GB	145.0	15	131.0	11	194.0	28
36.	GBUZ SO «Polevskaya Central City Hospital»	142.0	13	231.0	41	181.0	19
37.	GBUZ SO «Verkhnesaldinskaya Central City Hospital»	116.0	7	227.0	39	300.0	68

Table 26 continued

1	2	3	4	5	6	7	8
38.	GBUZ SO «Central City Hospital of Verkhnyaya Tura»	303.0	65	246.0	46	272.0	61
39.	GBUZ SO «Kachkanarskaya Central City Hospital»	248.0	48	238.0	43	282.0	64
40.	GBUZ SO «Krasnouralskaya GB»	245.0	47	218.0	35	195.0	29
41.	GBUZ SO «Nizhnesaldinskaya Central City Hospital»	155.0	17	90.0	4	177.0	17
42.	GBUZ SO «Volchanskaya GB»	274.0	59	250.0	49	260.0	55
43.	GBUZ SO «Ivdel Central District Hospital»	330.0	70	328.0	73	349.0	76
44.	GBUZ SO «Karpinskaya Central City Hospital»	193.0	26	207.0	32	193.0	27
45.	GAUZ SO «Krasnoturinskaya GB»	175.0	23	183.0	21	86.0	3
46.	GBUZ SO «Severouralsk Central City Hospital»	262.0	55	230.0	40	293.0	67
47.	GBUZ SO «Baikalovskaya Central District Hospital»	175.0	23	169.0	15	198.0	31
48.	GBUZ SO «Pyshminskaya Central District Hospital»	217.0	35	211.0	34	270.0	58
49.	GBUZ SO «Slobodo-Turinskaya RB»	161.0	18	186.0	22	250.0	52
50.	GBUZ SO «Tavdinskaya Central District Hospital»	332.0	71	282.0	63	234.0	45
51.	GAUZ SO «Talitskaya Central District Hospital»	188.0	25	133.0	12	221.0	41
52.	GBUZ SO «Tugulym Central District Hospital»	250.0	51	236.0	42	324.0	73
53.	GBUZ SO «Turin Central District Hospital named after. O.D. Zubova»	278.0	60	305.0	71	284.0	66
54.	GBUZ SO «Aramilskaya GB»	262.0	55	176.0	17	190.0	26
55.	GBUZ SO «Beloyarsk Central District Hospital»	232.0	42	197.0	27	213.0	37
56.	GBUZ SO «Bogdanovichsky Central District Hospital»	332.0	71	347.0	75	237.0	47
57.	GBUZ SO «Kamenskaya Central District Hospital»	307.0	67	294.0	68	180.0	18

Table 26 continued

1	2	3	4	5	6	7	8
58.	GBUZ SO «Reftinskaya GB»	254.0	53	269.0	58	171.0	16
59.	GAUZ SO «Sysert Central District Hospital»	198.0	29	196.0	26	181.0	19
60.	GBUZ SO «Achitskaya Central District Hospital»	166.0	21	179.0	19	247.0	51
61.	GBUZ SO «Bisertskaya GB»	123.0	9	202.0	30	234.0	45
62.	GBUZ SO «Degtyarskaya GB»	248.0	48	277.0	61	201.0	32
63.	GBUZ SO «Nizhneserginsk Central District Hospital»	234.0	43	175.0	16	215.0	40
64.	GBUZ SO «Shalinskaya Central City Hospital»	281.0	61	306.0	72	332.0	74
65.	GBUZ SO «Demidovskaya GB»	165.0	20	200.0	28	224.0	43
66.	GBUZ SO «GB of Verkhniy Tagil»	205.0	31	226.0	38	322.0	72
67.	GBUZ SO «Gornouralsk RP»	300.0	64	281.0	62	315.0	70
68.	GBUZ SO «Kirovgrad Central City Hospital»	287.0	62	251.0	50	213.0	37
69.	GBUZ SO «Central City Hospital of Kushva»	261.0	54	275.0	60	270.0	58
70.	GBUZ SO «Nevyansk Central District Hospital»	229.0	41	263.0	54	229.0	44
71.	GBUZ SO «GB ZATO Svobodny»	132.0	11	89.0	3	134.0	9
72.	GBUZ SO «CRH Verkhotursky district»	163.0	19	208.0	33	201.0	32
73.	GBUZ SO «Nizhneturinsk Central City Hospital»	362.0	74	358.0	76	336.0	75
74.	GBUZ SO «Novolyalinskaya RB»	225.0	39	286.0	66	283.0	65
75.	GAUZ SO «Verkh-Neyvinskaya State Enterprise»	304.0	69	265.0	63	227.0	48
76.	GBUZ SO «Makhnevskaya District Hospital»	259.0	58	229.0	45	247.0	56

It is worth noting that the most stable positions in the ranking during 2017-2019 showed medical organizations that provide primary health care to the children's population: MAU «Children's Hospital No. 8», GBUZ SO «Children's Hospital of

Pervouralsk», MAU «Children's Hospital No. 15», GBUZ SO «Children's Hospital of Kamensk-Uralsky».

The largest difference (61 positions) between the ratings of medical organizations for the period 2017-2019 noted in the Verkhnesaldinskaya Central City Hospital with a sharp decline in its position in the ranking due to a decrease in the number of visits, coverage of preventive medical measures for children and adults, and an increase in the share of fines. An increase in the rating position was noted in MAU «GKB No. 14» (56 positions), GBUZ SO «Kamensk Central District Hospital» (35 positions). The change in the rating in MAU «City Clinical Hospital No. 14» may be due to the fact that since 2018, MAU «Ekaterinburg Consulting and Diagnostic Center» was merged with this medical organization, including a polyclinic that provides primary health care to the adult population. In the GBUZ SO «Kamensk Central District Hospital» the increase in the rating was due to a significant increase in volumes coverage of medical examinations of the adult population, preventive examinations of minors and a decrease in the share of fines/deductions/withdrawals for AMS in the period 2017 to 2019. The lowest dynamics in the ratings of medical organizations was noted in MAU «Children's City Hospital No. 15», GBUZ SO «Nizhnesaldinskaya Central City Hospital».

Based on an assessment of the main performance indicators of medical organizations providing primary health care, it is possible to study the impact of these indicators on the medical, statistical and demographic indicators of the territories whose population receives medical care in these medical organizations.

4.3. Correlation analysis of performance indicators of medical organizations introducing a new model of primary health care and medical, statistical and demographic indicators of the territories

Based on the correlation analysis between the final ranking of medical institutions by medical-statistical and demographic indicators (hereinafter referred to as IR MO) and the final rating of medical organizations providing primary health care by key performance indicators (hereinafter referred to as IR PD), the paired Spearman correlation

coefficient was r in 2017 = 0.56, p < 0.001; in 2018 r = 0.44, p < 0.001; in 2019 r = 0.36, p < 0.01. There is a direct statistically significant correlation of average strength between the two integral indicators in the period from 2017 to 2019, however, by 2019 there is a decrease in this relationship (Table 27).

Table 27 – Ranking of MOs by IR MO and IR PD

Municipality	2017		2018		2019	
	IR MO	IR PD	IR MO	IR PD	IR MO	IR PD
1	2	3	4	5	6	7
Alapaevskoe municipal district	44	39	42	17	46	6
Aramilsky GO	17	45	8	11	24	18
Artemovsky GO	34	26	35	4	13	12
Artinsky GO	18	2	9	1	20	21
Asbestovsky GO	20	9	25	8	10	2
Achitsky GO	8	13	19	12	16	40
Baikalovsky MR	26	15	22	9	10	23
Berezovsky GO	10	6	13	5	9	39
Bisertsky District	11	3	36	23	21	34
Verkhnesaldinsky GO	36	1	43	31	33	52
Volchansky GO	59	48	59	41	58	42
Beloyarsky municipal district, including Verkhneye Dubrovo municipal district, settlement municipal district. Ural	21	35	34	21	36	28
GO Bogdanovich	38	57	40	58	34	36
GO Verkh-Neivinsky	56	55	43	51	51	37
GO Verkhniy Tagil	49	25	55	30	43	55
Verkhnyaya Pyshma municipality, including Sredneuralsk municipality	3	19	5	23	3	25
GO Verkhnyaya Tura	58	53	56	38	55	47
GO Verkhotursky	7	12	14	26	26	25
GO Degtyarsk	55	39	52	49	54	25
GO ZATO Svobodny	1	5	2	2	26	3
GO Karpinsk	46	18	38	25	28	19
GO Krasnouralsk	51	38	45	28	42	21
Krasnoufimsky municipal district, including Krasnoufimsky municipal district	22	4	26	12	7	13

Table 27 continued

1	2	3	4	5	6	7
GO Nizhnyaya Salda	19	10	20	3	45	8
GO Pervouralsk, including GO Staroutkinsk	42	22	38	22	38	13
GO Revda	32	8	18	6	21	20
GO Reftinsky	29	43	22	47	17	7
GO Sukhoi Log	5	14	1	38	4	4
Gornouralsk GO	57	52	57	50	57	54
Ivdelsky GO	54	56	51	57	48	59
Kamensky GO	53	54	58	54	59	9
Kamyshlovsky municipal district, including Kamyshlovsky municipal district	37	29	31	40	24	16
Kachkanarsky GO	24	39	14	35	6	48
Kirovgrad GO	49	51	53	42	56	28
Krasnoturinsk GO	4	15	3	14	1	1
Kushvinsky GO	52	44	48	48	47	45
Malyshevsky GO	35	37	53	46	30	53
Makhnevskoe municipal district	40	47	47	37	50	43
Municipal district of Alapaevsk	28	31	27	15	35	16
Irbit municipal district and Irbit municipal district	2	28	4	44	2	44
Municipal district of Kamensk-Uralsky	14	21	12	18	15	15
Municipal District of Nizhny Tagil	31	22	24	20	23	30
Ekaterinburg	6	34	6	35	5	24
Nevyansky District	39	33	27	45	48	33
Nizhneserginsky MR	46	36	37	10	43	31
Nizhneturinsky GO	32	59	50	59	53	58
Novolyalinsky district	16	32	33	53	40	49
Polevskoy GO	44	7	29	33	31	10
Pyshminsky GO	24	29	41	27	37	45
Rezhevskaya GO	12	20	7	43	8	38
Severouralsky GO	48	45	46	32	52	51
Serovsky GO	30	26	10	29	10	5
Slobodo-Turinsky MR	9	11	21	15	18	41
Sysertsky GO	41	22	32	19	32	10

Table 27 continued

1	2	3	4	5	6	7
Tavdinsky GO, including Taborinsky MR	15	57	16	51	14	34
Talitsky GO	13	17	16	7	18	32
Tugulymsky GO	23	42	29	34	39	56
Turinsky GO	42	49	47	55	41	50
Shalinsky GO	27	50	11	56	29	57

Based on a comparison of IR MO and IR PD, it has been established that in some municipalities, in the presence of the most unfavorable ratings for medical-statistical and demographic indicators, there are higher ratings in terms of performance indicators of medical organizations serving the population of these municipalities (for example, Alapaevsk MO, IR MO = 46, IR PD = 6; 2019), and vice versa (for example, Kachkanarsky GO IR MO = 6, IR PD = 48; 2019). Thus, in the Alapaevsk municipal district in the period from 2017 to 2019. there is a change in the IR of the to a lower rating with an increase in the IR of the PD, which indicates that there is no influence of the improvement in the performance indicators of some medical organizations on the considered medical-statistical and demographic indicators in 2019. In the Kachkanarsky municipal district, the opposite trend is observed, which requires a more detailed consideration of additional factors, affecting the considered medical-statistical and demographic indicators of similar territories.

The graphical relationship between (IR MO) and the final rating of medical organizations providing primary health care, according to the main performance indicators (IR PD) and serving the population of these MO data are presented in Figures 7–9.

In scatterplots (Figures 7–9), an upward cluster of points from left to right indicates a positive correlation. In addition, with the help of scatterplots it is possible to prove the linear nature of the relationship between variables, which is a condition for the use of classical correlation analysis. In our case, the coefficients of determination by year were $R^2 = 31.3\%$ in 2017, $R^2 = 19.5\%$ in 2018, $R^2 = 12.7\%$ in 2019. This analysis model data requires detailed refinement and selection of additional indicators for study.

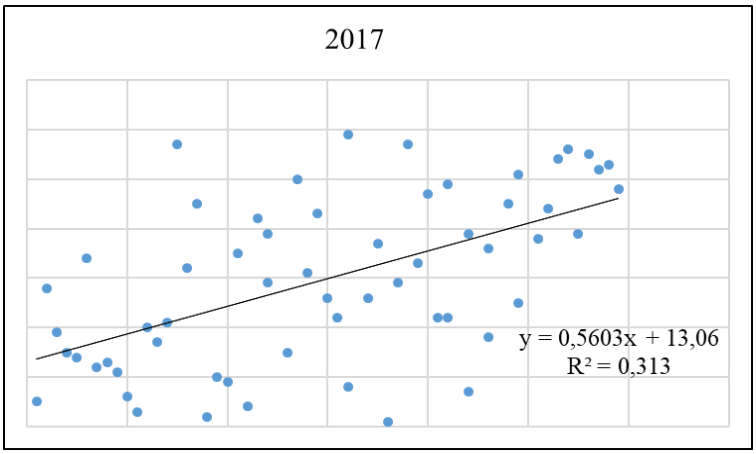
For a more detailed consideration of the relationship between integral indicators, the correlation matrix was analyzed for all medical-statistical, demographic indicators of the and indicators characterizing the activities of medical organizations.

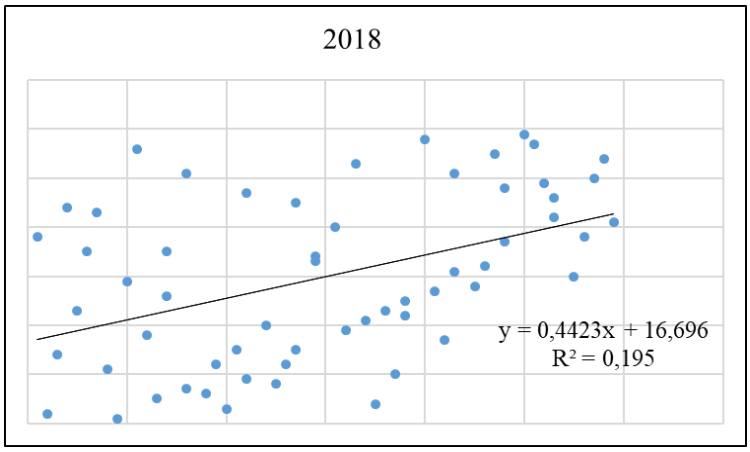
Based on the analysis, the indicator of the supply of doctors in municipalities is statistically significantly related to the indicator of implementation of the annual plan for preventive examinations of minors in medical organizations ($r = 0.56$, $p < 0.001$).

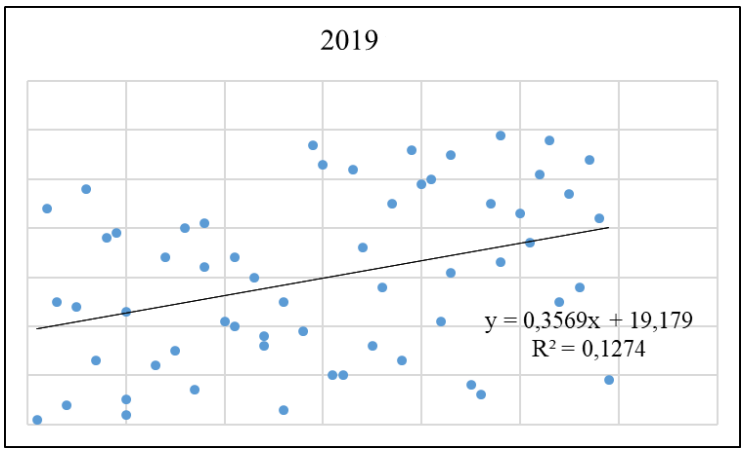
The number of visits to medical organizations is statistically significantly related to the ratio of planned capacity to actual capacity of outpatient departments of medical organizations in the ($r = 0.47$, $p < 0.001$), with the availability of doctors ($r = 0.4$, $p < 0.05$) and nursing staff ($r = 0.41$, $p < 0.05$), with indicators of general morbidity among the population of the ($r = 0.4$, $p < 0.05$),

A statistically significant relationship is determined between the indicators of general mortality of the population, including those of working age, and the share of fines collected by the self-government organization, the Federal Compulsory Medical Insurance Fund, based on the activities of the MEC, EQMC for AMS ($r = 0.32$, $p < 0.05$; $r = 0.43$, $p < 0.001$). The share of fines collected by health insurance organizations and the Federal Compulsory Medical Insurance Fund from medical organizations is statistically related to the indicator of the availability of doctors in the data of the Ministry of Health ($r = - 0.3$, $p < 0.05$).

Additionally, when considering the correlation matrix of medical-statistical and demographic indicators, a statistically significant relationship was established between overall mortality in working age and the ratio of planned capacity to actual capacity of outpatient departments of medical organizations in the ($r = 0.68$, $p < 0.001$); the ratio of planned capacity to actual capacity of outpatient departments of medical organizations in the and the availability of doctors in the Sverdlovsk Region ($r = 0.56$, $p < 0.001$); availability of doctors and provision of paramedical personnel according to the ($r = 0.48$, $p < 0.001$), general morbidity according to the ($r = 0.46$, $p < 0.001$); provision of nursing staff and general morbidity of the population according to the ($r = 0.44$, $p < 0.05$); overall morbidity of the population and overall mortality of the population according to the ($r = 0.35$, $p < 0.05$).







Figures 7, 8, 9 – Graphical relationship between IR MO and IR PD in 2017-2019

It is worth noting that no statistically significant connection was established between the indicators of general mortality of the population according to the Moscow Region, including those of working age, and the indicators of the implementation of the annual plan for medical examination of the adult population, preventive examinations of

minors, the actual implementation by medical organizations of TP compulsory medical insurance in terms of funding volumes and by volumes of medical care for AMS .

Chapter Summary

The formation of medical, statistical and demographic indicators occurs as a result of the influence of a complex set of factors.

A correlation analysis was carried out of the final rating of the Ministry of Defense according to medical-statistical and demographic indicators and the final rating of medical organizations providing primary health care according to the main performance indicators. There is a direct statistically significant correlation of average strength between two integral indicators for the period 2017-2019, by 2019 there is a decrease in this relationship (in 2017 $r = 0.56$, $p < 0.001$; in 2018 $r = 0.44$, $p < 0.001$; in 2019 $r = 0.36$, $p < 0.01$). Determination coefficients by year were 31.3% in 2017, 19.5% in 2018, 12.7% in 2019. Analysis of the correlation matrix identified indicators that have a statistically significant relationship: total mortality in working age and the ratio of planned capacity to actual capacity of outpatient departments of medical organizations in municipalities ($r = 0.68$, $p < 0.001$), implementation of the annual plan for preventive examinations of minors in medical organizations and the availability of doctors in municipalities ($r = 0.56$, $p < 0.001$), mortality of the working-age population and the share of fines collected by the self-government organization, the Federal Compulsory Compulsory Medical Insurance Fund, based on the activities of the Ministry of Economic Commission and the EGMC for AMS ($r = 0.43$, $p < 0.001$).

According to the order of the President of the Russian Federation dated February 26, 2019 No. Pr-294, the executive authorities of the constituent entities of the Russian Federation were instructed to ensure the transfer of children's clinics to a new model by 2021. The main requirement for medical organizations implementing the new model is the fulfillment of the criteria recommended by the Ministry of Health of the Russian Federation.

Based on the above, as part of the research work in 2022, the emphasis was placed on children clinics participating in the creation of the new model.

CHAPTER 5. ANALYSIS OF THE WORK OF MEDICAL ORGANIZATIONS INTRODUCING A NEW MODEL OF PROVIDING PRIMARY HEALTH CARE TO THE CHILDREN POPULATION

5.1. Monitoring the implementation of activities within the framework of the introduction of a new model in medical organizations providing assistance to the child population

Before conducting an audit of all 8 medical organizations providing primary health care to the children's population, the period of inclusion in the implementation of measures to create a new model, the number of structural divisions of participants, the number of improvement projects being implemented in 2021 were analyzed. It was found that in 2021 most often these medical organizations providing primary health care to the child population, implemented projects that were relevant during the period of the spread of the NKVI: to improve the vaccination process (18.3%), diagnostic tests (14.6%), transport work (13.7%), and the work of the registry of a medical organization (12. 7%). Areas such as quality and safety management in a medical organization (6.4%), drug supply (5.5%), supply of a medical organization (2.3%), resource management in a medical organization (0.9%) were chosen much less frequently, and some processes, in principle, are not selected by medical organizations for testing [75]. Perhaps this is due to the higher labor intensity of implementing these processes, significant time and resource costs for their study and development. However, processes such as resource management of medical organizations, quality and safety management of medical activities are fundamental and should be implemented among the first. Since their improvement can bring about systemic changes in the activities of medical organizations.

Quarterly monitoring of the achievement of the first level criteria of the new model showed that the number of intersections of patient flows in the provision of paid medical services and medical care decreased from 2 to 1 intersection; comfortable stay areas for young patients and their parents were organized, corresponding to the «minimum» format, a navigation system was developed and placed to quickly find the right room, the information

system was improved to familiarize themselves with regulatory documents; more than 80% of scheduled patients visit doctors at a set time and more than 87% of patients by appointment; more than 75% of patients make an appointment with a doctor without visiting the registry [75]. In 2021, all children's clinics in the Sverdlovsk region, according to self-audits, met the criteria of the first level of the new model [134]. In addition, it was noted that, according to the reporting forms, the number of employees of medical organizations trained in lean technologies (with the issuance of a standard certificate) in the region is insufficient and amounted to less than 10% of employees in 17.9% of medical organizations.

5.2. Assessing the achievement of the criteria of the new model in medical organizations providing primary health care to the children's population

To achieve the first level of the new model, medical organizations providing primary health care to the child population must achieve the mandatory 7 criteria of the new model. Based on the results of the on-site audit, in 62.5% of the units studied, the achievement of 7 mandatory criteria of the new model was determined.

The number of places for patients in the comfortable waiting area was consistent in all 100% of departments, but the comfortable waiting areas did not meet the «minimum» format.

All medical organizations in Yekaterinburg have developed individual navigation systems, while regional organizations use a single brand book of the Sverdlovsk region, developed in 2017. Searching for the necessary information took no more than 30 seconds in 100% of the assessed units.

The criterion for ensuring outpatient appointments of scheduled patients by doctors strictly on time and by appointment was achieved in 100% of units.

The share of remote appointment booking is provided in the recommended values only in 62.5% of departments; in 1 department it was not possible to evaluate this criterion due to the inability to download data from the MIS. In the Sverdlovsk region, as of 2021, medical organizations worked in three autonomous MIS: regional medical information system (hereinafter – RMIS), regional information and analytical medical system

«PROMED» (hereinafter – PROMED), automated information system «Medical Integrated Registry» (hereinafter – AIS «MIR»). The AIS «MIR» and RMIS did not take into account the entry «Doctor to other specialists», the RMIS did not take into account the entry «Doctor to oneself» as a form of remote recording, which led to unreliability in the calculation of the indicator in the AIS «MIR» and RMIS, the calculation showed consistently low values that do not reach the planned values.

The information system in medical organizations corresponded to the values of the criteria of the new model in 75% of departments. The main reasons for not achieving the indicator values were related to the insufficient accessibility of elements of the information system for patients.

According to the criteria of the second and third levels of the new model for 2021, there were no developed and approved checklists for assessment. The sequence of patient actions in the flow of medical care in all departments corresponded to the target value. The organization of employee workplaces according to the 5C system complied with only 62.5% of the assessed divisions, of which in 50% of divisions only the 3C system was implemented and the development of workplace standards was required, in 37.5% of divisions this criterion was not achieved. As part of the work to assess this criterion, on the basis of best practices, an office standard and a pediatrician workplace standard for children's clinics were formed and worked out on the basis of the office of the State Budgetary Institution of Healthcare of the Children's Hospital of Pervouralsk.

The process of supplying medicines, medical devices and other materials and their consumption in medical organizations was carried out according to the «just in time» principle in 50% of departments; there were no standards for organizing this process. The current activities of the medical organization corresponded to the standardized work of improved processes in 87.5% of departments, the activities were carried out within the framework of the developed process standards when implementing improvement projects, there was a list of developed standards. Annual review of standards was carried out in only 37.5% of departments.

The number and amount of fines/deductions/withdrawals collected by IMOs was assessed in only one medical organization, according to the data provided. In other

medical organizations, this criterion was not assessed due to the lack of information from medical organizations. Based on the TFCMI data, an additional assessment was carried out of the share of fines/deductions/withdrawals for AMS collected by health insurance providers, TFCMI based on the results of the IEC, EGMC from the actual implementation of the compulsory health insurance program for AMS, the amount of financing in the context of these medical organizations [75].

The criteria «Time to add value when a doctor sees patients» and «Equalization of workload between employees during work in the same work area» were not assessed as part of this audit.

The audit noted the high level of involvement and presence of personal improvement projects among managers and their deputies in all medical organizations providing assistance to the children's population. The system for submitting and implementing proposals for improvement is organized in only one medical organization. The production load of equipment is calculated in 25% of departments of medical organizations.

Visual process management was organized at the State Autonomous Institution SO «Children's Hospital No. 15», this base and best practice were used in developing proposals for a methodology for assessing this criterion in 2023.

During the audit process, the best unit was selected, implementing a project aimed at increasing the efficiency of preventive medical examinations of minors, in order to achieve the criterion of the new model «The number of intersections of flows during medical examinations, preventive medical examinations with other flows of patients in the clinic» [144].

Thus, the following criteria of the new model have been identified as the easiest to achieve (achieved in 100% of departments): «The number of intersections of flows during medical examination... in the clinic», «The number of intersections of patient flows when providing paid medical services...», «The number of places in the zone (zones) of comfortable waiting for patients», «Organization of a navigation system in a medical organization», «Providing outpatient appointments for scheduled patients...», «Involvement of managers... in the implementation of lean technologies» (Figure 10).

The most criteria for achievement: «Visual process management» (12.5% of divisions), «Production load of equipment» (25% of divisions), «Revision of standards for improved processes» (37.5% of divisions), «Medicine supply process ... by «just in time» principle (50% of departments) [165].

Based on the results of the audits, a list of processes requiring improvement was compiled. The areas requiring the development of standards and implementation algorithms have been identified. The highest results in achieving the criteria of the new model were noted in the State Autonomous Institution of Public Institution «Children's City Hospital No. 15» (14 criteria out of 17 evaluated), State Budgetary Institution of Institution of Public Health Institution «Children's City Clinical Hospital of Pervouralsk» (12 criteria out of 19 evaluated), State Institution of Public Health Institution «Children's City Clinical Hospital» No. 11» (10 criteria out of 17 evaluated), GAUZ SO «Children's City Clinic No. 13» (10 criteria out of 17 evaluated) [75].

During the audit, recommendations were made to improve the achievement of the criteria of the new model. It is necessary to work on achieving the most complex criteria of the second and third levels: for organizing employees' workplaces according to the 5C system (standards have been developed in only two medical organizations), for introducing a drug supply system (there are no uniform approaches, algorithms, standards), and a system of standards for the activities of a medical organization , systems for submitting and implementing proposals for improvement, systems for visual process management, calculating the production load of equipment.

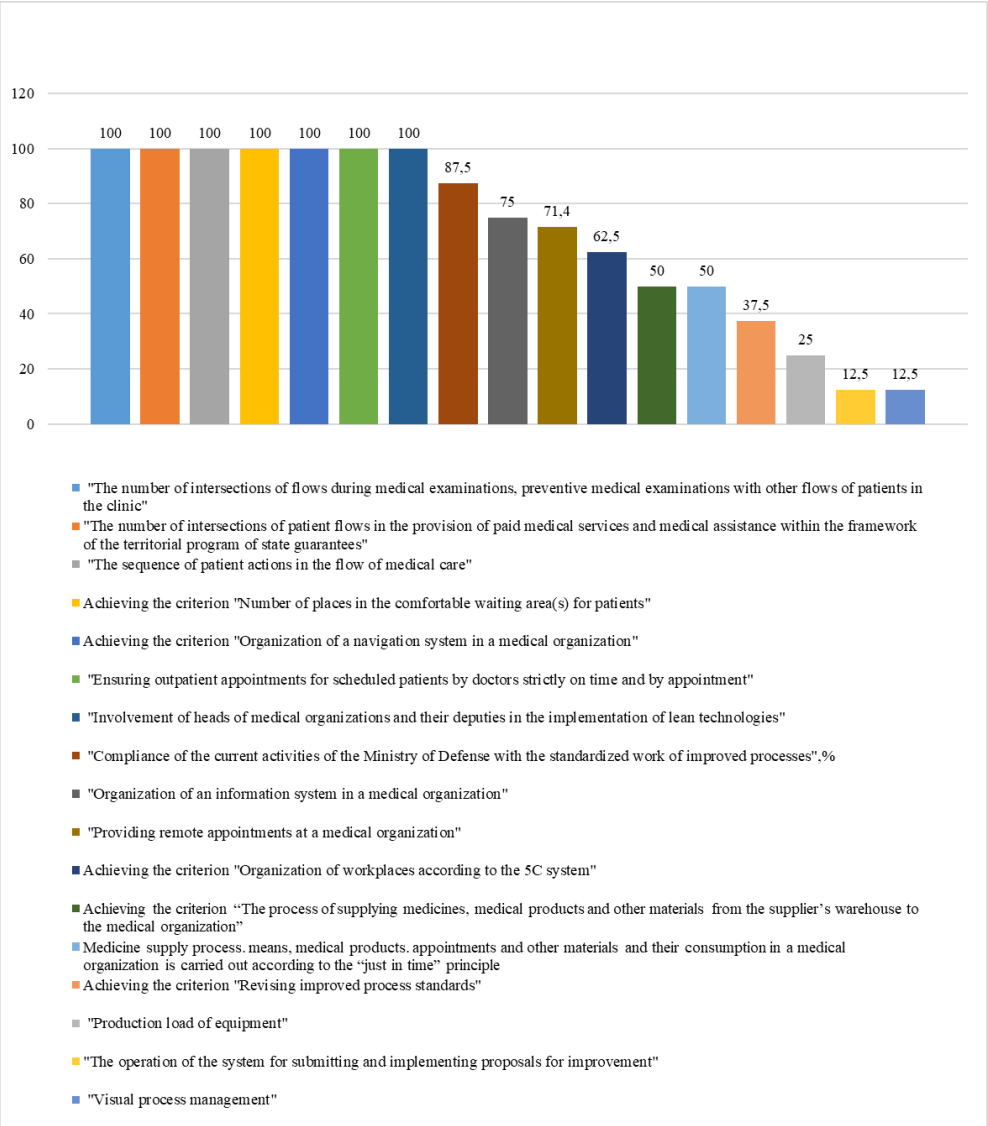


Figure 10 – Achievement of the criteria of a new model of a medical organization providing primary health care to the child population, based on data from in-person audits, % of units

Based on the experience of introducing the criteria of the new model in medical organizations providing primary health care to the children, together with the Federal State Budgetary Educational Institution of Higher Professional Education of the USMU of the Ministry of Health of Russia, methodological approaches to assessing two criteria of the new model have been developed.

The creation of a new model is a set of measures aimed at increasing the level of satisfaction with the level of medical care provided [78, 79]. Therefore, in addition to the

audit of medical organizations providing primary health care to children, it was necessary to additionally evaluate other performance indicators of these medical organizations, characterizing the effectiveness of the activities carried out in achieving the criteria of the new model.

5.3. Assessment of the final rating of medical organizations implementing a new model of providing primary health care to the children's population, according to key performance indicators

Based on the analysis of performance indicators, the final ratings of medical organizations providing primary health care to the children's population were calculated for 2021 for 11 selected indicators.

The results of the ranking of medical organizations according to the final rating of medical organizations providing primary health care to the children's population, according to the main performance indicators in ascending order from those occupying higher to lower positions, are presented in Table 28. At the end of 2021, the best rating had: MO* No. 2, MO * No. 3, MO* No. 1.

In all 8 medical organizations providing assistance to the child population, there is a high, more than 70%, involvement of the medical organization’s personnel as part of the implementation of the new model. The level of satisfaction with the attitude of the attending pediatrician and satisfaction with the result of visiting a local pediatrician in all medical organizations is more than 70%. The level of satisfaction with the length of wait to see a pediatrician is below 70% in three medical organizations.

The indicator «the share of records made without visiting the registry did not reach the recommended values in medical organizations in Yekaterinburg working in the AIS «MIR» due to incorrect uploading of information taking into account all methods of recording patients. The largest number of citizens' appeals to the Ministry of Health of the Sverdlovsk Region (primary health care topics) per 1000 attached population was registered in municipalities* No. 5, 8.

Table 28 – Final rating of medical organizations providing primary health care to children, according to key performance indicators in 2021

Index	MO* No. 1	MO* No. 2	MO* No. 3	MO* No. 4	MO* No. 5	MO* No. 6	MO* No. 7	MO* No. 8
1	2	3	4	5	6	7	8	9
Number of visits per person per year, units	13.8	17.2	15.4	13.2	5.8	11.3	10.5	12.4
Rank	3	1	2	4	8	6	7	5
Medical examination coverage of children staying in inpatient institutions, orphans and children in difficult life situations, %	106.6	118.8	106.4	112.7	96.3	120.4	102.4	101.5
Rank	4	2	5	3	8	1	6	7
Medical examination coverage of orphans and children left without parental care, including those adopted, taken under guardianship (trusteeship), in a foster or foster family, %	100.8	107.4	106.0	108.5	92.4	94.1	97.3	100.2
Rank	4	2	3	1	8	7	6	5
Coverage of preventive examinations of minor children, %	86.0	101.4	92.7	92.2	84.1	87.2	83.3	82.9
Rank	5	1	2	3	6	4	7	8
Level of involvement of medical organization personnel, %	76.4	83.1	76.6	82	81.9	79.2	76.2	94
Rank	7	2	6	3	4	5	8	1
Level of satisfaction with the length of wait to see a pediatrician, %	93.5	96.1	97	75.4	65	76.1	68.6	32.9
Rank	3	2	1	5	7	4	6	8
Level of satisfaction with the attitude of the attending pediatrician, %	98.1	96	99	85.8	90.2	86.2	87.9	87.7
Rank	2	3	1	8	4	7	5	6
Level of satisfaction with the result of visiting a local pediatrician, %	97.9	96.9	99.1	86.1	85.6	83.5	86.4	79.2

Table 28 continued

1	2	3	4	5	6	7	8	9
Rank	2	3	1	5	6	7	4	8
Number of citizens' appeals to the Ministry of Health of the Sverdlovsk Region (primary health care topics) per 1000 attached population	0.43	1.22	1.01	1.23	1.64	0.68	0.71	1.60
Rank	1	5	4	6	8	2	3	7
Share of fines/deductions/withdrawals for AMS, collected by the self-service organization, the Federal Compulsory Medical Insurance Fund based on the results of the IEC, EGMC from the actual implementation of the Compulsory Medical Insurance TP for AMS, %	0.08	0.19	0.08	0.02	0.05	0.09	0.02	0.08
Rank	5	8	6	1	3	7	2	4
Share of entries made without visiting registries, %	55.8	73.37	71.31	21	8.2	23.1	29.6	14.8
Rank	3	1	2	6	8	5	4	7
Sum of ranks	40	29	32	48	70	50	57	70
Total rank	3	1	2	4	8	5	6	7

MO - medical organization*

Thus, when calculating the rating of medical organizations providing primary health care to the children's population, performance indicators were selected that characterize both the volume of medical services provided and preventive work, the availability of appointments, the results of MEC, EQMC from the actual implementation of TP compulsory medical insurance for AMS satisfaction of parents of small children patients with the quality and availability of medical care and the involvement of medical personnel as part of the implementation of the new model. It was noted that the highest ratings were determined in regional medical organizations that provide assistance only to

the child population; in medical organizations in Yekaterinburg, the ratings for these indicators were lower. This may be due, first of all, to a smaller number of attached children, unreliable uploading of information about recording methods from different MIS. In turn, according to the results of an audit to achieve the criteria of the new model, better results were noted in medical organizations in Yekaterinburg (achievement of some criteria of the second and third levels) [75].

Chapter Summary

According to a self-audit of medical organizations to achieve the criteria of the new model, all 100% of medical organizations providing primary health care to the children's population have achieved 7 criteria of the new model, mandatory for children's clinics. Based on the results of the on-site audit, only 62.5% of the units studied determined the achievement of these criteria. Better results were noted in medical organizations in Yekaterinburg. Among the criteria of the second and third levels, the lowest percentage of achievements was established in relation to criteria related to visual process management (12.5% of units), calculation of the production load of equipment (25% of units), revision of standards for improved processes (37.5% of units), the process of supplying medicines and their consumption (50% of units). High ratings for performance indicators were determined in regional medical organizations; in medical organizations in Yekaterinburg, the ratings for these indicators were lower.

Assessing patient satisfaction with the result of visiting a doctor is a necessary indicator for assessing the activities of medical organizations providing primary health care.

Obtaining feedback from both patients and employees of medical organizations is an integral part of evaluating ongoing activities to improve the provision of primary health care, as part of the implementation of the new model. Therefore, it was important to analyze data from various sources on patient satisfaction and evaluate ongoing activities at the regional level.

CHAPTER 6. COMPREHENSIVE ASSESSMENT OF POPULATION SATISFACTION WITH MEDICAL CARE

Currently, a large number of methods for assessing patient satisfaction in medical organizations are used in global and domestic practice.

As part of this work, in accordance with the approved research protocol, patients' opinions about the healthcare system were studied as part of the implementation of the federal pilot project «Lean Clinic» and measures to introduce a new model.

Dissatisfaction with the quality and availability of medical care becomes the main reason for patients' appeals to higher organizations, which are registered and reviewed by the SOG in strict accordance with federal legislation. For this purpose, a unified federal information POS with citizens has been created and is functioning on the basis of the Unified Portal of State and Municipal Services (hereinafter referred to as EPGU). Messages and questions received through the PIC are not subject to the federal law regulating the work with citizens' appeals, which makes it possible to significantly de-bureaucratize and speed up the process of their consideration, and is an additional tool for assessing patient satisfaction.

6.1. Analysis of population satisfaction with medical care as part of the implementation of a new model of primary health care

At the start of the Lean Clinic pilot project in 2016, the indicator overall patient satisfaction in 2 clinics was 48.6% and 78%, respectively. In 2017, the average rate of patient satisfaction with the quality and accessibility of primary health care was assessed in 15 medical organizations and amounted to 57.5% at the beginning of the year, and by the end of the year – 69.7%.

From 2018 to 2022 in medical organizations of the Sverdlovsk region implementing the new model, the level of patient satisfaction with the waiting time for an appointment with a doctor increased – from 61.1% to 77.3%, the attitude of attending

physicians – from 70.4% to 89.4%, the result of the visit local doctor – from 75.7% to 87.0% (Table 29).

Table 29 - Dynamics of patient satisfaction indicators in medical organizations for 2018-2022, %

Patient Satisfaction Rates	2018	2019	2020	2021	2022
Number of patients interviewed, people.	n/a	32662	47672	60514	69423
Level of satisfaction with the waiting time for an appointment at the local doctor's office (correspondence between the actual appointment time and the appointment time), %	61.1	71.5*	75.5	75.1***	77.3
Level of satisfaction with the attitude of the local doctor during the appointment, %	70.4	84.5*	85.9**	87.7***	89.4
Level of satisfaction with the result of visiting a local doctor in general, %	75.7	81.6*	83.9**	85.3***	87
Level of satisfaction of insured persons during medical examination, %	50.9	62.9*	58.4**	53.6***	54.4

** when comparing the indicators of 2019 and 2020. differences are statistically significant (p ≤0.05)*

*** when comparing the figures for 2020 and 2021. differences are statistically significant (p ≤0.05)*

**** when comparing indicators for 2021 and 2022. differences are statistically significant (p ≤0.05)*

These changes are related to the introduction of lean technologies, the implementation of projects to improve processes in medical organizations, the improvement of organizational technologies for building outpatient care, and the carrying out of routine and major repairs of clinics. Between 2018 and 2019 there was an increase in patient satisfaction when undergoing medical examination from 50.9% to 62.9%. In the subsequent period, a decrease in this indicator to 54.4% was observed, due to restrictive measures and a decrease in the availability of preventive measures for the population due to the spread of NKVI [162].

Thus, according to surveys conducted by the IMOs, from 2019 to 2022 in medical organizations implementing the new model, patient satisfaction with the length of wait for an appointment increased ($p < 0.001$), the attitude of attending physicians at the appointment ($p < 0.001$), and the result of visiting a local doctor ($p < 0.001$). The indicator of patient satisfaction with the result of medical examination did not reach the planned values of 70%; since 2018, a decrease in this indicator has been noted ($p < 0.001$), which requires improving the organization of this area of work [162].

From 2023, these surveys conducted by the IMOs within the framework of the new model were canceled due to the introduction in 2022 of assessing public opinion on population satisfaction.

6.2. Assessment of public opinion on population satisfaction with medical care

According to the results of an assessment of public opinion on the satisfaction of the population in the Sverdlovsk region, conducted by the IMOs for the period from August 2022 to January 2023, among 3666 respondents, 46.3% of respondents primarily receive medical care in state medical organizations, 41 only in state ones, 2% of respondents, mainly in private – 9% of respondents, only in private – 3.5% of respondents.

In 67.6% of cases, respondents agreed that it was possible to make an appointment with a doctor at a time convenient for them. When analyzing population satisfaction data, 34.6% of respondents were dissatisfied with the length of the wait for a doctor's appointment, 32.8% of respondents with the length of the wait for medical services, 26.8% of respondents with the level of availability of medical care, 21.6% of respondents with overall medical care. assistance, 18.4% of respondents – the conditions of stay in a medical organization, 13.6% of respondents – the doctor's explanation of the reasons for prescribing treatment, 11.5% of respondents – the attitude of the employees of the medical organization.

These reasons for the dissatisfaction of the population may be associated with the problems of lack of necessary specialists and research in medical organizations, organizing appointments with specialists, irrational distribution of functions between medical and non-medical personnel, lack of training of specialists of medical organizations on issues of ethics and deontology, insufficient time at the appointment for communication with the patient, with the problems of insufficient material and technical equipment of medical organizations. These reasons require organizational and financial decisions at the regional level.

Women have a higher rate of satisfaction with medical care than men: 34.6% versus 30.5%, respectively. In the city, the population's satisfaction with medical care is higher than that of the population living in rural areas: 32.9% versus 31.7%, respectively. In the context of urban districts, the population's satisfaction rate is highest in the Mining and Zavodsky administrative district – 56.9%, the lowest indicators among the population are in the Western and Northern administrative districts: 18.9% and 19.5%, respectively. The highest rate of satisfaction with medical care was noted in the age group from 25 to 34 years (38.5%), in the age group from 55 to 64 years (25.9%) – the lowest rate (Table 30) [162].

The satisfaction rate was higher among patients who receive care only in private medical organizations (62.5%) and mainly in private ones (56.8%). Lower satisfaction rates were noted in patients who would receive care only in government (36.7%) and predominantly in government (21.1%) medical organizations.

Ten questions of the questionnaire, directly or indirectly aimed at determining respondents' satisfaction with certain aspects of medical care, provided for responses in points from 1 to 6. The highest average scores (from 4.26 to 5.05) in most groups were obtained from answers to questions about satisfaction with the attitude of health workers and the doctor's explanations, and the lowest ratings relate to questions regarding the convenience of making an appointment with a doctor and the waiting time for medical services («from the moment the need arises» and «in line in front of the office»).

Table 30 – Indicator «Evaluation of public opinion on population satisfaction with medical care, percentage» depending on the age, gender, place of residence and urban district of respondents (abs., %) [162]

Analyzed group	Quantity respondents, people	Index
All respondents	3666	32.76
Floor:		
1. Men	1632	30.45
2. Women	2034	34.61
Place residence:		
1. City	3102	32.95
2. Village	564	31.74
Administrative district:		
1. Ekaterinburg	1141	33.22
2. South district	829	36.19
3. Mining district	401	56.86
4. Northern district	559	19.5
5. Western district	281	18.86
6. Eastern district	440	29.32
Age		
1. 18-24 years old	306	33.33
2. 25-34 years	654	38.53
3. 35-44 years	744	32.26
4. 45-54	625	34.08
5. 55-64	581	25.99
6. 65 years or more	756	32.14

Based on the mathematical analysis of the statistical significance of the differences between the studied groups in the context of individual issues, the following features can be noted (Table 31).

Statistically significant differences in the answers of men and women were determined on the questions «satisfaction with the waiting time to see a specialist» ($p < 0.05$), «satisfaction with the attitude of medical workers towards you» ($p < 0.001$), «satisfaction with the doctor's explanation of treatment and prescription of diagnostic procedures ($p < 0.01$). The average scores for most questions were slightly higher for women. There were no statistically significant differences in mean scores between men

and women on the question of overall satisfaction with medical care ($p > 0.05$). There were no statistically significant differences between the studied groups of urban and rural residents in terms of individual questions ($p > 0.05$). The satisfaction of urban residents turned out to be higher than that of the rural population, which may be due to lower availability of medical care and staff shortage of doctors in rural areas, which is confirmed by studies of other authors [162].

As for the analysis of the average scores in six different age groups, the highest scores for all questions were given by respondents in the «25-34 years» age group, and the lowest – in the «55-64 years» group. This may be due to the fact that with age, the population more often turns to medical organizations. The level of differences between these age groups regarding satisfaction with medical care turned out to be statistically significant ($p < 0.01$).

When analyzing groups of respondents from different administrative districts of the region, it was determined that the highest average scores (from 4.58 to 5.05 depending on the question) were obtained in the group of the Mining District, and the lowest - in the groups of the Northern (3.68 – 4.34) and Western (3.64 – 4.36) districts. Statistically significant differences were revealed between the districts on all issues studied (Kruskal-Wallis test, $p < 0.05$), and pairwise comparison found that the Mining District has statistically significant differences with all districts ($p < 0.001$). In assessing the overall satisfaction of the population, Figure 11 shows the Kruskal-Wallis test and a range diagram by administrative district. It should be noted that the average age of the group of respondents from the Mining District was the highest among the groups of all 5 districts – 51.45 years [162].

Table 31 – Average scores in the answers of respondents of various population groups to questions involving a 6-point rating scale

Analyzed group	Average age	6. How much do you agree with the statement that now you can make an appointment with a doctor at a time convenient for you?	7. How satisfied are you with the length of time you wait for medical services from the moment you need medical care until you receive it?	8. How satisfied are you with the length of the wait immediately in front of the office?	9. How comfortable was your stay in medical organizations?	10. How satisfied are you with the attitude of the medical staff toward you?	11. Are you satisfied with the doctor's explanations?	12. How did the result of your contact with a medical organization meet your expectations?	14. Would you advise your loved ones, friends or relatives to seek medical care from your medical organization?	15. Rate how satisfied you are with the MP overall?	16. Rate how satisfied you are with the availability of MP in your region?
All respondents	47.52	3.96	3.97	3.93	4.30	4.51	4.48	4.27	4.12	4.16	4.03
Men	45.19	3.97	3.97	3.88	4.26	4.46	4.42	4.23	4.08	4.12	4.01
Women	49.39	3.95	3.97	3.97	4.33	4.56	4.53	4.30	4.15	4.20	4.05
City	47.74	3.97	3.98	3.93	4.30	4.53	4.49	4.28	4.13	4.18	4.05
Village	46.28	3.89	3.92	3.93	4.28	4.44	4.39	4.18	4.07	4.11	3.93
Ekaterinburg	46.26	3.95	3.91	3.94	4.31	4.49	4.46	4.25	4.16	4.18	4.02
Southern District	47.43	4.00	4.05	3.82	4.25	4.45	4.46	4.25	4.05	4.16	4.02
Gornozavodskaya	51.45	4.49	4.50	4.55	4.82	5.05	5.02	4.82	4.68	4.68	4.58
Northern District	46.29	3.69	3.68	3.74	4.14	4.34	4.34	4.06	3.93	3.94	3.78
Western district	47.02	3.64	3.81	3.69	4.10	4.36	4.26	4.08	3.91	3.96	3.83
Eastern District	49.19	4.00	3.99	3.98	4.23	4.51	4.40	4.23	4.01	4.08	4.04
Up to 24 years old	21.16	4.07	4.05	3.96	4.40	4.43	4.42	4.23	4.13	4.18	4.02
25-34 years	30.38	4.08	4.08	4.04	4.45	4.66	4.59	4.40	4.24	4.28	4.11
35-44	39.49	3.94	3.97	3.90	4.24	4.50	4.50	4.29	4.11	4.17	4.04
45-54	49.28	4.00	4.01	3.99	4.28	4.49	4.48	4.27	4.13	4.18	4.04
55-64	59.68	3.82	3.80	3.74	4.18	4.40	4.32	4.13	3.96	4.02	3.93
65 years or more	70.11	3.91	3.96	3.97	4.29	4.55	4.51	4.25	4.11	4.16	4.04

Depend.: Vopros-15	Multiple Comparisons z' values; Vopros-15 (okr_ekb_rab) Independent (grouping) variable: Okrug Kruskal-Wallis test: H (5) =142,4295 p =0,000					
	В R:1748,8	Г R:2312,9	З R:1602,2	С R:1600,1	Ю R:1834,8	Екб R:1844,0
В		7,75159	1,821830	2,21401	1,382376	1,609779
Г	7,751586		8,667221	10,33384	7,457611	7,662462
З	1,821830	8,66722		0,02706	3,196615	3,445485
С	2,214008	10,33384	0,027059		4,068056	4,482885
Ю	1,382376	7,45761	3,196615	4,06806		0,192820
Екб	1,609779	7,66246	3,445485	4,48288	0,192820	

Depend.: Vopros-15	Multiple Comparisons p values (2-tailed); Vopros-15 (okr_ekb_rab) Independent (grouping) variable: Okrug Kruskal-Wallis test: H (5) =142,4295 p =0,000					
	В R:1748,8	Г R:2312,9	З R:1602,2	С R:1600,1	Ю R:1834,8	Екб R:1844,0
В		0,00	1,000000	0,402424	1,000000	1,000000
Г	0,000000		0,000000	0,000000	0,000000	0,000000
З	1,000000	0,00		1,000000	0,020858	0,008551
С	0,402424	0,00	1,000000		0,000711	0,000110
Ю	1,000000	0,00	0,020858	0,000711		1,000000
Екб	1,000000	0,00	0,008551	0,000110	1,000000	

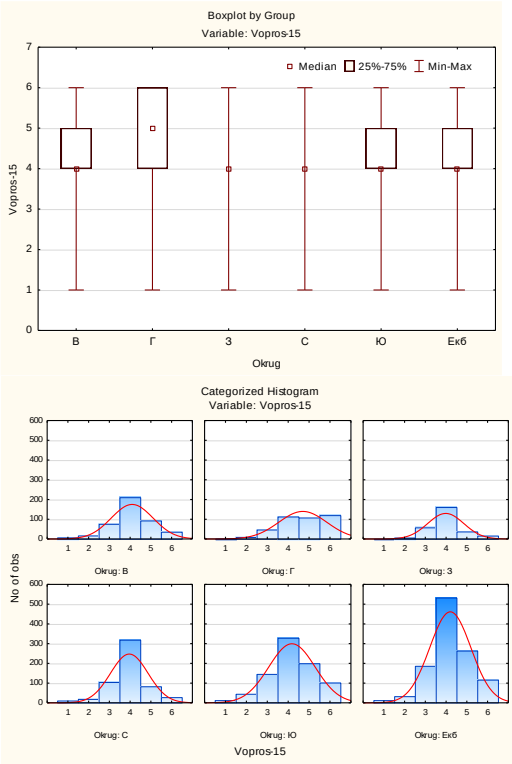


Figure 11 – Results of comparison of population satisfaction with medical care (in general) in the context of administrative districts of the Sverdlovsk region using the Kruskal-Wallis test and quartile analysis

Respondents were asked questions about their opinion about the greatest problem in the process of receiving medical care in a medical organization and in the region of their residence. Thus, 23.3% of respondents considered the greatest problem in a medical organization to be a shortage of doctors and specialists, 13.3% of respondents considered a long wait for an appointment, 7.1% considered a long wait time for an appointment at the office, 3.6% of respondents considered insufficient equipment medical equipment, 3.41% of respondents – insufficient time for an appointment, examination by a specialist, 2.4% of respondents – inaccessibility of modern research, 2.1% of respondents – long waiting time in front of the doctor's office, etc. 12.2% of respondents had no difficulties and problems, 20.1% had no answer or had difficulty answering.

In the process of receiving medical care in the region as a whole, 19.4% of respondents noted a shortage of doctors, 13.2% of respondents indicated insufficient medical equipment, 12.5% noted a long wait for medical care, etc.

The comprehensive assessment carried out made it possible to identify the main factors determining the level of satisfaction of the population in the Sverdlovsk region. For a more detailed study of the population's satisfaction on issues of accessibility and quality of medical care, additional analysis of the population's appeals through other feedback channels is required: appeals to the Ministry of Health of the Sverdlovsk Region, to the IMOs, to the SOG, to the PIC, etc. [162].

6.3. Analysis of citizens' requests regarding the provision of primary health care, sent through various feedback channels

One of the most important indicators for assessing the work of medical organizations is the analysis of requests and complaints to higher organizations that control their activities.

It has been established that the period from 2017 to 2021 there is a trend of an increase in the number of requests to the Ministry of Health of the Sverdlovsk region regarding the provision of primary health care by 164%, on issues of issuing a certificate of incapacity for work by 413% (in 2021 it is associated with the spread of the NKVI and remote registration of sick leave, although until 2019 there was a trend of decreasing requests for this topic), the number of complaints in 2020 regarding making an appointment with a doctor decreased by 32% due to the cancellation of scheduled visits. But in 2021, the number of requests on the topic of making an appointment with a doctor increased by 106.4% compared to 2020 and still ranks second after questions of assistance in organizing treatment (Table 32).

Table 32 – Information on citizens' appeals to the Ministry of Health of the Sverdlovsk Region (topic: primary health care)

Encoding	Subject of the appeal	2017	2018	2019	2020	2021
		Qty	Qty	Qty	Qty	Qty
1.1.	Providing medical care in first aid stations, emergency departments	176	268	219	171	249
1.2.	Clinical examination	22	39	26	14	42
1.3.	Making an appointment with a doctor	488	583	342	330	681
1.4.	Referral for medical and social examination (hereinafter referred to as MSE)	109	139	140	213	248
1.5.	Registration of a certificate of incapacity for work	51	55	46	262	318
1.6.	Prescribing analgesic therapy to cancer patients	5	1	4	9	3
1.7.	Waiting times for medical care	108	164	126	298	252
1.8.	Help in organizing treatment	936	1564	2597	3897	4779
1.9.	Medical assistance for disabled people	16	20	35	15	39
1.10.	Preferential dentures	57	54	8	5	26
1.11.	Medical assistance to refugees and labor migrants	1	3	0	-	0
1.12.	Medical information systems.	-	-	-	-	2
1.13.	Providing medical care in a clinic.	-	-	-	-	74
1.14.	Emergency	-	-	-	-	eleven
	Total	1969	2890	3543	5214	6713

Results of the analysis of citizens' appeals to the health insurance service regarding the provision of primary health care for 2019-2021 show a decrease in the number of requests to the IMOs in connection with restrictive measures to disseminate the NKVI. In 2019, in first place were requests related to the provision of medical care (29.4%), in second place – with the provision of insurance policies (20.7%), in third – with the organization of the work of a medical organization (19.5%). In 2021, a change was recorded in the number and structure of requests to the IMOs, in first place are requests related to the provision of medical care (86.1%), in second place - with the collection of funds under the compulsory medical insurance program (8.2%), in third - with the work of a medical organization (3.2%) [145].

For a comprehensive assessment of population satisfaction, citizens' appeals forwarded to medical organizations for a response from the Ministry of Health of the Sverdlovsk Region were additionally analyzed from SOG for 2023.

Based on the analysis of information from the SOG for 2023, an analysis of 4917 responses from medical organizations to citizens’ requests was carried out. In total, requests were received on 46 topics, of which requests on 10 topics amounted to more than 85.3%. Figure 12 shows the indicators for the «top 10» topics. In 2023 the largest number of copies of responses from medical organizations were received on the topic «Providing medical care in a clinic» (35.1% of responses), in second place were requests on the topic «Making an appointment with a doctor» (14.4% of responses).

The bulk of requests in 2023 were requests for primary health care issues, including questions about making an appointment with a doctor and referrals to medical examination. In total, these requests amounted to 54.9% of all; compared to 2022, the share of requests regarding the provision of public services in the field of healthcare - making an appointment with a doctor and referrals to medical examination - has increased. Since 2023, the provision of these services is carried out only in electronic form; many requests are related to the operation of electronic services on which these services «work».

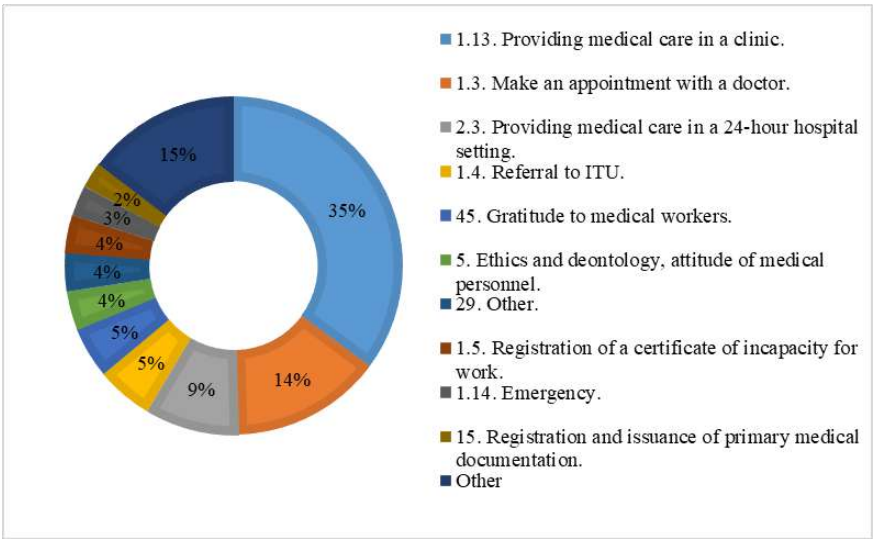


Figure 12 – Thematic structure of requests forwarded to medical organizations from the SOG in 2023, absolute, %

The share of appeals on issues of ethics and deontology, issuing a certificate of incapacity for work, etc. has decreased. Thus, the largest number of appeals from citizens were related to the provision of medical care in the clinic and making an appointment with a doctor, which is associated with organizational issues of providing primary health care and the transition of medical organizations region to a unified state information system in the field of healthcare of the Sverdlovsk region (hereinafter referred to as the Unified State Health Information System SO).

According to the results of the analysis, in 2023, the PIC received 26,361 messages from citizens; compared to 2022, a decrease in the number of messages was noted by 1.3 times, and from 2021 – 6 times (in 2022 – 33,046, in 2021 – 162294), which is associated with a reduction in the number of messages on the treatment and prevention of NKVI.

The results of the analysis showed that in 2022, the largest number of messages were received on the PIC by category: «Appeal on the problem of vaccination or treatment for Coronavirus» – 28,993 messages (96.0% of the number received), «Medicine» – 950 messages (3. 2% depending on the number of applicants).

In 2021, there is an increase in the share of messages on the PIC in the subcategory «QR code and certificate of a recovered person» – from 10,684 (6.6%) in 2021 to 16,417

(54.4%) in 2022; decrease in the share of messages in the subcategories: «Enrolling in the waiting list» from (90298) 55.6% in 2021 to 2,669 (8.8%) in 2022; «QR code and vaccination certificate» from 35628 (22.0%) in 2021 to (5232) 17.3% in 2022; «Vaccination registration» from 22,725 (14.0%) in 2021 to 587 (1.9%) in 2022.

In 2023, an analysis of messages by category showed that the main share of messages (95%) was made up of two categories - «Electronic appointment with a doctor» and «Medicine» (subcategory «Electronic medical documents»). Detailed indicators by category: «Electronic appointment with a doctor» – 15680 (59.5% of the total number of messages), «Medicine» – 9353 (35.4%), «Appeal regarding vaccination or treatment for Coronavirus» – 1072 (4.1%), «Appeals regarding the problem of preferential drug provision» – 139 (0.5%), «Other» – 102 (0.4%), «Telephone appeals on health issues» – 14 (0.05%), «College, technical school» – 1 (0.01%).

Additionally, an analysis was carried out of the reasons for requests from citizens received at the PIC in the category «Medicine» of the subcategory «Make an appointment with a doctor» in the period from 01/01/2023 to 01/12/2023. Data on the number of messages and reasons for requests are shown in Table 33.

Table 33 – Reasons for citizens' requests received on the Feedback Platform for the «Medicine» category, subcategory «Make an appointment» (from 01/01/2023 to 01/12/2023)

Electronic appointment with a doctor (categories)	Electronic appointment (subcategories)	Number of messages, units	% distribution by subcategories	% distribution by category
1	2	3	4	5
Incorrect information about my doctor's appointment	I received a notice of no-show, although I visited the doctor by appointment on the State Services portal	18	0.1	0.7
	There is an appointment with a doctor in my personal account, although I did not make an appointment	24	0.2	
	Other	65	0.4	

Table 33 continued

1	2	3	4	5
Problems with visiting a doctor by making an appointment	Medical organization does not accept registration made on the State Services portal	222	1.4	3.5
	Other	332	2.1	
Problems selecting a region when recording	Other	554	3.5	7.3
	It gives an error that the appointment service is not available	589	3.8	
Problems selecting a time slot for recording	The doctor’s schedule at the clinic does not correspond to the schedule on the State Services portal	42	0.3	14.6
	Small number of time slots or inconvenient reception times	73	0.5	
	Other	350	2.2	
	It gives the error «Recording is not possible»	658	4.2	
	No appointment slots available	1166	7.4	
Problems with attachment to a medical organization	Other	461	2.9	25.6
	I'm attached to this region, but it gives me an error	1140	7.3	
	The medical organization to which I am attached is not displayed	2414	15.4	
Problems with choosing a medical specialist	Fact not specified	1	0.0	48.3
	I have a referral to a doctor, but an appointment is not available	177	1.1	
	Other	678	4.3	
	There is no specific name of the specialist (attending physician) for recording	993	6.3	
	It gives the error «There are no specialists available»	2040	13.0	
	The required doctor's specialties for selection are not displayed	3681	23.5	
Total		15678	100.0	100.0

When analyzing the most common requests from citizens regarding the electronic form for making appointments with a doctor, they were associated with problems of

choosing a specialist (48.3% of requests), with problems of attaching to a medical organization (25.6% of requests), with the choice of a time slot for making an appointment (14.6% of calls), with the choice of region when registering (4.0% of calls), etc.

Based on the analysis of citizens' appeals regarding the provision of primary health care, there is a dynamic increase in the number of appeals regarding the provision of primary health care to the Ministry of Health of the Sverdlovsk Region, including regarding issues of making appointments. Based on the analysis of information from the SOG, the largest number of copies of responses from medical organizations were received on the topic «Providing medical care in the clinic» (35.1% of responses), in second place were requests on the topic «Making an appointment with a doctor» (14.4% answers). Based on the results of the assessment of citizens' appeals to the PIC, the main share was made up of two categories – «Electronic appointment with a doctor» and «Medicine», in which there is a subcategory «Electronic medical documents»). Most often, citizens' requests regarding the electronic form for making an appointment were related to the problems of choosing a specialist, attaching to a medical organization, time slot for making an appointment, region for making an appointment, which is due to the transition of medical organizations to the Uniform State Health Information System. Therefore, issues of making an appointment are a priority reason for patients to contact us through various feedback channels and require improvement measures at the regional level.

6.4. Comprehensive assessment of patient and employee satisfaction with the medical organization of the process of making an appointment with a doctor

As part of the implementation of a federal pilot project to introduce methodological recommendations for organizing an appointment with a doctor, an analysis of the provision of remote appointments with medical organizations was carried out. To evaluate it, the indicator «Proportion of records made without visiting the registry» was

used. The results of the analysis showed that in the period from 2017 to 2023 there is an increase in remote recording of patients from 18% to 81% (Figure 13).

At the beginning of 2022, three medical information systems operated in state medical organizations in the Sverdlovsk region: RMIS, PROMED, AIS «MIR». At the end of 2022, the Sverdlovsk region began a phased connection of all three medical information systems in state medical organizations to the Unified Digital Platform (UDP). Therefore, additional analysis was carried out number of records registered in the Federal Electronic Registry (FER), by record source in the period from 2022 to 2023. Remote recording on FER from the total number of FER records increased from 57% to 72%.

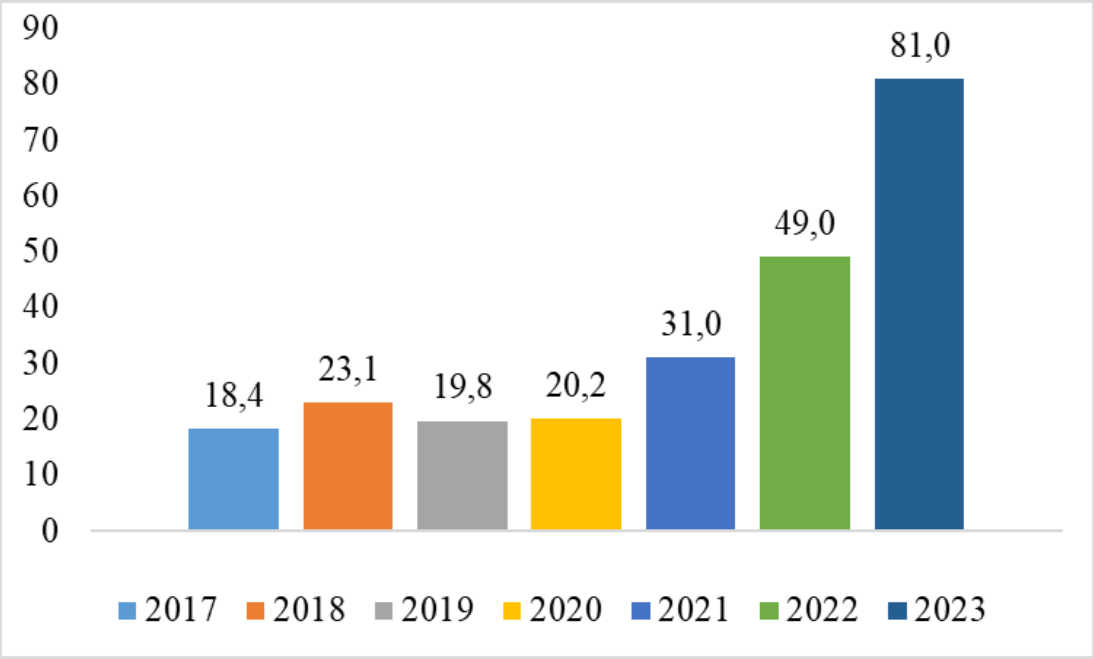


Figure 13 – Dynamics of the indicator «share of records made without visiting the registry» in the period 2017-2023, %

As part of the integration of medical information systems in state medical organizations to the Unified State Health Information System and monitoring the implementation of a pilot project to ensure citizens make appointments, questionnaires were developed for patients, doctors, receptionists, and call center operators to assess satisfaction with the organization of appointments.

Based on the results of a survey of patients, it was found that they most often turn to public medical organizations in case of illness – 41.8%, for regular medical examinations and preventive examinations – 38.4% of patients. When first contacting a medical organization, 83.6% of patients were able to make an appointment with specialists. In addition, the majority of patients (87.6%) expected appointment availability in less than 14 days.

When analyzing the methods of registering patients for appointments, it was found that 31.1% of patients most often register through the regional portal https://rish.registratura96.ru/, when contacting the reception in person – 25.9%, through a single call center of a medical organization – 18.0%, through EPGU – 13.4%. Least likely to make an appointment with the right specialist is through the attending physician - 10.8%; only 0.8% of patients make an appointment through the information desk of a medical organization. The easiest way for patients to make an appointment with a doctor is by telephone (69.45% of patients) and through their attending physician (68.8% of patients). Most often, it was not possible to make an appointment with a doctor via the Internet (8.8% of patients) (Table 34).

Table 34 – Availability of various methods of making an appointment with a doctor for patients (in %)

Criterion	Make an appointment by phone	Registration in person at the registry	Registration via the Internet	Registration through your attending physician
Very easy to sign up	25.8	24.4	26.1	23.9
Easy to sign up	39.4	45.0	37.5	44.9
Difficult to sign up	9.3	7.1	7.7	6.0
's very difficult to sign up	7.1	2.8	3.4	2.8
Failed to register	6.5	6.5	8.8	3.7
Didn't use it	11.9	14.2	16.5	18.8
Total	100	100	100	100

EPGU is used by 54.5% of patients to make an appointment, most often 39.7% of patients make an appointment with a local general practitioner, 19.1% of patients with a local pediatrician, less often they made an appointment with other specialists, and did not make an appointment with a phthisiatrician at all, psychiatrist-narcologist, adolescent psychiatrist (Table 35).

Table 35 – Distribution of appointments with medical specialists through the EPGU (in %)

Doctor's specialty	% distribution
«local therapist»	39.7
«local pediatrician»	19.1
«dentist»	9.5
«surgeon»	7.0
«obstetrician-gynecologist»	6.8
«ophthalmologist»	6.5
«otorhinolaryngologist»	4.5
«pediatric dentist»	3.8
«pediatric surgeon»	1.8
«general practitioner (family doctor)»	1.0
«children's psychiatrist»	0.3
«TB doctor»	0.0
«psychiatrist-narcologist»	0.0
«adolescent psychiatrist»	0.0

When registering through the EPGU, 40.8% of patients were unable to make an appointment with a doctor. When analyzing the reasons why patients were unable to make an appointment, 22.9% of patients noted an inconvenient interface (for example, they first offer to choose a doctor, rather than a convenient date and time of appointment), for 11.5% of patients there was no convenient time to make an appointment with a doctor at the next 2 weeks, no suitable doctor was found for 10.3% of patients. Difficulties with rescheduling/cancelling an appointment, changing a medical organization or doctor were noted by 6.2% of patients. There were no difficulties during recording in 49.1% of patients. If patients have to make an appointment with a doctor through the EPGU again, then 34.2%

will not make an appointment this way and 20.4% of patients found it difficult to answer this question.

When answering questions about a preliminary reminder about an appointment, inclusion in the «Waiting List», 48.5% of patients noted that there was no preliminary reminder about the upcoming appointment with a doctor, 26.2% of patients were called and reminded by phone, 25.3% patients received an SMS notification. In the absence of free time to make an appointment with the required specialist, 23.8% of patients were not offered to be included in the «Waiting List». Of the patients included in the «Waiting List» 68.2% called back later and scheduled an appointment. In 73.6% of patients, the appointment took place at the appointed time or with a slight delay, in 18.8% the appointment was carried out on a first-come, first-served basis and with a delay.

Based on the results of the survey, patients were asked to write wishes to improve the quality of the organization of the recording process; 163 comments were received out of 354 completed questionnaires (46%), of which there were 56 specific suggestions, and the patient could write several options (Table 36). Most of the proposals (33.9%) are related to improving the work of the EPGU, the speed and response of the portal, simplifying the algorithm and sequence of actions when making an appointment, developing visual instructions for patients on making an appointment through the portal, improving the «making an appointment» section of the portal (displaying all specialists, regardless of the vacation period and sick leave, indicating the numbers of the offices where the patient registered, displaying only the clinic to which the patient is assigned, finalizing the correct assignment of the patient to the clinic on the portal). There are problems making an appointment with a doctor for elderly patients who do not have computer skills and cannot use the EPGU to make an appointment, which requires the development of measures to make it easier to make an appointment with a doctor for this category of patients.

Table 36 – Distribution of patient suggestions for improving the organization of appointments with a doctor by category (in absolute numbers, in %)

List of patient suggestions	Number of responses	% distribution
Improve the work of EPGU	19	33.9
Improve the quality of service	6	10.7
Simplify making an appointment with a doctor (call center, reception desk)	6	10.7
Increase availability of appointments to specialists	4	7.1
Increase access to medical care	4	7.1
Reduce waiting time at the doctor's office	3	5.4
Improve the work of call centers	2	3.6
Increase availability of dental appointments	2	3.6
Designate a separate room for patients without coupons	2	3.6
Improve the organization of calling a doctor at home	1	1.8
Improve the registry's performance	1	1.8
Reduce the burden on doctors	1	1.8
Install information machines for issuing coupons	1	1.8
Designate a separate office for writing prescriptions	1	1.8
Train staff in conflict-free communication skills	1	1.8
Implement notification of the fact of patient registration	1	1.8
Separate patient flows	1	1.8
Total	56	100

Based on the results of a survey of doctors (including paramedics performing the function of a medical position), it was found that the majority (87.3%) register patients for follow-up appointments at their MIS. For 78.6% of doctors, appointments usually take place at the appointed time or with a slight delay of up to 15 minutes; for 12.4% of doctors,

appointments are delayed by more than 15 minutes; for 9% of doctors, appointments are carried out on a first-come, first-served basis. Recommended temporary standards for performing work related to an initial diagnostic and treatment visit to a patient, a repeat diagnostic and treatment visit, and a visit for treatment and prophylactic purposes are met by 56.7%, 69.5%, 69.5% of doctors, respectively. Thus, 43.3%, 30.5%, 30.5% of doctors, respectively, believe that they are not sufficient. Thus, the lack of time during an appointment requires an analysis of the rational distribution of the workload between the doctor and nursing staff for the optimal time to see the patient. Also, 84.9% of respondents noted that medical organizations have taken measures to rationally distribute functions between specialists, 37.6% of doctors believe that the workload on them has not decreased, 33.3% of doctors believe that the workload has decreased slightly and 29% of doctors noted a decrease load.

In addition, 68.5% of registrars indicated that medical organizations have an employee (for example, a reception hall administrator) responsible for informing and routing patients and assisting with registration through the information machine. When patients contact the reception desk, 99.5% of registrars are sure to inform patients in what ways they can make an appointment. Most often, the reception desk contains visual information about registration methods for patients (58.6%), and there are information leaflets on registration methods for distribution to patients (36.2%). Only 5.3% of registrars indicated that their medical organization does not have the necessary information on how to make an appointment with a doctor, which requires elaboration of this issue at the level of specific medical organizations.

A large block of questions was devoted to the organization of the «Waiting List» work in medical organizations. If there is no free time to make an appointment, 77% of doctors, 84.3% of registrars, 75.2% of operators necessarily include the patient on the «Waiting List». Also, 87.9% of doctors, 87.1% of registrars, 81.9% of operators note that employees of their medical organization call back patients and offer an appointment time for a patient from the «Waiting List».

Analyzed organizing a reminder of the fact of an appointment for a patient: 39.8% of doctors, 34.5% of registrars, 31.8% of operators note that work on organizing a reminder

of an appointment for patients is not carried out; 30.7% of doctors, 34.5% of registrars, 22.2% of operators - the reminder to the patient about the appointment is confirmed by the reception staff; 17.9% of doctors, 21.5% of receptionists, 31.3% of operators – call center employees confirm the patient's appointment reminder; 9% of doctors, 4.7% of registrars, 10.6% of operators - district nurses confirm the reminder to the patient about the appointment; 2.6% of doctors, 4.9% of registrars, 4.0% of operators - the patient is reminded of the appointment via SMS.

When analyzing a survey of registrars and operators, it was found that the medical organization has approved algorithms of actions and speech modules for interaction with a patient when he contacts a call center or the reception desk and uses them in his work (92.6% of registrars, 96.0% of operators); 5.6% of registrars, 2.7% of operators noted that such algorithms are not approved and are not used in their work; 1.8% of registrars, 1.3% of operators do not use approved algorithms. Most of the registrars and operators noted that they were trained in algorithms for interaction with the patient, the basic rules of telephone conversation (94.7% and 97.7% of registrars, 96.6% and 96.6% of operators, respectively).

According to doctors, registrars, and operators, it is most difficult for patients to make an appointment with ophthalmologists (22.8%, 25%, 29%, respectively); there are also difficulties in making appointments with other specialized specialists (Table 37).

When assessing the time, it takes a doctor, registrar, operator to record a patient, most noted that this work takes up to 5 minutes (43.4%, 62.4%, 81.9%, respectively), 32.4% of doctors, 26.9% of registrars, 16.1% of operators noted - from 5-10 minutes, 13.8% of doctors, 6.3% of registrars, 2% of operators - 10-15 minutes, 10.4% of doctors, 4.3% registrars – more than 15 minutes.

When registering a patient, doctors, receptionists, and operators have difficulties due to the long wait for a response from MIS (52.2%, 50.6%, 49.3%, respectively), due to the lack of free slots for making an appointment with oneself or another specialist (27.5%, 31.6%, 36.2%, respectively) due to the long journey to make an appointment for a patient at the MIS (20.4%, 17.9%, 14.6%, respectively).

Table 37 – Difficulty of making an appointment with doctors by specialty according to doctors, receptionists, operators (in %)

Doctor's specialty	Doctors, %	Registrars, %	Call center operators, %
«ophthalmologist»	22.8	25.0	29.0
«otorhinolaryngologist»	14.2	10.9	8.0
«pediatric surgeon»	10.6	8.9	5.6
«surgeon»	10.1	11.4	8.0
«dentist»	9.7	10.2	7.2
«pediatric dentist»	9.6	11.1	7.6
«local therapist»	6.0	6.2	8.8
«obstetrician-gynecologist»	4.8	5.2	8.8
«children's psychiatrist»	3.3	3.7	5.2
«local pediatrician»	3.0	1.4	2.0
«adolescent psychiatrist»	2.2	1.2	2.0
«psychiatrist-narcologist»	1.8	1.8	2.8
«TB doctor»	1.0	1.7	2.4
«general doctor»	0.9	1.2	2.0

Doctors, registrars, and operators were asked questions about what they were not satisfied with in the organization of the recording process in their medical organization. Based on the results of the analysis of this issue, 694 doctors (82.6%), 354 registrars (90%), 135 operators (90.6%) left their comments. Some specialists noted the absence of comments, found it difficult to answer, or were satisfied with everything.

Based on the analysis, the largest number of comments from doctors, registrars, and operators were related to organizational and technical issues of recording (30.9%, 29.3%, 30.9%, respectively), the speed of the EDS (20.36%, 19.2 %, 22.2%, respectively), staff shortages (16.5%, 5.9%, 6.8%, respectively).

The overall satisfaction of patients, doctors, registrars, and operators with the organization of appointments was analyzed on a 10-point scale, where 1 is not at all satisfied, 10 is completely satisfied. According to this scale, from 0 to 5 points, respondents are to one degree or another dissatisfied with making an appointment with a doctor, and from 6 to 10 points, they are more satisfied. The assessment results showed that 29.1% of doctors, 18.7% of registrars, 26.7% of operators are to some extent dissatisfied with the organization of appointments, only 3.7% of doctors, 1.8% of registrars, 1.3 % of operators

are not at all satisfied, 20.8% of doctors, 35.3% of registrars, 32.9% of operators are completely satisfied with the organization of this service. At the same time, 42.6% of patients are not satisfied to one degree or another with the organization of this service, and 17.2% of patients are not satisfied at all (Table 38).

Table 38 – Satisfaction of patients, doctors, registrars, operators with the organization of appointments (in %)

Rating on a 10-point scale	Patients, %	Doctors, %	Registrars, %	Call center operators, %
1	17.2	3.7	1.3	1.3
2	4.3	1.2	0.0	0.0
3	6.1	6.0	4.0	4.0
4	4.3	4.2	4.0	4.0
5	10.7	14.0	17.4	17.4
6	3.7	6.3	5.4	5.4
7	4.6	12.6	6.7	6.7
8	10.7	19.5	16.8	16.8
9	12.3	11.7	11.4	11.4
10	26.1	20.8	32.9	32.9

Based on the results of the survey, doctors, registrars, and operators were asked to write suggestions for improving the quality of recording organization; 645 comments were received from doctors (76.8%), 346 comments from registrars (87.8%), 133 comments from operators (89.3 %).

Some of the main suggestions from doctors, registrars, and operators related to improving organizational and technical issues of recording (26.4%, 36.9%, 32.3%, respectively), increasing the speed of the EDS (17.5%, 22.3%, 15.3%, respectively), improving the personnel situation (9.5%, 10.4%, 9.3%, respectively).

Based on the results of a survey of patients, doctors, receptionists, and call center operators, an action plan was formed to improve the organization of the process of making an appointment with a doctor.

Chapter Summary

Based on a comprehensive assessment of population satisfaction, positive and negative aspects that determine its level were identified, and the main areas requiring the development and implementation of corrective measures were identified. Thus, according to surveys conducted by the IMOs, as part of the implementation of the new model from 2017 to 2022. Patient satisfaction with the length of the wait to see a doctor increased ($p < 0.001$), the attitude of attending physicians ($p < 0.001$), and the result of visiting a local doctor ($p < 0.001$). The indicator of patient satisfaction with the result of medical examination did not reach the planned values of 70%; since 2018, a decrease in this indicator has been noted ($p < 0.001$), which requires improving the organization of this area of work.

Low indicators of satisfaction among the population of the Sverdlovsk region as part of the assessment of public opinion of the population relate to the convenience of making an appointment with a doctor and the waiting time for medical services. Statistically significant differences were revealed in assessments of population satisfaction between groups of respondents depending on their gender, age, and district of residence on certain issues ($p < 0.05$). When receiving medical care, 23.3% of respondents pointed to an insufficient number of doctors and specialists, 13.3% - long waiting times for appointments, etc. For the region as a whole, 19.4% of respondents noted a shortage of doctors and specialists, 13.2 % – insufficient provision of medical equipment, 12.5% – long wait for receiving medical care, etc.

Most often, citizens turn to the Ministry of Health of the Sverdlovsk Region for assistance in organizing treatment, making an appointment with a doctor, and waiting times for medical care. Patients turn to IMOs regarding the provision of medical care, collection of funds for medical care under the compulsory medical insurance program, and organization of the work of a medical organization. The main share of requests from the SOG in 2023 were requests on primary health care issues, including issues of making an appointment with a doctor and referrals to medical examination. According to the results of the analysis, in 2023, the main share of requests to the PIC was made up of two categories – «Electronic appointment» and «Medicine» (subcategory «Electronic medical

documents»). Appeals from citizens regarding the issue of electronic appointments were related to the problems of choosing a doctor, being assigned to a medical organization, choosing a time slot for making an appointment, a region for making an appointment, etc.

Based on the results of an analysis of the satisfaction of patients, doctors, registrars, and operators with the organization of appointments, 42.6% of patients, 29.1% of doctors, 18.7% of registrars, 26.7% of operators are to some extent dissatisfied with the organization of appointments. Based on the results of a survey of patients and employees of medical organizations, an action plan was proposed to improve the organization of the process of making an appointment with a doctor in the region. Most of the activities are related to solving organizational issues at the level of a medical organization, while some require elaboration at the regional level. In addition, interdepartmental interaction with the Ministry of Digital Development of the Sverdlovsk Region is required, related to improving the work of the EDS.

The identified problems characterize the general trends in the personnel situation in healthcare, the availability of medical care, the financing of the healthcare system and require comprehensive measures to improve and increase the level of population satisfaction at the regional level.

CHAPTER 7. IMPROVING THE ACTIVITIES OF A MEDICAL ORGANIZATION IMPLEMENTING A NEW MODEL OF PROVIDING PRIMARY HEALTH CARE

7.1. Situational analysis (SWOT) of the activities of medical organizations introducing a new model of primary health care in the Sverdlovsk region

Based on the results of the SWOT-analysis, the existing opportunities were identified as follows: Primary health care is a priority area within the framework of federal projects, normative acts and other documents on the organization of primary health care have been approved at the federal and regional levels, the improvement of primary health care is carried out as part of the implementation of a new model, methodological support is provided by the Coordination Center for the implementation of the federal project «Development of the primary health care system» , RC Primary Health Care Centers have been created in all constituent entities of the Russian Federation and methodological centers for training employees of medical organizations in the use of lean technologies in healthcare on the basis of 9 educational organizations subordinate to the Ministry of Health of Russia; at the regional level, orders have been approved for organizing the work of the RC Primary Health Care Center in the Sverdlovsk Region and the implementation of measures to create and replication of the new model, funding is annually allocated from the regional budget for the creation of a new model (more than 100 million rubles); from the end of 2022, the Sverdlovsk region began a phased connection of all three existing MIS in state medical organizations to the EDS.

The main potential threats in organizing and improving primary health care in the Sverdlovsk region were: unfavorable medical, statistical and demographic indicators in municipalities, the lack of a unified standard for organizing the work of outpatient services, At the beginning of 2022, in the Sverdlovsk region, three MIS were functioning simultaneously in state medical organizations, not related to each other: RMIS, PROMED, AIS «MIR». The federal law of November 21, 2011 No. 323-FZ «On the

fundamentals of protecting the health of citizens in the Russian Federation» does not set out the requirements for the criteria of the new model, assessment methods for 16 of the 24 criteria of the new model at the federal level have not been developed or approved, The functions and powers of the Federal Service for Surveillance in Healthcare are not defined in terms of assessing the achievement of the levels of the new model of organizing medical care and assigning the «first», «second», «third» levels of a medical organization. In the Sverdlovsk region there is no educational and methodological center for training employees of medical organizations in the basics of lean production in healthcare.

The most significant strengths at the level of medical organizations were: in the Sverdlovsk region, 94 medical organizations participated in the implementation of measures to create and replicate the new model), 256 outpatient departments (2022), to achieve the recommended criteria of the new model in medical organizations of the Sverdlovsk region improvement projects are being implemented using lean production methods: in 2019, 857 projects were opened, in 2020, 1,664 projects were in progress, in 2021, 691 projects were opened, in 2022 – 688 projects, in medical organizations of the Sverdlovsk region, there are 26 departments and 118 emergency medical care rooms, pre-hospital medical care rooms have been opened, the level of patient satisfaction with the waiting time, the attitude of attending physicians at the appointment, the result of visiting a local doctor has increased as part of the implementation of the new model, based on the results of assessing the involvement of medical workers, within creation of a new model, on average for medical organizations the staff engagement index was 78.98% in 2018, 80.2% in 2019, 78.6% in 2022 , which indicates high staff involvement in the activities of medical organizations.

The most significant weaknesses at the level of medical organizations in the Sverdlovsk region were: low rates of provision of the population with doctors, provision of local general practitioners and local pediatricians, general practitioners, low number of visits to doctors per resident per year (6.4 visits), which is lower than the indicators for the Ural Federal District by 29.7% and the Russian Federation by 18%, an excess of the number of attached population in the areas, insufficient coverage of various population groups with preventive measures, problems in achieving the criteria of the second and

third levels of the new model, a decrease the level of patient satisfaction during medical examination, the presence of dissatisfied patients with the length of wait for an appointment, the availability of medical care, the conditions of stay in a medical organization, the attitude of employees, a large number of requests from the population to the SOG for the provision of medical care in the clinic (35.1%), by making an appointment with a doctor (Table 39) [145].

Table – 39. SWOT-analysis of the strengths and weaknesses, opportunities and threats to the organization of activities of medical organizations introducing a new model in the Sverdlovsk region

«S» Strengths («internal environment»)	«W» Weaknesses («internal environment»)
1. 94 medical organizations, 256 outpatient departments (2022) participated in the creation of the new model. 2. During the period 2019-2022. More than 3900 projects have been implemented. 3. There were 26 departments and 118 emergency medical care rooms. 4. Pre-medical care offices are open. 5. Patient satisfaction has increased as part of the implementation of the new model. 6. The involvement of medical workers in the creation of the new model was more than 78%.	1. Low rates of provision of the population with doctors, general practitioners, local pediatricians, and general practitioners. 2. The number of visits to doctors per resident per year is lower than in the Urals Federal District and the Russian Federation. 3. The size of the attached population by area in 2022 was greater than the recommended values. 4. Coverage of the population with preventive measures for different population groups in the period from 2017 to 2022. did not reach the planned values. 5. Decreased patient satisfaction during medical examination. 6. Problems in achieving the criteria of the second and third levels of the new model. 7. The presence of patients dissatisfied with the quality of medical care. 8. The lowest rates of patient satisfaction were obtained from answers to questions regarding the convenience of making an appointment and the waiting time for medical care. 9. The largest number of requests from the population to the SOG was received regarding the provision of medical care at the clinic and making appointments. 10. Citizens' appeals to the PIC regarding the electronic form for making an appointment with a doctor were associated with problems of choosing a specialist, attachment to a medical organization, time slot, region.

Table 39 continued

«O» Opportunities («external environment»)	«T» Threats («external environment»)
1. High demand of the population for primary health care. 2. Improving primary health care is a priority within federal projects. 3. The NMD on the organization of primary health care at the federal and regional levels was approved. 4. Improvement of primary health care is carried out as part of the implementation of a new model. 5. Availability of federal guidelines to support the implementation of the new model. 6. Regional centers for organizing primary health care have been created in all constituent entities of the Russian Federation. 7. Methodological centers have been created to train employees of medical organizations in the basics of lean production in healthcare on the basis of 9 educational organizations subordinate to the Ministry of Health of the Russian Federation. 8. The NMD was approved for organizing the work of the RC PHC in the Sverdlovsk region and implementing measures to create and replicate a new model. 9. Every year, more than 100 million rubles are allocated from the regional budget for the creation of a new model. 10. At the end of 2022, the Sverdlovsk region began a phased connection of all existing MIS in state medical organizations to the EDS.	1. Unfavorable medical, statistical and demographic indicators in the municipalities of the region. 2. Lack of a unified regional standard for organizing the work of outpatient services. 3. Specific requirements for the criteria of the new model are not fixed in the federal law of November 21, 2011 No. 323-FZ «On the fundamentals of protecting the health of citizens in the Russian Federation» 4. Assessment methods have not been developed for 16 of the 24 criteria of the new model at the federal level. 5. In the Sverdlovsk region there is no educational and methodological center for training employees of medical organizations in the basics of lean production in healthcare. 6. At the beginning of 2022, three MIS operated simultaneously in state medical organizations in the Sverdlovsk region: RMIS, PROMED, and AIS «MIR».

Based on the final SWOT matrix, models of possible strategies are formulated. To do this, all possible combinations of the SO, WO, ST and WT fields are compared. As a result of the analysis of indicators from each pair, a set of strategies was formed (Table 40). In the context of this study, strategy is understood as a specific plan of actions, steps and activities that is created to achieve the goal of improving the activities of medical organizations implementing a new model.

Table 40 – Models of possible strategies based on combinations of SO, WO, ST and WT fields

SO Strategies that use strengths to realize environmental opportunities	WO Strategies that take advantage of environmental opportunities to minimize the impact of weaknesses
1. Continue creating and replicating the new model at the regional level. 2. Continue methodological support of medical organizations in introducing improvement projects. 3. Continue monitoring population satisfaction. 4. Increase the availability of primary health care at the regional level. 5. Continue monitoring the satisfaction and engagement of employees of medical organizations.	1. Ensure that the number of assigned populations by area corresponds to the regulations. 2. Ensure the implementation of the plan for carrying out preventive medical measures for the population in accordance with the regulatory legal acts. 3. Provide methodological assistance to medical organizations in achieving the criteria of the second and third levels of the new model (RC PHC). 4. Provide funding from the regional budget for the creation of a new model aimed at achieving the criteria of the second and third levels. 5. Implement and ensure the functioning of the EDS in medical organizations at the regional level 6. Provide training for employees of medical organizations on the basis of educational and methodological centers on teaching the basics of lean production in healthcare, etc. 6. Increase the level of satisfaction of the population in outpatient settings.

Table 40 continued

ST Strategies that use strengths to minimize environmental threats	WT Strategies to minimize weaknesses and avoid environmental threats
1. Development of methodological recommendations for medical organizations to achieve the criteria of the new model. 2. Development of a motivation system for employees of medical organizations.	1. Development and approval of a standard for organizing the work of outpatient services at the regional level. 2. Development of an action plan to improve the organization of patient flow management at the stage of making an appointment with a doctor. 3. Development of proposals for a methodology for assessing individual criteria of the new model. 4. Implementation of a system for training employees of medical organizations in the basics of lean production in healthcare at the regional level. 5. Methodological support for medical organizations on issues of working in the ECP.

In accordance with the classical methodology for conducting SWOT analysis, as a result of the inductive and deductive analyzes carried out, the following final strategies were identified for improving the activities of medical organizations implementing the new model:

1) a strategy aimed at increasing the involvement of employees of medical organizations as part of the implementation of a new model of primary health care;

2) a strategy aimed at methodological support for the implementation of a new model of primary health care;

3) a strategy aimed at standardizing and improving the work of medical organizations as part of the implementation of a new model of primary health care;

4) a strategy aimed at improving the organization of preventive medical measures for the adult population on the principles of lean production;

5) a strategy aimed at improving the organization of patient flow management at the stage of making an appointment with a doctor;

6) a strategy aimed at creating a system of continuous training in the principles of lean manufacturing in healthcare in the region.

7.2. Strategy for increasing the involvement of employees of medical organizations as part of the implementation of a new model of primary health care

Employee engagement in healthcare organizations is essential when implementing lean technologies as part of a new model. Based on the results of assessing the engagement of medical workers, the average staff engagement index for medical organizations in 2018 was 78.98%, in 2019 – 80.2%, in 2022 – 78.6%, which indicates high staff engagement in the activities of medical organizations. As a result of stages 1-3 of the engagement assessment, the main issues that need to be addressed for employees were identified: conditions for high-quality work performance (stage 1 – 64.5%, stage 2 – 64.6%, stage 3 – 66.5%) and the availability of necessary materials and tools (stage 1 – 65.0%, stage 2 – 65.9%, stage 3 – 69.6%). It is noteworthy that 30% of respondents in 2018, 23.7% of respondents in 2019, 35.1% of respondents in 2022 noted a lack of assessment of the employee's merits and successes by management, 26.3%, 25.5%, 29.8%, respectively, do not believe that management treats them as individuals, 25.7%, 23.6%, 27.1% of respondents, respectively, noted that management and colleagues do not take their point of view into account (Table 41) [101, 147].

A tool such as engagement assessment is necessary for constant monitoring of timely management decisions by the heads of a medical organization and structural divisions and improving the implementation of the new model.

Table 41 – Assessment of the index of involvement of medical personnel as part of the implementation of the new model, % [101, 147]

List of questions	2018 Stage 1	2019 Stage 2	2022 Stage 3
1. I understand my tasks and functions, %	94.4	94.4	93.8
2. I know what management expects from me, %	88.7	89.2	89.8
3. I know by what criteria my work is evaluated, %	84.3	84.9	83.9
4. The organization has created all the conditions for me to do my job efficiently, %	64.5	64.6**	66.5
5. If I work well and diligently, the manager speaks well of me, %	78.4	78.9**	75.5
6. I have all the necessary materials and tools to do my job efficiently, %	65.0	65.9**	69.6
7. Management appreciates my merits and notices my successes, %	70.0*	76.3**	64.9
8. Management and colleagues take my point of view into account, %	74.6	76.4**	72.9
9. I learn while working, I learn something new, %	88.7	89.1	87.9
10. I feel the importance of the work I do, %	84.1	85.9	86.2
11. The manager treats me as a person, and not just as an employee, %	73.7	74.3**	70.2
12. My colleagues consider it their duty to do quality work, %	81.5	82.2	82.5
13. Staff Engagement Index	78.98	80.2**	78.6

*when comparing figures for 2018 and 2019. differences are considered statistically significant ($p \leq 0.05$)

** when comparing indicators for 2019 and 2022. differences are considered statistically significant ($p \leq 0.05$)

As part of the implementation of this strategy, methodological recommendations were developed to increase the motivation and involvement of employees of medical organizations as part of the implementation of the new model. These recommendations included general questions on the motivation and involvement of employees of a medical organization as part of the implementation of the new model, requirements for the system for submitting and implementing proposals, a form for registering proposals for improvement, the procedure for using a sheet of problems and a sheet of proposals, a template for sheets of problems and proposals. A methodology for conducting a survey

and assessing the engagement of employees of a medical organization with the calculation of the staff engagement index is described [101, 147].

7.3. Strategy for methodological support for the implementation of a new model of primary health care

Based on the results of an audit of medical organizations providing primary health care to children, problematic areas were identified for achieving the target values of the recommended criteria of the new model (Chapter 5, section 5.2).

In order to implement this strategy, they were developed, reviewed by external reviewers, and approved by the Academic Council of the Blokhin Institute (minutes No. 2 dated October 20, 2022) 5 methodological recommendations for improving the activities of medical organizations implementing a new model:

1. «Methodological recommendations for organizing a rational workplace in medical organizations according to the 5C system»;

2. «Methodological recommendations for standardizing the work of medical organizations as part of the implementation of a new model of medical care»;

3. «Guidelines for increasing the motivation and involvement of employees of medical organizations as part of the implementation of a new model of medical care»;

4. «Methodological recommendations for inventory management in a medical organization as part of the implementation of a new model of medical care» [165];

5. «Guidelines for the effective use of equipment in a medical organization as part of the implementation of a new model of medical care».

7.4. Strategy for standardization and improvement of the work of a medical organization as part of the implementation of a new model for the provision of primary health care

To ensure effective management of internal processes in a clinic, it is necessary to apply organizational and methodological approaches based on standardization of key processes and the development of short algorithms for managers.

As part of the process approach, the structure of the clinic was compiled and described (Figure 14). Next, the main processes in the activities of the outpatient service are defined, consisting of basic, management and support processes. The main processes in the clinic include the organization of the work of the registry, advisory, diagnostic and support services.

The reception desk carries out the processes of providing information support to patients, managing doctors' appointments and making appointments with a doctor, attaching a patient to a medical organization, and organizing the work of a call center.

The auxiliary services include the activities of the first-aid office, which consists of opening, extending, closing sick leave, issuing certificates of conclusions, generating referrals to medical organizations to receive specialized types of care, issuing preferential drug prescriptions (electronic, paper), etc.

Consultative and diagnostic services include the provision of emergency care, diagnostic and treatment appointment with a doctor (consultation with a specialist), preventive appointment (including clinical examination), treatment and preventive appointment with a doctor at home, clinical observation, vaccination, day hospital work, medical rehabilitation, laboratory and instrumental studies, provision of medicines. Additionally, Consultative and diagnostic services were divided into blocks and departments in which medical care is provided: emergency room (department), medical block, preventive block, diagnostic and laboratory blocks and additional divisions.

Based on a comprehensive analysis of population satisfaction with the availability and quality of medical care, 6 main processes were identified for managers of medical

organizations that require standardization of the organization of work: registry, emergency department (office); first aid room; departments (offices) of medical prevention; local service, making appointments.

6 algorithms were developed for managers of medical organizations and sent to the Ministry of Health of the Sverdlovsk Region. The pilot site for the development of these algorithms and methodological recommendations was the base of the clinic in Yekaterinburg.

To organize the activities of the clinic's registry, the main directions were identified: organizing the external and internal navigation of the clinic, creating an accessible environment for different groups of the population, ensuring the work of the front office (the area of the first contact of the patient), an open registry, introducing a patient information system in the registry area, organizing the work card storage, call center and clinic wardrobe.

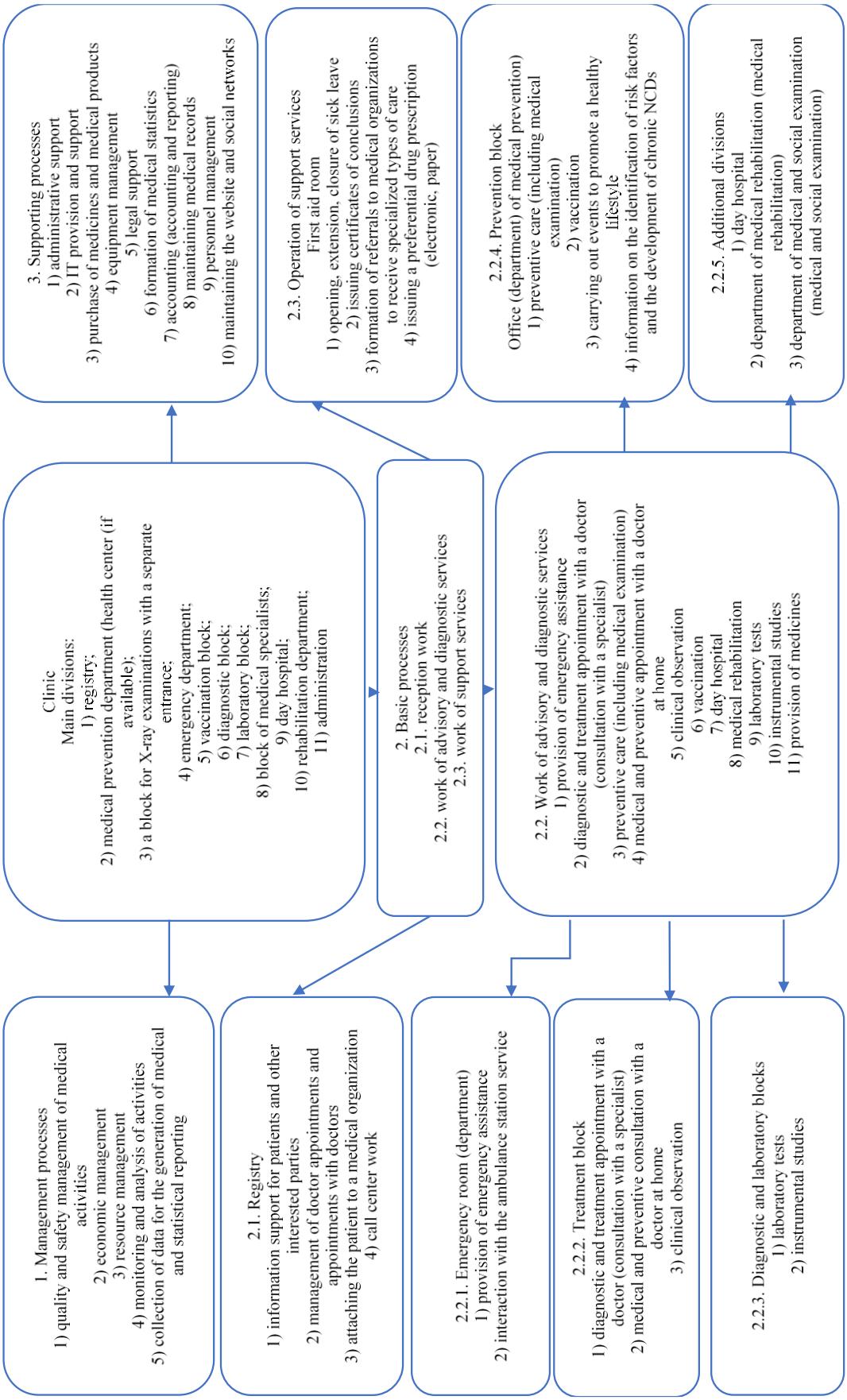


Figure 14 – Structure of the clinic and the main processes of providing medical care

The activities of the emergency department (room) required the organization of conditions for the operation of the emergency department (room), clear routing of patients in the clinic according to the purpose of treatment, staffing departments in accordance with staffing standards, equipping the emergency department (office), equipping emergency department visiting teams, approval of internal documents on the organization of work.

For the operation of the first-aid room, it is necessary to organize the conditions for the work of the office, equip it in accordance with the standard, staff on the basis of recommended staffing standards, approve internal documents on the organization of work.

The algorithm for organizing a local service included the basic territorial principles of organizing an outpatient department, staffing standards, the standard of equipment for a therapeutic room, according to the basic medical documentation of the site, the organization of the work of a local service, the main functions of a local doctor, the functions of local service personnel with secondary medical education, functions to be transferred to the district nurse assistant, medical registrars, call center employees, assessment of the effectiveness of the local service, indicators for assessing the activities of the local doctor, recommended necessary and additional documents for the medical department (therapeutic), a brief algorithm for organizing the work of the therapeutic department for the head of a medical organization.

All algorithms for managers included the main legal regulations and other documents regulating the relevant sections of activity.

7.5. Strategy for improving the organization of preventive medical measures for the adult population on the principles of lean production

As part of the implementation of strategies to improve the organization of preventive work, they were developed and approved by the Academic Council of the Blokhin Institute (protocol dated April 28, 2023 No. 2) methodological recommendations «Organization of preventive medical measures (preventive medical examination, medical

examination of certain groups of the adult population, in-depth medical examination) in medical organizations on the principles of lean production».

The pilot site for the development of these methodological recommendations was the base of the clinic in Yekaterinburg.

Methodological recommendations have been compiled for managers of medical organizations providing primary health care using an integrated approach to organizational processes, carrying out preventive medical measures and incorporating lean manufacturing approaches.

The methodological recommendations consisted of 6 sections, which included general provisions, categories of the adult population for which preventive medical measures are organized, a brief algorithm for organizing preventive measures, conditions for carrying out and organizing preventive measures, organizing internal quality control for carrying out preventive measures, basic regulations and other documents, standard operating procedures, algorithms, additional documents, document templates in the form of active links for viewing and downloading.

One of the tasks set when developing methodological recommendations was the development of a short algorithm for organizing preventive measures for the head of a medical organization (Figure 15).

In order to improve the implementation of preventive measures, the use of lean manufacturing approaches in organizing the implementation of preventive measures has been proposed. It is recommended to assess the placement of rooms involved in carrying out preventive measures, draw up a map of the current and target state of the process) of the patient undergoing preventive measures, assess the duration of the process, the client path (patient path), identifying bottlenecks and losses. Based on the use of the proposed approach, it was proposed to optimize the placement of offices and adjust the route of patients, reducing losses.

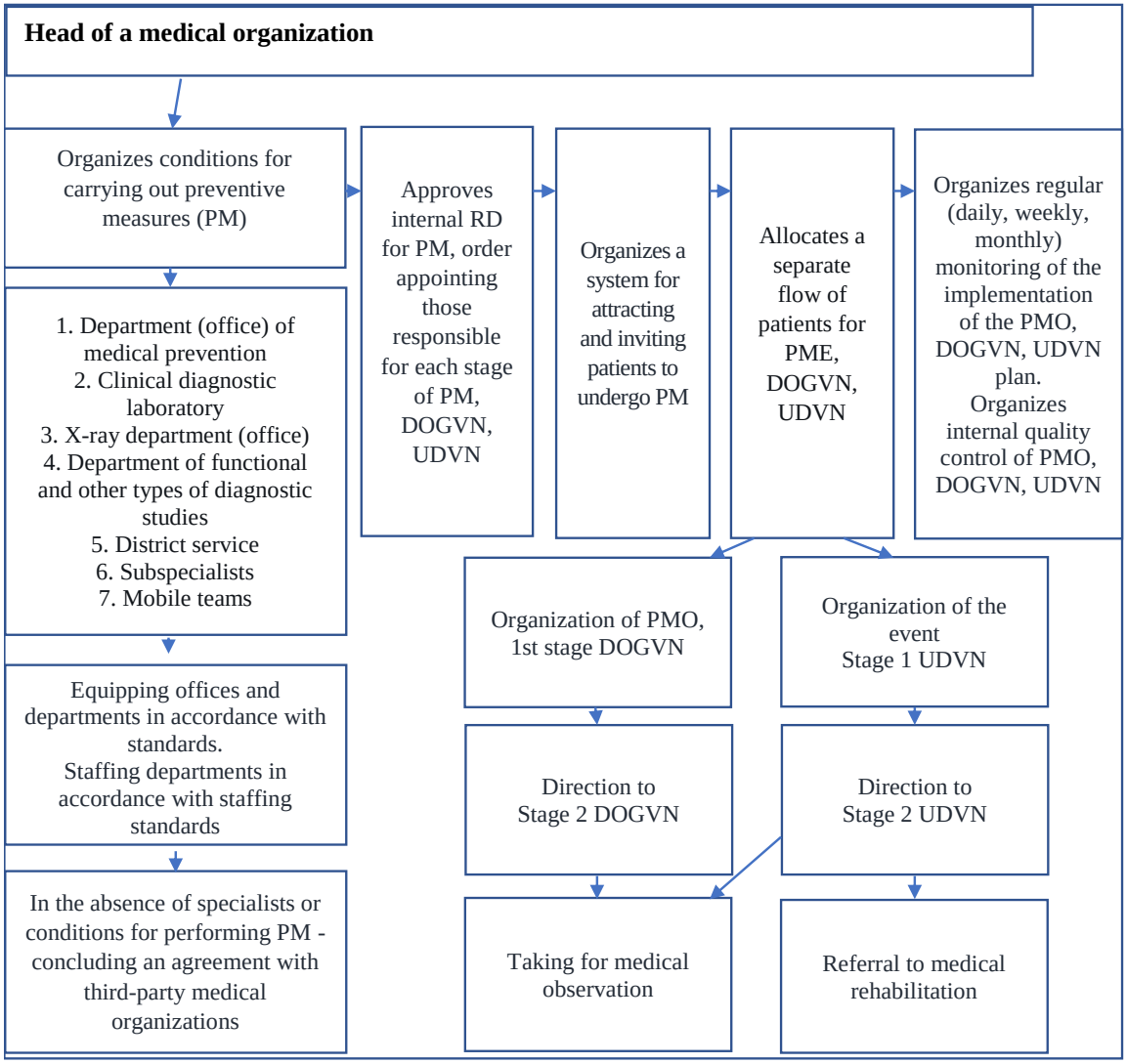


Figure 15 – Brief algorithm for organizing preventive medical measures

When carrying out preventive measures, much attention is paid to attracting patients, so one of the sections is devoted to organizing a system for attracting patients to preventive measures (Figure 16).

In agreement with the Ministry of Health of the Sverdlovsk Region, the previously developed methodological recommendations were tested at the clinic within a month. As part of the testing, an action plan for the implementation of methodological recommendations was approved, and the main stages were identified.

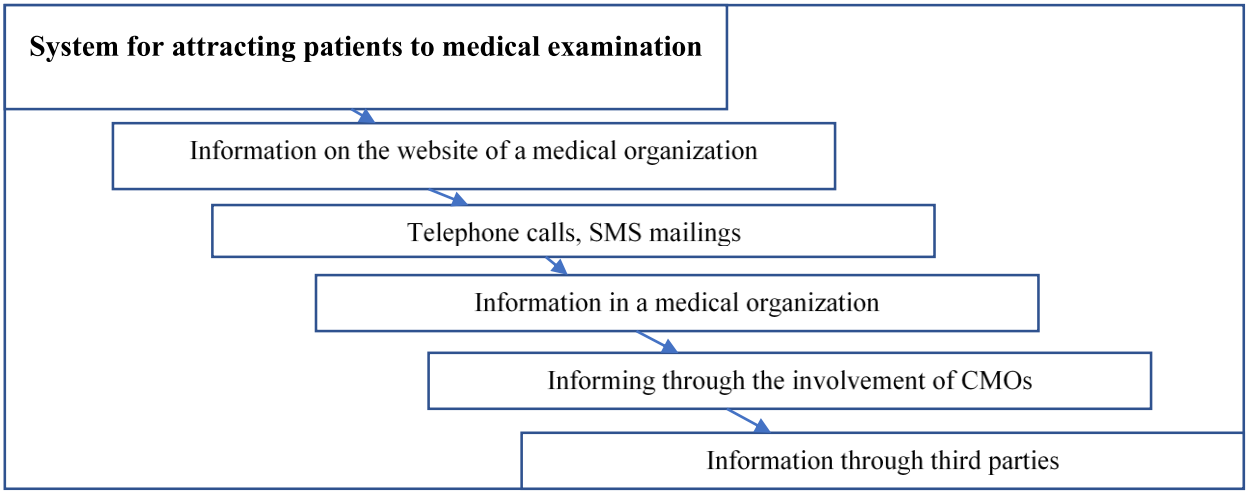


Figure 16 – System for attracting patients for preventive medical examinations, clinical examination of certain groups of the adult population, including in-depth medical examination

At the first stage, an assessment was made of the current state of the organization and implementation of preventive measures, documents, conditions, staffing, equipment of the medical prevention room (department), the work of the MIS in terms of entering and uploading data, the website and the «Medical examination» section, the system for attracting patients to preventive measures, organizing internal quality control of preventive measures.

A diagram of the organization of the process of preventive medical examination, medical examination of certain groups of the adult population, a map of the current state of the process, spaghetti diagrams showing the floor-by-floor movement of patients.

Based on the results of the audit, it was established that local regulatory documents, equipment and staffing, and the organization of internal quality control of preventive measures in the medical prevention department comply with regulatory documents.

Based on the results of discussions with the working group in the medical prevention department, rooms were moved, the patient's route was optimized, blood sampling and examination by a midwife was organized on the first day of the 1st stage of medical examination, the form of the route sheet for the patient was redesigned, an administrator post was organized, volunteers were recruited to help patients fill out questionnaires , the navigation system, the website of the medical organization and the

«Medical examination» section have been improved, and measures have been implemented to attract patients to undergo preventive measures. Additionally, a survey of patients was conducted to assess the quality of information provided on preventive measures (19 questions, 74 people). Based on the results of a survey of 74 patients, the level of information about ongoing preventive measures averaged 92.1%.

At the final stage, a re-mapping of the process was carried out, the results of which showed the effectiveness of the measures taken: the time for completing the 1st stage of clinical examination decreased from 3 days to 1 day; based on the results of monitoring the implementation of preventive measures for January-April 2023, the monthly fact of implementation of preventive measures in the medical organization under study increased events from 44% to 55%.

Based on the results of the work carried out to implement methodological recommendations in a medical organization, the chief physician was asked to monitor the sustainability of improvements introduced as a result of the implementation of measures to improve the organization of preventive measures, and to develop internal regulatory documents to standardize processes.

Testing the developed methodological recommendations in real conditions made it possible not only to work out organizational technologies and identify possible imperfections, but also to evaluate their effectiveness in a medical organization.

The approaches and principles reflected in these methodological recommendations were used in the implementation of orders of the Ministry of Health of the Sverdlovsk Region dated 02/22/2023 No. 385-p, dated 03/06/2023 No. 468-p in terms of conducting training events and district meetings for employees of medical organizations participating in organizing and carrying out preventive measures.

7.6. Strategy for improving the organization of patient flow management at the stage of making an appointment with a doctor

The analysis of satisfaction with the organization of making an appointment with a doctor (Chapter 6, section 6.5.) and the problems identified during it were the basis for

developing a strategy to improve the organization of patient flow management at the stage of making an appointment with a doctor.

Based on the results of a survey of patients, doctors, registrars, call center operators to assess satisfaction with the organization of making appointments with a doctor, proposals were formed for an action plan for improvement (Table 42). This plan has been sent to the Ministry of Health of the Sverdlovsk Region.

Table 42 – Recommended measures to improve the organization of patient flow management at the stage of making an appointment with a doctor

No	Events
Medical organizations:	
1.	Organize the work of the electronic queue and information terminals
2.	If possible, update automated workstations for employees
3.	Increase the speed of the Internet in a medical organization together with the provider
4.	Consider automating patient call acceptance and automatic recording capabilities
5.	Increase the number of call center operators and receptionists during peak hours
6.	Implement clear algorithms and instructions for making an appointment with a doctor for call center employees and receptionists
7.	Organize training for call center and reception staff on conflict-free communication with patients
8.	Improve the organization and control of work on drawing up and maintaining a schedule
9.	Approve the weekly scheduling schedule
10.	Introduce a system of preliminary reminders to patients about making an appointment with a doctor, followed by adjustment of the freed time in the event of a patient’s refusal to come to the appointment, including patients on the «Waiting List»
11.	Consider the possibility of introducing an automatic system for calling patients to confirm appointments, inform about planned appointments, including for preventive medical measures
12.	Consider the possibility of automating the first stage of distributing calls by purpose when contacting a call center, introducing automatic notification of the patient about making an appointment

Table 42 continued

No	Events
13.	Consider the possibility of automating the first stage of distributing calls by purpose when contacting a call center, introducing automatic notification of the patient about making an appointment
14.	Allocate a separate number for calling a doctor at home (if absent)
15.	Divide patient flows by purpose of visiting the clinic, including emergency conditions, pre-medical care (if not available)
16.	To make it possible to make an appointment with specialized specialists, organize the opportunity to register with another medical organization or be included in the «Waiting List»
17.	Take measures to reduce the staffing shortage of medical personnel, including narrow specialists (targeted recruitment of specialists)
18.	Carry out organizational decisions on the redistribution of functions between employees of a medical organization, ensure the joint work of a nurse and a medical specialist, or organize the work of a doctor together with an operator without medical education
19.	Make a limited fixed number of additional coupons per doctor per day (no more than 5 additional coupons)
RC PHC:	
20.	Develop instructions and reminders for patients on making an appointment, including through the State Services portal (detailed instructions), for posting them on the official website, information stands of medical organizations (together with MIAC)
21.	Carry out timing and growth of the actual time of admission to one patient, including the time spent by doctors making an appointment for the patient to see themselves or other specialists
22.	Develop a short algorithm (instructions) for medical organizations on creating and maintaining a schedule
23.	Conduct regular training for call center operators and reception staff (together with Sverdlovsk Regional Medical College)
MIAC, Ministry of Digital Development of the Sverdlovsk Region:	
24.	Consider opportunities for technical improvement of the EDS operation (more than 30 technical improvements and proposals from employees of medical organizations)

As part of improving the organization of patient flow management at the stage of making an appointment with a doctor, a short algorithm for organizing an appointment with a doctor was proposed (Figure 17).

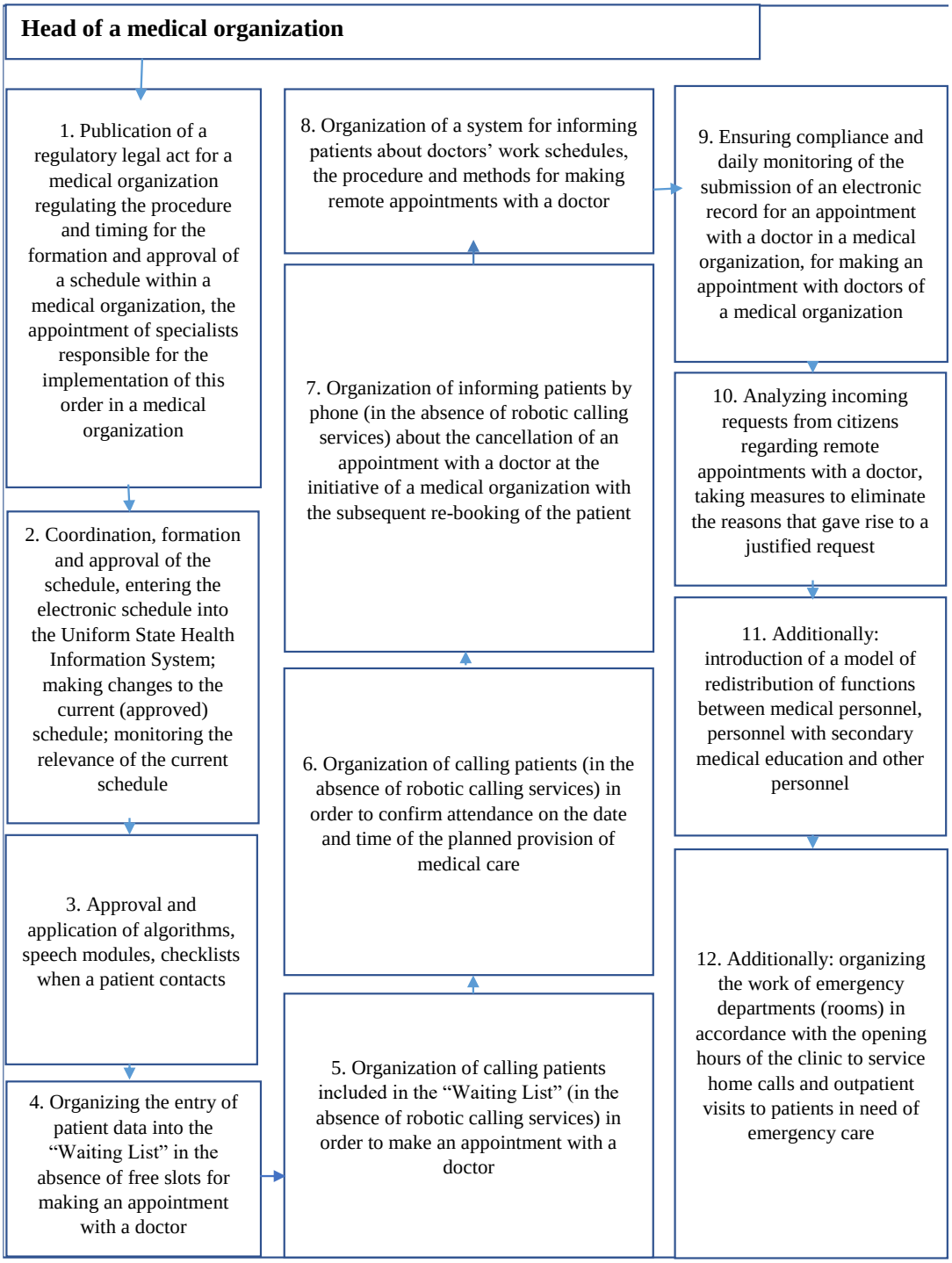


Figure 17 – Brief algorithm for organizing an appointment with a doctor

7.7. Strategy for improving the system of continuous training in the principles and methods of lean production

The strategy for improving the system of continuous training in the principles and methods of lean production was based on the development of additional advanced training programs for organizing and managing the provision of primary health care, the use of lean technologies in the activities of medical organizations, including distance learning, the inclusion issues in the professional retraining and advanced training programs «Healthcare Organization and Public Health» , the development and inclusion of «process factory» type training in the educational process of the Institute Blokhina.

A comprehensive analysis of the issues of providing primary health care and the identified problems served as the basis for the development of an additional professional development program (hereinafter referred to as the AP DP) «Organization and management of primary health care» for managers of outpatient services for 144 hours, approved by the Pedagogical Council of the Institute Blokhina. When drawing up the program, all areas identified during the study that required additional knowledge and development of competencies of outpatient service managers were taken into account.

The training results are aimed at developing the professional competencies of the head of the outpatient service, which reflect continuity with the professional standard «Specialist in the field of healthcare organization and public health», the Unified Qualification Directory of Positions of Managers, Specialists and Employees.

This program includes new topics of practical and lecture classes on organizing the provision of medical care in an outpatient setting, analyzing the activities of the outpatient service of a medical organization, statistical accounting and reporting, legal foundations and current issues of law in the activities of the outpatient department, increasing the effectiveness of preventive medical measures, a module on issues application of lean technologies in healthcare for 36 hours. Within the framework of this module, the training «Process Factory: Preventive Examination, Medical Examination of the Adult Population and Clinical Observation» was specially developed. All lectures and practical classes are adjusted for outpatient service managers. The program has been introduced into the

educational process of the Institute Blokhin, advanced training under this program in 2023. 25 heads of outpatient services of medical organizations of the Sverdlovsk region passed.

Additionally, an AP DP «Introduction of lean technologies into the activities of medical organizations» was developed for 36 hours to be carried out on the basis of Institute named after Blokhina. The professional retraining and advanced training programs in the specialty «Healthcare Organization and Public Health» include modules on lean production. Process factory-type training has been introduced into the educational process of the Blokhin Institute in all cycles of advanced training and professional retraining. As part of the execution of a state task during the year on the basis of the Blokhin Institute more than 450 doctors working in state medical organizations of the Sverdlovsk region are trained in these programs.

Process factory is training using simulation technologies, where each participant, in a game practice that is as close as possible to real life, mastering and applying lean technologies, comes to improvements in the proposed process, aimed at increasing the efficiency and viability of a medical organization [134, 166, 167].

Process factories have been developed on current topics: «Vaccination against NKVI», «In-depth clinical examination after NKVI», «Medical examination, preventive examination, clinical observation», «Prevention of infections associated with the provision of medical care using the example of a hospital emergency department». From 2021 to Q1 2024 27 lecture modules and process factories were conducted on various topics, more than 700 specialists were trained, the effectiveness of educational trainings was assessed through entrance and re-testing [134].

In addition, questions on the use of lean technologies in healthcare were included in the work programs of the discipline «Hygiene» («05/31/01 General Medicine «, «05/31/02 Pediatrics») at the Department of Hygiene and Ecology of the Federal State Budgetary Educational Institution of Higher Professional Education USMU of the Ministry of Health of Russia, educational tasks for students were developed.

7.8. Assessing the effectiveness of measures to improve the activities of a medical organization introducing a new model of primary health care in the Sverdlovsk region

To assess the effectiveness of the measures taken to improve the activities of medical organizations implementing the new model, two medical organizations were selected that provide primary health care to the adult population and have been participating in the creation of the new model since 2016-2017, Central City Hospital No. «X» and Central City Hospital No. «Y», with different levels of actual implementation of the new model, achievement of the criteria of the first, second and third levels of the new model, participation in methodological and organizational activities of employees in the divisions of these medical organizations in 2023. Medical organizations selected for assessment had close general ratings based on performance indicators at the second stage of the dissertation research provided assistance to the adult population (difference of 1 rank). A comparison was made of medical organizations among themselves and over time from 2017 to 2023.

In terms of implementing the criteria of the new model, 7 indicators were selected to evaluate ongoing activities to improve the activities of medical organizations implementing the new model (Table 43).

In Central City Clinical Hospital No. «X» there were more implemented improvement projects per unit, more developed standards for improved processes than in Central City Clinical Hospital No. «Y». On the basis of the Central City Clinical Hospital No. «X», the educational and methodological center on lean technologies conducted two cycles of advanced training, within the framework of which projects were additionally developed by a group of students on the site of the departments, the achievement of the criteria was noted a new model concerning the implementation of five steps of organizing a workplace according to the 5C system, a process management system through an information center. This medical organization was included as one of the sites to be visited by the Coordination Center for the implementation of the federal project «Development of the primary health care system».

When comparing medical organizations according to selected performance indicators over time from 2017 to 2023 differences identified.

Thus, Central City Clinical Hospital No. «X» determined an increase in indicators: the number of visits per person per year from 4 to 5 visits, the coverage of the adult population with medical examination by 44.3%, the share of remote appointments with a specialist by 36%, the average level of patient satisfaction by 6%, the level of involvement of the personnel of a medical organization by 5.9%, the actual implementation of compulsory health insurance technical support in terms of volumes of medical care (visits) by 5.6%.

In the Central City Hospital No. «Y» in the period from 2017 to 2023 the number of visits per person per year decreased from 4 to 3 visits, the actual implementation of compulsory medical insurance in terms of volumes of medical care (visits), and the level of involvement of medical organization personnel by 12.7%. There was an increase in the coverage of the adult population with medical examinations by 13%, the average level of patient satisfaction by 1.5%, and the share of remote appointments with a medical organization by 37%.

In addition, in these medical organizations there was a decrease in the share of fines/deductions/withdrawals for AMS, collected by health insurance providers, TFCMI based on the results of EGMC from the actual implementation of TP compulsory medical insurance for AMS (volume of financing) from 0.2% to 0.1% in the period from 2017 until 2023 (Table 43).

Table 43 – Assessment of the effectiveness of implementing measures to improve primary health care in medical organizations of the Sverdlovsk region

No.	Indicator name	2017	2023	2017	2023
		Central City Hospital No. «X»	Central City Hospital No. «X»	Central City Hospital No. «Y»	Central City Hospital No. «Y»
1	2	3	4	5	6
1.	Year of entry into the project	2016-2017		2016-2017	

Table 43 continued

1	2	3	4	5	6
2.	Number of departments participating in the project	1	5	1	7
3.	Number of completed projects until 2023	64 projects across 5 divisions		74 projects in 7 divisions	
4.	Achievement of first level criteria according to audit data (yes/no)	Yes		No	
5.	Achievement of some criteria of the second and third levels (yes/no)	Yes		No	
6.	Number of visits per person per year (actual), units.	4	5	4	3
7.	Coverage of the adult population with medical examination, %	50.6	94.9	46.1	59.1
8.	Share of remote appointments with doctors, %	38	74	31	68
9.	Average level of patient satisfaction, %	66	77.0	57	58.5
10	Level of involvement of personnel of a medical organization, % (2018)	70.4	76.3	77.9	65.2
11	Actual implementation of TP compulsory medical insurance by volume of medical care (visits), %	90.4	96	83.1	66
12	The share of fines/deductions/withdrawals collected by the self-government organization and the Federal Compulsory Compulsory Medical Insurance Fund based on the results of the EGMC cases of medical care in outpatient settings from the actual implementation of TP compulsory medical insurance for AMS (volume of financing), %	0, 2	0.1	0.2	0.1

Central City Clinical Hospital No. «X» followed all activities within the framework of the implementation of the new model, starting in 2017. In 2023, in Central City Clinical Hospital No. «X» compared to Central City Hospital No. «Y» has a higher number of visits per person per year (the difference between the initial indicators in 2017 was 2 visits, an increase of 40%), the actual implementation of compulsory medical insurance in terms of volume of medical care (visits) by 30% (the difference between the initial indicators 2017 – 7.3%), coverage of the population with stage 1 medical examination by 35.8% (the difference between the initial indicators of 2017 – 4.5%), the share of remote appointments by 6% (the difference between the initial indicators of 2017 – 7%), the population satisfaction indicator by 18.5% (the difference between the initial indicators of 2017 – 7%), the level of involvement of the staff of the medical organization by 11.1% (the difference between the initial indicators of 2017 – 7.5%).

Chapter Summary

Based on the results of the study, a system was developed and implemented to improve the activities of a medical organization implementing a new model in the Sverdlovsk region in the period from 2018 to 2023, consisting of 6 strategies aimed at increasing employee engagement, standardizing processes, carrying out preventive medical measures, and making appointments available for an appointment with a doctor, professional competencies of employees of medical organizations and improvement of methodological support for the implementation of a new model. A dynamic assessment of indicators characterizing the activities of medical organizations made it possible to establish that this system increases the performance of medical organizations implementing a new model, which is expressed in an increase of 40% in the number of visits per person per year, by 31.3% in medical examination coverage of the adult population, by 22.7% of the actual implementation of TP compulsory medical insurance in terms of volumes of medical care by 11.5% of the population satisfaction indicator.

CONCLUSION

Throughout the history of the development of medicine, primary health care has been considered one of the most important links in the functioning of the healthcare system, and at the same time it is one of the most problematic. The priority direction for the development of the healthcare system in the context of the introduction of new approaches to managing a medical organization is to improve the organization of primary health care, aimed at increasing the level of patient satisfaction.

Currently, a large number of foreign and domestic organizational concepts and models have been developed to increase the efficiency and improve the activities of medical organizations providing primary health care.

Recently, the Ministry of Health of the Russian Federation has identified methodological approaches to improve primary health care, based on the introduction of lean technologies within the framework of a new model. Improvement of primary health care is carried out in accordance with federal regulations and other documents regulating this area, including methodological recommendations of the Ministry of Health of the Russian Federation. The experience of studying scientific literature has shown that the use of lean technologies in the activities of medical organizations shows quite high efficiency.

Currently, the issues of introducing the new model have not been fully worked out at the theoretical and legislative levels. Many questions remain regarding the legal regulation of the implementation and evaluation of the new model. With a large number of presented practices on the application of lean manufacturing approaches in healthcare in the Russian Federation, a few works describe problems and risks that should be taken into account when implementing a new model.

Today, assessing the performance indicators of medical organizations implementing a new model is quite relevant. Therefore, one of the tasks was to search for indicators for medical organizations and assess their impact on medical, statistical and demographic indicators of service areas. This is necessary for the development,

implementation and evaluation of improvement activities in the context of the application of new methodological approaches.

The study consisted of 5 stages. The first stage was aimed at reviewing the scientific literature on improving primary health care and introducing lean technologies in healthcare, identifying methodological and methodological approaches to assessing measures to improve the activities of a medical organization introducing a new model. The difficulty of the first stage was the lack of developed mechanisms for assessing indicators and criteria for the effectiveness of the implementation of the new model; the authors proposed various indicators for evaluation.

The second stage consisted of analyzing medical-statistical and demographic indicators for the municipalities of the Sverdlovsk region for the period from 2017 to 2019, starting from the period when the implementation of the federal pilot project «Lean Clinic» began. The analysis of 7 medical-statistical and demographic indicators of the Sverdlovsk region municipality, carried out at the second stage, showed a stable differentiation of territories. The analyzed dynamics determined a negative trend in most municipalities in terms of general morbidity of the population, availability of doctors, paramedical personnel, and overall mortality of the population. The best indicators were recorded in the administrative center of the Sverdlovsk region and the territories adjacent to it.

At the third stage, an analysis of the performance indicators of medical organizations implementing the new model was carried out from 2017 to 2019 according to 6 indicators. Based on correlation analysis, a direct statistically significant relationship of medium strength with a downward time trend was established between the final ratings of performance indicators of medical organizations and medical-statistical and demographic indicators of the municipality. However, a detailed study of this assessment system revealed the need to continue further selection of parameters of the proposed model and adjustment of the optimal structure of the given indicators.

The resulting integral indicators can serve as an organizational basis for creating a multi-level analysis model, which makes it possible to assess the overall activity of each medical organization at the level of a constituent entity of the Russian Federation,

compare it with the main medical-statistical and demographic indicators in the service area, and identify bottlenecks based on individual indicators. directions for optimizing the provision of primary health care.

According to the order of the President of the Russian Federation dated February 26, 2019 No. Pr-294, the executive authorities of the constituent entities of the Russian Federation were instructed to ensure the transfer of all children's clinics to a new model by 2021. Based on the above, as part of the dissertation work in 2021, the emphasis was placed specifically on children's clinics participating in the creation of the new model. According to the results of the on-site audit, not all medical organizations providing primary health care to the child population have achieved the criteria of the first level of the new model. The criteria for the second and third levels of the new model, the most difficult to achieve by medical organizations, have been identified. The identified shortcomings made it possible to identify areas that require methodological support for medical organizations. However, at this stage, no relationship was identified between the performance indicators of medical organizations providing primary health care to children and the achievement of the criteria of the new model in these medical organizations, which requires the future study of research in this direction at the level of a constituent entity of the Russian Federation.

The results obtained at the previous stages determined the importance of conducting and evaluating sociological research. Therefore, at the fourth stage, an assessment of population satisfaction was carried out in terms of the implementation of the new model from 2017 to 2022, which showed an increase in the satisfaction of patients receiving medical care in departments implementing the new model.

Since 2022, new approaches and methods for assessing public opinion on the population’s satisfaction with medical care, developed by the FRIHOI of MoH of Russia, have been applied at the level of the Russian Federation. The results of this sociological survey showed that the lowest ratings of respondents related to questions regarding the convenience of making an appointment with a doctor and the waiting time for medical care. An analysis of citizens' appeals to various higher-level departments regarding the

provision of primary health care showed that problematic issues for the population are also related to these topics.

Taking into account the above, an additional sociological study was conducted on the satisfaction of patients, doctors, receptionists, call center operators on satisfaction with the organization of patient flow management at the stage of making an appointment with a doctor. This study showed the presence of areas requiring management decisions and the need to develop an action plan and algorithms to improve making appointments with a doctor.

Based on the results obtained at the previous stages, a SWOT analysis of the activities of medical organizations introducing a new model in the Sverdlovsk region was carried out, 6 strategies for improving primary health care were developed and tested. These strategies were aimed at introducing resource-saving approaches to employee engagement, methodological support, standardization of processes, organizing preventive medical measures, managing patient flows, and developing professional competencies of employees.

High involvement of the staff of a medical organization plays a big role in the implementation of lean technologies and project management. One of the principles of lean manufacturing is associated with building a corporate culture in a medical organization and increasing employee involvement in activities. The developed system for assessing the engagement of employees of medical organizations at the level of each unit implementing the new model made it possible to monitor and identify factors influencing the decrease in engagement and increase the motivation of employees of medical organizations.

As part of the implementation of the strategy, methodological recommendations were developed to increase the motivation and involvement of employees of medical organizations as part of the implementation of the new model. These recommendations included disclosure of the concept of motivation and involvement of employees of a medical organization, requirements for the system for submitting and implementing proposals. The methodology for conducting a survey and assessing the engagement of

employees of a medical organization with the calculation of the staff engagement index is described.

Standardization in the healthcare field makes a great contribution to achieving efficient processes and their correct implementation. Within the framework of the process approach, the structure of the clinic was compiled and described, the main processes in the activities of the outpatient service were identified, consisting of basic, managerial and support processes. Based on a comprehensive analysis of the population's satisfaction with the availability and quality of medical care, 6 main processes were identified for the heads of medical organizations that require standardization: organization of the work of the registry, emergency department (office), first-aid room, medical prevention department (office), local service, making an appointment with a doctor. Algorithms for these processes in the outpatient department have been developed for managers of medical organizations.

The study showed that one of the problems in the Sverdlovsk region is the lack of a regional standard for organizing the work of outpatient services. It should be noted that such a standard was developed in the Tomsk region; examples include the «Tatarstan Standard» and «Moscow Clinic Standard».

To improve the organization of preventive measures, it is necessary to use an integrated approach, standardize organizational technologies, relying on regulatory legal acts and modern trends in organizing processes, including lean technologies, which help to identify the main problems and losses and improve the process more effectively. As part of the implementation of the strategy to improve the organization of preventive work, methodological recommendations «Organization of preventive medical measures (preventive medical examination, medical examination of certain groups of the adult population, in-depth medical examination) in medical organizations on the principles of lean production» were developed, tested and approved.

In order to implement a strategy for methodological support for the implementation of the new model, methodological recommendations for organizing a rational workplace in medical organizations using the 5C system, standardizing the work of medical organizations, inventory management in a medical organization, and the effective use of

equipment in a medical organization were developed, reviewed by external reviewers, and approved.

The study revealed the need to improve approaches to advanced training of managers and employees of medical organizations in the Sverdlovsk region on the use of resource-saving technologies in healthcare. As part of the execution of the state task, annually on the basis of the Blokhin Institute more than 450 doctors working in state medical organizations of the Sverdlovsk region are trained in the professional retraining and advanced training program «Healthcare Organization and Public Health». Developed and implemented into the educational process of the Blokhin Institute AP DP «Organization and management of primary health care», programs on the application of lean technologies in healthcare, trainings on the «process factory» type.

At the final stage of the study, using the example of two medical organizations, the effectiveness of the measures taken to improve the implementation of the new model in the Sverdlovsk region is shown. The developed strategies to improve the new model contribute to achieving the criteria and improving the performance of medical organizations.

The use of the developed strategies provides opportunities to improve the management of the regional health care system in terms of the organization of primary health care. However, the proposed strategies, when validated in the future at other medical organizations, may require the development of additional measures taking into account regional characteristics. The question also arises of finding objective indicators for assessing the implementation of the new model at the level of constituent entities of the Russian Federation, which should be resolved at the federal level.

The results obtained indicate the achievement of the stated goal of the dissertation research, which is to develop and evaluate measures to improve the activities of a medical organization introducing a new model in the Sverdlovsk region.

CONCLUSIONS

1. A comparative analysis of the municipalities of the Sverdlovsk region was carried out according to medical, statistical and demographic indicators in the period from 2017 to 2019 showed a differentiation of territories that persists over time. The best indicators were recorded in the administrative center of the Sverdlovsk region and the territories adjacent to it. Negative regional dynamics were observed in terms of the general morbidity rate of the population (in 51 municipalities), the availability of doctors (in 46 municipalities), the provision of paramedical personnel (in 41 municipalities), and overall mortality (in 33 municipalities). formations) and positive regional dynamics - in terms of mortality in working age (in 36 municipalities), the ratio of planned capacity to actual capacity of outpatient departments of medical organizations (in 35 municipalities), the share of preventive visits to doctors (in 31 municipalities).

2. A direct statistically significant correlation of average strength was established (in 2017 – $R = 0.56$, $p < 0.001$; in 2018 – $R = 0.44$, $p < 0.001$; in 2019 – $R = 0.36$, $p < 0.01$) between the final rating of medical organizations providing primary health care based on performance indicators and the final rating of municipalities based on medical, statistical and demographic indicators. This correlation is described by a linear equation of a descending time trend with a maximum coefficient of determination in 2017 (31.3%). Analysis of the correlation matrix identified indicators that have a statistically significant relationship: overall mortality in working age and the ratio of planned capacity to actual capacity of outpatient departments of medical organizations in municipalities ($r = 0.68$, $p < 0.001$), implementation of the annual plan for preventive examinations minors in medical organizations and the availability of doctors in municipalities ($r = 0.56$, $p < 0.001$), mortality of the working age population and the share of fines collected by medical insurance organizations, the Territorial Mandatory Medical Insurance Fund, based on measures of medical and economic control and examination of the quality of medical care for outpatient care ($r = 0.43$, $p < 0.001$).

3. Based on the results of an on-site audit, 62.5% of medical organizations providing primary health care to the children's population were determined to have

achieved 7 mandatory criteria of the new model. A higher degree of implementation of the new model has been established in medical organizations in Yekaterinburg. Among the criteria of the second and third levels, the lowest percentage of achievement was identified in relation to criteria related to visual process management (12.5% of divisions), calculation of the production load of equipment (25% of divisions), and revision of standards for improved processes (37.5% of divisions), the process of supplying medicines and their consumption (50% of units).

4. According to surveys of patients in medical organizations implementing a new model of primary health care, conducted by insurance medical organizations in the period from 2017 to 2022, patient satisfaction with the length of wait to see a doctor has increased ($p < 0.001$), the attitude of treating doctors at the appointment ($p < 0.001$), the result of visiting the local doctor ($p < 0.001$). In 2022-2023 As part of the assessment of public opinion of the population, the lowest ratings related to issues related to the convenience of making an appointment with a doctor (3.96 out of 5.0 points) and the waiting time for medical care «from the moment the need arises» (3.97 out of 5.0 points) and «in line in front of the office» (3.93 out of 5.0 points). For certain questions, statistically significant differences were identified in assessments of population satisfaction between groups of respondents depending on the district of residence ($p < 0.05$). Based on data from a sociological survey, it was found that 42.6% of patients, 29.1% of doctors, 26.7% of operators and 18.7% of registrars, are to some extent dissatisfied with the organization of making an appointment with a doctor.

5. Based on the results of the study, a system for improving the activities of a medical organization introducing a new model in the Sverdlovsk region in the period from 2018 to 2023, consisting of 6 strategies aimed at increasing employee engagement, standardization of processes, carrying out preventive medical measures, availability of appointments with a doctor, professional competencies of employees of medical organizations, as well as to improve methodological support for the implementation of the new model . A dynamic assessment of indicators characterizing the activities of medical organizations made it possible to establish that this system increases the performance of medical organizations implementing a new model, which is expressed in

an increase in the number of visits per person per year by 40%, medical examination coverage of the adult population by 31.3%, the actual implementation of the Territorial Compulsory Health Insurance Program in terms of the volume of medical care by 22.7%, the indicator of population satisfaction by 11.5%.

PRACTICAL RECOMMENDATIONS AND SUGGESTIONS

Based on the results of the dissertation research, methodological and methodological approaches are proposed aimed at improving the organization of primary health care in the context of the implementation of a new model.

To the Ministry of Health of the Russian Federation:

1. To consolidate the issues of creating a new model at the legislative level, to work out theoretical and methodological approaches to the implementation of the new model.

2. When developing regulatory legal acts and other documents regulating the implementation of the new model, determine a list of indicators for assessing the effectiveness of measures to improve primary health care.

3. To propose unified mechanisms to increase the motivation and involvement of employees of medical organizations as part of the implementation of a new model at the federal level.

4. Initiate the preparation of unified approaches to advanced training of employees of medical organizations, primarily managers, in the field of scientific organization of labor and lean production at the federal level.

To the executive bodies of state power in the field of health protection of the constituent entities of the Russian Federation:

1. At the level of a constituent entity of the Russian Federation, take into account the proposed strategies to improve the implementation of the new model.

2. As part of the pilot project for the implementation of methodological recommendations «Organizing an appointment with a doctor, including through a unified portal of state and municipal services and unified regional call centers» conduct a survey of patients, doctors, registrars, call center operators for monitoring carrying out measures to improve the organization of patient flow management at the stage of making an appointment with a doctor.

To the heads of educational organizations implementing professional educational programs for medical education:

1. Include in the educational programs of secondary vocational education, higher education and additional professional training programs for medical workers the issues of introducing lean technologies and the new model.

2. Develop and implement training programs like «process factories» into the educational process.

To the Ministry of Health of the Sverdlovsk Region:

Consider the possibility of developing a unified standard for organizing the work of outpatient services in the Sverdlovsk region, taking into account the basic, managerial and supporting processes in the clinic and the proposed algorithms for organizing key processes of providing medical care in the outpatient department and lean manufacturing technologies.

To the heads of medical organizations in the Sverdlovsk region providing primary health care:

1. Carry out measures to improve the organization of primary health care, taking into account the proposed algorithms for organizing the main processes in the outpatient department for the head of a medical organization.

2. When introducing a new model, use the proposed methodological recommendations for organizing a rational workplace in medical organizations using the 5C system, standardizing work, inventory management, and effective use of equipment in a medical organization.

3. When working, take into account the developed action plan for organizing the management of patient flows at the stage of making an appointment with a doctor.

4. Carry out annual monitoring of the assessment of the involvement of employees of departments of medical organizations implementing the new model.

LIST OF ABBREVIATIONS AND CONVENTIONS

AIS «MIR»	–	automated information system «Medical Integrated Registry»
AMS	–	outpatient care
AP DP	–	additional professional development program
ASMMS	–	automated system for monitoring medical statistics of the federal state budgetary institution «Central Research Institute for Organization and Informatization of Health Care» of the Ministry of Health of the Russian Federation
BUT	–	closed administrative-territorial entity
CAOG	–	Center for the Analysis of Citizens' Appeals of the State Autonomous Institution of Additional Education «Ural Institute of Health Care Management named after A.B. Blokhin»
Compulsory medical insurance	–	compulsory health insurance
EDS	–	unified digital platform
EMIAS	–	unified medical information and analytical system of the city of Moscow
EPGU	–	unified portal of state and municipal services
EQMC	–	examination of the quality of medical care
FAP	–	first aid station
Federal State Autonomous Educational Institution of Russian National Research Medical University named after. N.I. Pirogov	–	Federal State Autonomous Educational Institution of Higher Education «Russian National Research Medical University named after N.I. Pirogov» of the Ministry of Health of the Russian Federation

Ministry of Health of Russia

Federal State Budgetary Educational Institution of Higher Professional Education USMU of the Ministry of Health of Russia	–	Federal State Budgetary Educational Institution of Higher Education «Ural State Medical University» of the Ministry of Health of the Russian Federation
FER	–	federal electronic registry
FRIHOI of MoH of Russia	–	Federal Research Institute for Health Organization and Informatics of Ministry of Health of the Russian Federation
GBPOU «SOMK»	–	State budgetary professional educational institution «Sverdlovsk Regional Medical College»
GMP	–	general medical practices
GO	–	urban district
GOST	–	state standard
Higher Attestation Commission under the Ministry of Education and Science of Russia	–	Higher Certification Commission under the Ministry of Science and Higher Education of the Russian Federation
IMOs	–	medical insurance organizations
Institute named after Blokhina	–	state autonomous institution of additional education «Ural Institute of Health Care Management named after A.B. Blokhin»

IR MO	–	final ranking of municipalities based on medical, statistical and demographic indicators
IR PD	–	final rating of medical organizations providing primary health care according to key performance indicators
MIAC	–	medical information and analytical center of the state autonomous institution of additional education «Ural Institute of Healthcare Management named after A.B. Blokhin»
Ministry of Health of Russia	–	Ministry of Health of the Russian Federation
Ministry of Health of the Sverdlovsk Region (MHSO)	–	Ministry of Health of the Sverdlovsk Region
MIS	–	medical information system
MMC	–	intermunicipal center
MO	–	municipality
MR	–	municipal district
MSE	–	medical and social examination
New model	–	a new model of a medical organization providing primary health care, a new model of providing primary health care
NKVI	–	new coronavirus infection
NLA	–	normative legal act
PHC	–	primary health care
POS	–	Feedback platform
RC PHC	–	regional center for organizing primary health care
RF	–	Russian Federation
RIAMS PROMED	–	regional information and analytical medical system «PROMED»
RMIS	–	regional medical information system

SanPiN	–	sanitary norms and rules
SMP	–	ambulance station
SOG	–	«Citizens' Appeals» system
State Corporation «Rosatom»	–	State Atomic Energy Corporation «Rosatom»
Sverdlovskstat	–	Department of the Federal State Statistics Service for the Sverdlovsk Region and Kurgan Region
TFCMI	–	territorial compulsory medical insurance fund of the Sverdlovsk region
TP compulsory medical insurance for AMS	–	territorial compulsory health insurance program for outpatient care
Uniform State Health Information System SO	–	unified state information system in the field of healthcare of the Sverdlovsk region
URFO	–	Ural federal district
WHO	–	World Health Organization

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APPLICATIONS

Appendix A. Questionnaire for the patient «Assessment of satisfaction with the organization of making an appointment with a doctor»

Dear survey participant!

The Ministry of Health of the Sverdlovsk Region together with the State Administrative Educational Institution «Ural Institute of Health Management named after. A.B. Blokhina» conducts a survey to analyze satisfaction with the organization of making an appointment with a doctor in a medical organization.

We want to know how you assess the quality of organizing an appointment with a doctor in the medical organization where you are provided with medical care. We ask you to treat the survey with understanding and carefully answer the questions asked. Select one or more answer options for each question and enter your answer if necessary. There is no need to indicate your name; your personal information will not be published anywhere. Participation in the study is anonymous and voluntary. Your opinion is very important to us to improve the organization of work.

Name of medical organization

Date of completion «__» _____ 20__

1. When was the last time you had to contact a medical organization to receive medical care?

☐ did not apply to this medical organization for medical care

☐ contacted (write month, year) _____

2. How often do you turn to government medical organizations for medical help for yourself?

☐ yes, I am applying: I regularly see a doctor in connection with chronic diseases

☐ Yes, I contact you: I regularly undergo medical examinations, preventive examinations, and contact me when I am sick

☐ yes, I contact you, but only if I get sick

☐ yes, but only in emergency cases (call an ambulance/emergency department)

☐ no, I'm not contacting you

3. Have you, another adult or child made an appointment with a doctor in the last six months for an initial appointment with a public medical organization?

☐ yes, I wrote it down within the last month

☐ yes, recorded more than one month ago, but less than six months

☐ no, I didn’t write it down

4. When you needed to visit a doctor, were you able to make an appointment the first time you contacted a medical organization?

☐ Yes

☐ No

5. How many days have passed from the moment you applied to a medical organization for medical care from the doctor you need until the scheduled time of your appointment with the doctor?

- ☐ about ____ days have passed

6. In what ways do you most often make an appointment with a doctor?

- ☐ through the Unified Portal of State and Municipal Services (EPGU)
- ☐ through the regional portal https://rish.registratura96.ru/
- ☐ through the registry of a medical organization during a personal visit
- ☐ through a single call center of a medical organization
- ☐ through the information desk of a medical organization
- ☐ My attending physician made an appointment with the doctor I needed (the doctor makes an appointment with himself or with other specialists)

7. How easy was it for you to make an appointment with a doctor by phone?

- ☐ very easy
- ☐ easily
- ☐ difficult
- ☐ very difficult
- ☐ failed to register
- ☐ didn't use it

8. How easy was it for you to make an appointment with a doctor when you went to the reception desk in person?

- ☐ very easy
- ☐ easily
- ☐ difficult
- ☐ very difficult
- ☐ failed to register
- ☐ didn't use it

9. How easy was it for you to make an appointment with a doctor online?

- ☐ very easy
- ☐ easily
- ☐ difficult

- [ ] very difficult
- [ ] failed to register
- [ ] didn't use it

10. How easy was it for you to make an appointment with a specialist through your attending physician?

- [ ] very easy
- [ ] easily
- [ ] difficult
- [ ] very difficult
- [ ] failed to register
- [ ] didn't use it

11. Did the medical organization confirm the fact of the appointment during your visit or application?

- [ ] yes, the fact of the recording was confirmed
- [ ] no, the fact of the recording was not confirmed

12. Have you used the federal portal of State Services (website www.gosuslugi.ru) to make an appointment with a doctor?

- [ ] yes, I used it
- [ ] no, I used a different recording method

13. If you used the federal portal of State Services (website www.gosuslugi.ru), then which doctor did you sign up for yourself, another adult or a child?

- [ ] local therapist
- [ ] local pediatrician
- [ ] general practitioner (family doctor)
- [ ] surgeon
- [ ] obstetrician-gynecologist
- [ ] ophthalmologist
- [ ] otorhinolaryngologist
- [ ] dentist
- [ ] pediatric dentist
- [ ] pediatric psychiatrist
- [ ] adolescent psychiatrist
- [ ] TB doctor
- [ ] psychiatrist-narcologist
- [ ] pediatric surgeon

14. Were you able to make an appointment with a doctor through the State Services portal (site www.gosuslugi.ru)?

- [ ] yes, I was able to make an appointment with a doctor through the State Services portal (website www.gosuslugi.ru)

☐ no, I couldn't make an appointment with a doctor through the State Services portal (website www.gosuslugi.ru)

15. What difficulties did you encounter when making an appointment with a doctor through the State Services portal (website www.gosuslugi.ru) (you can select several answer options)?

☐ inconvenient interface (for example, they first offer to choose a doctor, rather than a convenient date and time of appointment)

☐ I couldn't find a doctor that suited me (the one I usually go to)

☐ there was no convenient time to make an appointment with a doctor in the next 2 weeks

☐ Difficulties with rescheduling/cancelling an appointment, changing a medical organization or doctor

☐ There were no difficulties during recording

☐ other (specify)_____

16. How satisfied are you with the «Make an appointment with a doctor» service through the State Services portal? Rate on a 10-point scale (1 – not at all satisfied, 10 – completely satisfied).

☐ 1 ☐ 6

☐ 2 ☐ 7

☐ 3 ☐ 8

☐ 4 ☐ 9

☐ 5 ☐ 10

17. If you have to make an appointment with a doctor again, will you make an appointment through the State Services portal (website www.gosuslugi.ru)?

☐ exactly yes

☐ most likely yes

☐ I find it difficult to answer

☐ probably not

☐ absolutely not

18. Was there an advance reminder to make an appointment with the doctor?

☐ no, there was no prior reminder

☐ yes, phone call

☐ yes, SMS notification

19. Did the doctor see you at the time indicated in the electronic record?

☐ The appointment was on time or with a slight delay

☐ Admission was carried out on a first-come, first-served basis

☐ The appointment date/time has not yet arrived

☐ The appointment did not take place on my initiative (cancellation of appointment, rescheduling)

☐ the doctor refused to see me

☐ other (specify)_____

20. In the absence of free time to make an appointment with the required doctor, were you included in the «Waiting List»?

☐ yes, included in the «Waiting List»

☐ no, they did not offer to be included in the «Waiting List»

21. Did they call you back and schedule an appointment if you were included in the «Waiting List»?

☐ yes, they called back and set up an appointment time

☐ no, they didn't call back

22. Your suggestions, wishes for improving the quality of organizing an appointment with a doctor:

_____

_____

THANK YOU FOR YOUR PARTICIPATION
IN OUR SURVEY!

Appendix B. Questionnaire for a medical specialist «Assessing satisfaction with the organization of making an appointment with a doctor»

Dear Colleagues!

The Ministry of Health of the Sverdlovsk Region together with the State Administrative Educational Institution «Ural Institute of Health Management named after. A.B. Blokhina» conducts a survey to analyze satisfaction with the organization of making an appointment with a doctor in a medical organization.

We want to know how you assess the quality of the organization of making an appointment with a doctor in the medical organization in which you work. We ask you to treat the survey with understanding and carefully answer the questions asked. Select one or more options for each question and enter your answer if necessary. There is no need to indicate your name; your personal information will not be published anywhere. Participation in the study is anonymous and voluntary. Your opinion is very important to us to improve the organization of work on making appointments with a doctor in the region.

Name of medical organization

Date of completion «__» _____ 20__

1. Please indicate your age:

☐ _____ years

2. Please indicate your work experience in this medical organization:

☐ _____ years

3. Please indicate your specialty

☐ _____

4. Do you schedule patients for follow-up appointments in your medical organization’s Medical Information System?

☐ Yes

☐ No

5. Do you make patient appointments with other specialists in your medical organization in the Medical Information System?

☐ Yes

☐ No

6. Do you make patient appointments with specialists at other medical organizations in the Medical Information System?

☐ Yes

☐ No

7. If you do not make an appointment for the patient yourself, then refer the patient:

☐ to the administrator

☐ to the registry

☐ to the call center

☐ to the nurse (district) or to the nursing station

☐ other (specify)_____

8. Has your medical organization made organizational decisions on the redistribution of functions between doctors, paramedical personnel and personnel without medical education «by making an appointment with a doctor»?

☐ Yes

☐ No

9. Has the burden on doctors decreased due to organizational decisions on the redistribution of functions between doctors, paramedical personnel and personnel without medical education?

☐ Yes

☐ No

☐ not significantly

10. If you record a patient yourself, how long does this work take in the Medical Information System?

☐ up to 5 minutes

☐ 5-10 minutes

☐ 10-15 minutes

☐ more than 15 minutes

11. What difficulties do you encounter when making an appointment for a patient?

☐ long wait for a response from the Medical Information System

☐ long way to register a patient for an appointment in the Medical Information System

☐ there are no free slots to make an appointment with yourself or another specialist

☐ other (specify)_____

12. What do you do if there are no free slots in the Medical Information System?

☐ direct the patient to sign up independently through the call center

☐ direct the patient to register independently through the reception desk

☐ add the patient to the «Waiting List»

☐ other (specify)_____

13. If there is no free time to make an appointment with a doctor, do you necessarily include the patient on the «Waiting List»?

- [ ] Yes, I'll definitely put it on the «Waiting List»
- [ ] no, I don't put it on the «Waiting List»

14. In what ways do you most often recommend that patients make an appointment with a doctor?

- [ ] through the Unified Portal of State and Municipal Services (EPGU)
- [ ] through the regional portal https://rish.registratura96.ru/
- [ ] through the registry of a medical organization during a personal visit
- [ ] through a single call center of a medical organization
- [ ] through the information desk of a medical organization
- [ ] make an appointment with yourself or with other specialists when you visit

15. Which doctor is it difficult to register patients with in your medical organization based on the waiting time (in 14 specialties)?

- [ ] local therapist
- [ ] local pediatrician
- [ ] general practitioner (family doctor)
- [ ] surgeon
- [ ] obstetrician-gynecologist
- [ ] ophthalmologist
- [ ] otorhinolaryngologist
- [ ] dentist
- [ ] pediatric dentist
- [ ] pediatric psychiatrist
- [ ] adolescent psychiatrist
- [ ] TB doctor
- [ ] psychiatrist-narcologist
- [ ] pediatric surgeon

16. Is work organized in your medical organization to remind the patient of the fact of an appointment the day before?

- [ ] yes, the patient's appointment reminder is confirmed by the reception staff
- [ ] yes, the patient's appointment reminder is confirmed by the call center staff
- [ ] yes, the patient's appointment reminder is confirmed by local nurses
- [ ] yes, the patient is reminded about the appointment via SMS
- [ ] no, the patient is not reminded about the appointment

17. Do you see the patient at the time indicated in the electronic record?

- [ ] the appointment usually takes place at the appointed time or with a slight delay of up to 15 minutes
- [ ] reception usually takes place with a delay of more than 15 minutes

☐ Admission is on a first-come, first-served basis

☐ other (specify)_____

18. Do you comply with the recommended time standards for performing work related to the initial diagnostic and treatment visit to the patient?

☐ yes, I can stand it

☐ no, the recommended time limits are not sufficient

19. Do you meet the recommended time standards for performing work related to a repeated diagnostic and treatment visit to a patient (80% of the time from the initial visit)?

☐ yes, I can stand it

☐ no, the recommended time limits are not sufficient

20. Do you maintain the recommended time limits for performing work related to a visit for treatment and preventive purposes (70% of the time from the initial visit)?

☐ yes, I can stand it

☐ no, the recommended time limits are not sufficient

21. Do employees of your medical organization notify patients on the «Waiting List» about the appointment time?

☐ yes, they call back and schedule an appointment

☐ no, they don't call back

22. How satisfied are you with the organization of the «Make an appointment with a doctor» service in your medical organization? Rate on a 10-point scale (1 – not at all satisfied, 10 – completely satisfied).

☐	1	☐	6
☐	2	☐	7
☐	3	☐	8
☐	4	☐	9
☐	5	☐	10

23. What doesn’t suit you about making an appointment with a doctor in your medical organization:
_____

24. Your suggestions, wishes for improving the quality of organizing an appointment with a doctor:
_____
_____

Date of completion «__» _____ 20__

THANK YOU FOR YOUR PARTICIPATION
IN OUR SURVEY!

Appendix C. Questionnaire for the receptionist «Assessing satisfaction with the organization of making an appointment with a doctor»

Dear Colleagues!

The Ministry of Health of the Sverdlovsk Region together with the State Administrative Educational Institution «Ural Institute of Health Management named after. A.B. Blokhina» conducts a survey to analyze satisfaction with the organization of making an appointment with a doctor in a medical organization

We want to know how you assess the quality of the organization of making an appointment with a doctor in the medical organization in which you work. We ask you to treat the survey with understanding and carefully answer the questions asked. Select one or more answer options for each question and enter your answer if necessary. There is no need to indicate your name; your personal information will not be published anywhere. Participation in the study is anonymous and voluntary. Your opinion is very important to us to improve the organization of work on making appointments with a doctor in the region.

Name of medical organization

Date of completion «__» _____ 20__

1. Please indicate your age:

☐ _____ years

2. Indicate your work experience in this medical organization:

☐ _____ years

3. Do reception staff answer phone calls from patients or is the call answering function transferred to a single call center of the medical organization?

☐ yes, they answer calls

☐ no, they don't answer, the function of answering calls has been transferred to a single call center of a medical organization

4. Do you make an appointment with a doctor at the registry in the Medical Information System of a medical organization when a patient contacts the registry in person?

☐ Yes

☐ No

5. Do you register a patient at the registry office for an appointment with specialized specialists of your medical organization in the Medical Information System when the patient contacts the registry office in person?

☐ Yes

☐ No

6. Do you register a patient at the reception desk for appointments with specialists at other medical organizations in the Medical Information System when the patient contacts the reception desk personally with a referral from the attending physician?

☐ Yes

☐ No

7. If you were unable to make an appointment with a doctor due to the lack of free slots in the Medical Information System, then:

☐ direct the patient to go in person to the reception on another day

☐ direct the patient to independently sign up at the medical organization's call center later

☐ direct the patient to sign up independently through the Unified Portal of State and Municipal Services (EPGU)

☐ register the patient on the waiting list

☐ other (specify)_____

8. If you record a patient, how long does this work take in the Medical Information System?

☐ up to 5 minutes

☐ 5-10 minutes

☐ 10-15 minutes

☐ more than 15 minutes

9. What difficulties do you encounter when making a patient appointment with a doctor?

☐ long wait for a response from the Medical Information System

☐ long way to register a patient for an appointment in the Medical Information System

☐ there are no free slots to make an appointment with a specialist

☐ other (specify)_____

10. When contacting the reception desk, do you inform patients what ways they can make an appointment with a doctor?

☐ yes, we inform

☐ no, we do not inform

11. What methods of informing patients about making an appointment with a doctor are used in your medical organization?

☐ The reception desk contains visual information on how to make an appointment with a doctor

☐ Information leaflets on how to make an appointment with a doctor for distribution to patients are posted at the reception desk

☐ other (specify)_____

12. Does your medical organization have an employee responsible for informing and routing patients and assistance in making appointments with a doctor through an information desk (for example: a receptionist)?

☐ Yes

☐ No

13. In what ways do you most often recommend that patients make an appointment with a doctor?

☐ through the Unified Portal of State and Municipal Services (EPGU)

- [ ] through the regional portal https://rish.registratura96.ru/
- [ ] through the registry of a medical organization during a personal visit
- [ ] through a single call center of a medical organization
- [ ] through the information desk of a medical organization

14. Which doctor is it difficult to register patients with in your medical organization based on the waiting time (in 14 specialties)?

- [ ] local therapist
- [ ] local pediatrician
- [ ] general practitioner (family doctor)
- [ ] surgeon
- [ ] obstetrician-gynecologist
- [ ] ophthalmologist
- [ ] otorhinolaryngologist
- [ ] dentist
- [ ] pediatric dentist
- [ ] pediatric psychiatrist
- [ ] adolescent psychiatrist
- [ ] TB doctor
- [ ] psychiatrist-narcologist
- [ ] pediatric surgeon

15. Is work organized in your medical organization to remind the patient of the fact of an appointment the day before?

- [ ] yes, the patient’s appointment reminder is confirmed by the reception staff
- [ ] yes, the patient’s appointment reminder is confirmed by the call center staff
- [ ] yes, the patient’s appointment reminder is confirmed by local nurses
- [ ] yes, the patient is reminded about the appointment via SMS
- [ ] no, the patient is not reminded about the appointment

16. If there is no free time to make an appointment with a doctor, do you include the patient on the «Waiting List»?

☐ yes, I'm on the waiting list

☐ no, I don’t put it on the «waiting list»

17. Do employees of your medical organization notify patients on the «Waiting List» about the opportunity to make an appointment?

☐ yes, they call back and offer an appointment time

☐ no, they don't call back

18. Are algorithms of actions and speech modules for interaction with a patient when he contacts the reception desk approved at the level of the medical organization and do you use them in your work?

☐ yes, approved, used in work

☐ yes, approved, but not used

☐ no, not approved, not used in work

19. Are the reception staff of a medical organization trained in the algorithms of actions and speech modules for patient interaction when he contacts the reception desk?

☐ yes, trained

☐ no, not trained

20. How satisfied are you with the organization of the «Make an appointment with a doctor» service in your medical organization? Rate on a 10-point scale (1 – not at all satisfied, 10 – completely satisfied).

☐	1	☐	6
☐	2	☐	7
☐	3	☐	8
☐	4	☐	9
☐	5	☐	10

21. What does not suit you about organizing an appointment with a doctor in your medical organization:

_____

22. Your suggestions, wishes for improving the quality of organizing an appointment with a doctor:

_____

Date of completion «__» _____ 20__

THANK YOU FOR YOUR PARTICIPATION
IN OUR SURVEY!

Appendix D. Questionnaire for a call center operator «Assessing satisfaction with the organization of making an appointment with a doctor»

Dear Colleagues!

The Ministry of Health of the Sverdlovsk Region together with the State Administrative Educational Institution «Ural Institute of Health Management named after. A.B. Blokhina» conducts a survey to analyze satisfaction with the organization of making an appointment with a doctor in a medical organization

We want to know how you assess the quality of the organization of making an appointment with a doctor in the medical organization in which you work. We ask you to treat the survey with understanding and carefully answer the questions asked. Select one or more options for each question and enter your answer if necessary. There is no need to indicate your name; your personal information will not be published anywhere. Participation in the study is anonymous and voluntary. Your opinion is very important to us to improve the organization of work on making appointments with a doctor in the region.

Name of medical organization

Date of completion «__» _____ 20__

1. Please indicate your age:

☐ _____ years

2. Indicate your work experience in this medical organization:

☐ _____ years

3. Do you have a medical education?

☐ Yes

☐ No

4. Do you make an appointment with a doctor in the Medical Information System of a medical organization when a patient contacts the call center?

☐ Yes

☐ No

5. Do you make an appointment for a patient with specialized specialists at your medical organization in the Medical Information System when the patient contacts the call center?

☐ Yes

☐ No

6. Do you register a patient for an appointment with specialists in other medical organizations in the Medical Information System when the patient contacts the call center with a referral from the attending physician?

☐ Yes

☐ No

7. If you were unable to make an appointment for a patient with a doctor, if there are no free slots in the Medical Information System when the patient contacts the call center, then:

☐ direct the patient to go in person to the reception on another day

- [ ] direct the patient to independently make an appointment at the call center of a medical organization on another day
- [ ] direct the patient to sign up independently through the Unified Portal of State and Municipal Services (EPGU)
- [ ] register the patient on the waiting list
- [ ] other (specify)_____

8. If you record a patient, how long does this work take in the Medical Information System?

- [ ] up to 5 minutes
- [ ] 5-10 minutes
- [ ] 10-15 minutes
- [ ] more than 15 minutes

9. What difficulties do you encounter when making a patient appointment with a doctor?

- [ ] long wait for a response from the Medical Information System
- [ ] long way to register a patient for an appointment in the Medical Information System
- [ ] there are no free slots to make an appointment with a doctor
- [ ] other (specify)_____

10. When contacting the call center, do you inform patients what ways they can make an appointment with a doctor?

- [ ] yes, we inform
- [ ] no, we do not inform

11. In what ways do you most often recommend that patients make an appointment with a doctor?

- [ ] through the Unified Portal of State and Municipal Services (EPGU)
- [ ] through the regional portal https://rish.registratura96.ru/
- [ ] through the registry of a medical organization during a personal visit
- [ ] through a single call center of a medical organization
- [ ] through the information desk of a medical organization

12. Which doctor is it difficult to register patients with in your medical organization based on the waiting time (in 14 specialties)?

- [ ] local therapist
- [ ] local pediatrician

- ☐ general practitioner (family doctor)
- ☐ surgeon
- ☐ obstetrician-gynecologist
- ☐ ophthalmologist
- ☐ otorhinolaryngologist
- ☐ dentist
- ☐ pediatric dentist
- ☐ pediatric psychiatrist
- ☐ adolescent psychiatrist
- ☐ TB doctor
- ☐ psychiatrist-narcologist
- ☐ pediatric surgeon

13. Is work organized in your medical organization to remind the patient of the fact of an appointment the day before?

- ☐ yes, the patient’s appointment reminder is confirmed by the reception staff
- ☐ yes, the patient’s appointment reminder is confirmed by the call center staff
- ☐ yes, the patient’s appointment reminder is confirmed by local nurses
- ☐ yes, the patient is reminded about the appointment via SMS
- ☐ no, the patient is not reminded about the appointment

14. If there is no free time to make an appointment with a doctor, do you include the patient on the «Waiting List»?

- ☐ yes, I'm on the waiting list
- ☐ no, I don’t put it on the «waiting list»

15. Do employees of your medical organization notify patients on the «Waiting List» about the opportunity to make an appointment?

- ☐ yes, they call back and offer an appointment time
- ☐ no, they don't call back

16. Are the action algorithms and speech modules for patient interaction when contacting a call center approved at the level of the medical organization and do you use them in your work?

☐ yes, approved, used in work

☐ no, not approved, not used in work

17. Are the employees of the call center of a medical organization trained in the algorithms of actions and speech modules for patient interaction when contacting the call center?

☐ yes, trained

☐ no, not trained

18. Are the call center employees of a medical organization trained in the basic rules of conducting a telephone conversation (characteristics of speech during a conversation, patterns of telephone conversations, conflict management)?

☐ yes, trained

☐ no, not trained

19. How satisfied are you with the organization of the «Make an appointment with a doctor» service in your medical organization? Rate on a 10-point scale (1 – not at all satisfied, 10 – completely satisfied).

☐	1	☐	6
☐	2	☐	7
☐	3	☐	8
☐	4	☐	9
☐	5	☐	10

20. What doesn't suit you about making an appointment with a doctor in your medical organization:

_____

_____

21. Your suggestions, wishes for improving the quality of organizing an appointment with a doctor:

_____

_____

Date of completion «__» _____ 20__

THANK YOU FOR YOUR PARTICIPATION
IN OUR SURVEY!

Appendix E. Questionnaire for an employee of a medical organization «Studying the involvement of personnel of medical organizations as part of the implementation of a new model of primary health care»

Dear Colleagues!
We invite you to take part in the assessment of your medical organization.
The questionnaire is anonymous, the data will be analyzed in a generalized form.

1. To what extent, in your opinion, is each of the statements true? Mark one answer option on each line

	Yes	Rather yes than no	No	I don't care
1). I understand my tasks and functions				
2). I know what management expects from me				
3). I know by what criteria my work is evaluated				
4). The organization has created all the conditions for me to do my job efficiently.				
5). If I work well and diligently, the manager speaks well of me				
6). I have all the necessary materials and tools to do my job efficiently				

2. To what extent, in your opinion, is each of the statements true? Mark one answer option on each line

	Yes	Rather yes than no	No	I don't care
7). Management appreciates my achievements and notices my successes				
8). Management and colleagues take my point of view into account				
9). I learn while I work, I learn something new				
10). I feel the importance of the work I do				

eleven). The manager treats me as a person, and not just as an employee				
12). My colleagues consider it their duty to do quality work				

3. Please indicate your gender
1) Male
2) Female

4. Please indicate your age
1) 18-24
2) 25-34
3) 35-44
4) 45-54
5) 55-64
6) 65 and older

5. Indicate your medical institution

6. Area of your activity
1) Health worker (Go to question 7)
2) Non-medical worker (Go to question 8)

7. Your position
1) Doctor
2) Paramedic
3) Nurse

8. Your level of education
1) Higher
2) Incomplete higher education
3) Secondary special
4) Overall average
5) Incomplete secondary or primary

Thank you for your participation!

Appendix F. Ranking of municipalities of the Sverdlovsk region according to medical, statistical and demographic indicators

Table 44 – Ranking of municipalities of the Sverdlovsk region by overall mortality rate (per 1000 population)

Municipality	2017		2018		2019	
	Index	Rank	Index	Rank	Index	Rank
1	2	3	4	5	6	7
Alapaevskoe municipal district	16.07	44	16.47	40	16.90	52
Aramilsky GO	14.31	22	14.31	19	15.11	24
Artemovsky GO	15.83	40	17.4	49	16.12	41
Artinsky GO	17.44	54	15.95	34	16.27	43
Asbestovsky GO	16.15	45	16.31	39	15.55	31
Achitsky GO	14.53	24	16.91	43	16.50	45
Baikalovsky MR	15.83	40	17.75	52	15.25	28
Berezovsky GO	12	9	12.39	6	11.97	5
Bisertsky District	15.25	34	18.45	56	16.70	48
Verkhnesaldinsky GO	14.91	32	16.49	42	15.28	29
Volchansky GO	20.02	58	18.74	59	15.68	35
Beloyarsky municipal district, including Verkhneye Dubrovo municipal district, settlement municipal district. Ural	13.77	17	14.87	22	14.25	13
GO Bogdanovich	14.23	19	14.04	14	14.47	18
GO Verkh-Neivinsky	16.45	48	15.76	32	15.72	36
GO Verkhniy Tagil	16.27	46	18.43	55	16.00	39
Verkhnyaya Pyshma municipality, including Sredneuralsk municipality	11.31	5	11.35	4	11.24	4
GO Verkhnyaya Tura	17.78	55	15.86	33	16.40	44
GO Verkhotursky	13.5	13	14.11	15	14.69	21
GO Degtyarsk	18.78	57	17.63	51	16.76	50
GO ZATO Svobodny	4.03	1	3.03	1	3.47	1
GO Karpinsk	14.96	33	15.23	27	15.67	34
GO Krasnouralsk	17.22	52	17.46	50	16.69	47
Krasnoufimsky municipal district, including Krasnoufimsky municipal district	14.29	21	15.46	28	14.40	16
GO Nizhnyaya Salda	13.75	16	13.02	10	15.20	26
GO Pervouralsk, including GO Staroutkinsk	15.64	38	15.58	30	15.73	37
GO Revda	14.56	26	13.63	11	13.95	9
GO Reftinsky	11.48	6	11.11	3	11.99	6
GO Sukhoi Log	13.87	18	13.92	12	14.16	11

Table 44 continued

1	2	3	4	5	6	7
Gornouralsk GO	16.61	50	16.05	35	14.76	22
Ivdelsky GO	12.37	10	12.43	7	12.23	7
Kamensky GO	14.55	25	16.23	37	15.92	38
Kamyshlovsky municipal district, including Kamyshlovsky municipal district	11.08	4	12.61	8	10.83	3
Kachkanarsky GO	14.74	29	14.13	16	14.78	23
Kirovgrad GO	20.96	59	18.5	57	18.02	58
Krasnoturinsk GO	14.32	23	13.9359	13	14.32	15
Kushvinsky GO	18.65	56	18.54	58	18.45	59
Malyshevsky GO	11.67	8	16.48	41	15.33	30
Makhnevskoe municipal district	9.55	2	11.66	5	17.33	56
Municipal district of Alapaevsk	16.06	43	16.25	38	17.24	55
Irbit municipal district and Irbit municipal district	13.74	15	14.88	23	14.50	19
Municipal district of Kamensk-Uralsky	14.24	20	14.21	18	14.43	17
Municipal District of Nizhny Tagil	13.57	14	14.67	20	14.21	12
Ekaterinburg	10.53	3	10.8	2	10.74	2
Nevyansky District	15.66	39	15.2	26	16.04	40
Nizhneserginsky MR	17.23	53	17.12	44	16.89	51
Nizhneturinsky GO	15.42	36	16.09	36	17.03	54
Novolyalinsky district	11.5	7	15.01	24	15.17	25
Polevskoy GO	14.74	29	14.86	21	14.01	10
Pyshminsky GO	12.75	11	17.18	47	16.27	42
Rezhevskaya GO	14.58	27	15.52	29	14.30	14
Severouralsky GO	16.35	47	17.19	48	17.86	57
Serovsky GO	13.2	12	12.62	9	12.51	8
Slobodo-Turinsky MR	15.44	37	18.42	54	16.92	53
Sysertsky GO	14.71	28	14.2	17	14.54	20
Tavdinsky GO, including Taborinsky MR	14.89	31	15.61	31	15.21	27
Talitsky GO	16.52	49	17.17	46	16.74	49
Tugulymsky GO	15.32	35	17.14	45	16.61	46
Turinsky GO	16.03	42	18.25	53	15.60	33
Shalinsky GO	16.71	51	15.01	24	15.56	32

Table 45 – Ranking of municipalities of the Sverdlovsk region by mortality rate in working age (per 100 thousand population)

Municipality	2017		2018		2019	
	Index	Rank	Index	Rank	Index	Rank
1	2	3	4	5	6	7
Alapaevskoe municipal district	871.3	50	738.3	31	744.0	35
Aramilsky GO	526.8	7	590.5	9	754.8	38
Artemovsky GO	766.7	36	771.4	37	700.8	28
Artinsky GO	778.7	39	771.3	36	756.0	39
Asbestovsky GO	715.2	30	789.3	40	651.0	18
Achitsky GO	815.8	45	915.9	52	808.5	49
Baikalovsky MR	619.2	17	605.0	12	642.8	17
Berezovsky GO	510.8	5	622.2	14	497.2	5
Bisertsky District	640.5	21	1137.6	59	907.7	55
Verkhnesaldinsky GO	648.0	23	766.9	35	637.7	16
Volchansky GO	1043.9	57	1003.3	57	789.0	44
Beloyarsky municipal district, including Verkhneye Dubrovo municipal district, settlement municipal district. Ural	855.0	48	821.5	44	797.4	46
GO Bogdanovich	589.9	11	636.3	18	681.9	22
GO Verkh-Neivinsky	1125.8	59	724.6	29	832.0	53
GO Verkhniy Tagil	776.8	38	942.4	55	581.4	12
Verkhnyaya Pyshma municipality, including Sredneuralsk municipality	617.5	16	518.6	5	510.5	6
GO Verkhnyaya Tura	757.6	34	612.8	13	757.6	40
GO Verkhotursky	584.2	10	679.6	22	859.9	54
GO Degtyarsk	887.0	51	841.9	46	800.2	48
GO ZATO Svobodny	219.9	1	111.3	1	140.3	1
GO Karpinsk	814.6	44	826.5	45	766.8	42
GO Krasnouralsk	892.3	52	891.0	49	786.6	43
Krasnoufimsky municipal district, including Krasnoufimsky municipal district	677.2	27	692.2	25	593.9	13
GO Nizhnyaya Salda	644.1	22	630.8	16	742.8	34
GO Pervouralsk, including GO Staroutkinsk	805.3	42	793.2	41	826.5	51
GO Revda	749.8	32	588.3	8	685.6	24
GO Reftinsky	511.1	6	447.1	3	312.1	2
GO Sukhoi Log	632.7	19	592.6	10	669.4	21
Gornouralsk GO	869.3	49	799.3	42	748.9	36
Ivdelsky GO	677.8	28	695.2	26	682.4	23
Kamensky GO	621.9	18	787.7	39	753.0	37
Kamyshlovsky municipal district, including Kamyshlovsky municipal district	425.3	4	524.2	6	446.3	4

Table 45 continued

1	2	3	4	5	6	7
Kachkanarsky GO	750.0	33	699.1	27	621.5	15
Kirovgrad GO	1078.9	58	991.0	56	928.1	56
Krasnoturinsk GO, Pelym GO	712.0	29	630.4	15	580.7	11
Kushvinsky GO	910.0	53	920.9	53	729.8	32
Malyshevsky GO	344.2	2	910.4	50	534.2	9
Makhnevskoe municipal district	1009.7	56	1081.3	58	1176.5	59
Municipal district of Alapaevsk	659.7	24	729.0	30	766.4	41
Irbit municipal district and Irbit municipal district	600.9	14	595.7	11	614.8	14
Municipal district of Kamensk-Uralsky	567.3	9	496.7	4	520.0	7
Municipal District of Nizhny Tagil	611.1	15	630.8	16	579.9	10
Ekaterinburg	397.9	3	396.6	2	393.5	3
Nevyansky District	761.4	35	747.7	34	797.9	47
Nizhneserginsky MR	849.3	47	739.9	32	794.3	45
Nizhneturinsky GO	833.3	46	772.3	38	825.1	50
Novolyalinsky district	533.9	8	700.5	28	697.4	27
Polevskoy GO	728.1	31	690.6	24	704.5	29
Pyshminsky GO	806.2	43	806.7	43	668.6	20
Rezhevskaya GO	634.3	20	668.1	21	660.2	19
Severouralsky GO	936.0	55	923.5	54	931.5	57
Serovsky GO, Sosvinsky GO, Garinsky GO	599.4	12	548.4	7	530.9	8
Slobodo-Turinsky MR	791.5	40	910.5	51	722.7	31
Sysertsky GO	766.8	37	688.5	23	690.9	25
Tavdinsky GO, including Taborinsky MR	666.1	25	639.0	19	707.0	30
Talitsky GO	600.8	13	661.0	20	697.0	26
Tugulymsky GO	671.9	26	877.2	48	829.2	52
Turinsky GO	800.3	41	870.8	47	739.6	33
Shalinsky GO	920.7	54	746.2	33	933.9	58
Sverdlovsk region	571.9		565.5		548.4	

Table 46 – Ranking of municipalities of the Sverdlovsk region according to the indicator general morbidity rate of the population, (per 1000 population)

Municipality	2017		2018		2019	
	Index	Rank	Index	Rank	Index	Rank
1	2	3	4	5	6	7
Alapaevskoe municipal district	1641.1	49	1645.1	50	1890.8	51
Aramilsky GO	1777.7	51	1782.5	52	2095.3	55
Artemovsky GO	1328.2	32	1491.5	38	1602.8	38
Artinsky GO	1372.7	37	1441.3	35	2106.3	56
Asbestovsky GO	1440.5	38	1422.6	33	1406.2	24

Table 46 continued

1	2	3	4	5	6	7
Achitsky GO	1319.9	31	1345.6	28	1441.1	29
Baikalovsky MR	1560.6	45	1621.3	48	1651.7	43
Berezovsky GO	1296.8	30	1298.2	27	1329.6	22
Bisertsky District	1873.9	54	1900.1	55	1842.8	49
Verkhnesaldinsky GO	952.3	7	984.2	9	1043.3	7
Volchansky GO	2012.6	56	2062.2	58	2452.2	59
Beloyarsky municipal district, including Verkhneye Dubrovo municipal district, settlement municipal district. Ural	1072.8	11	1189.7	24	1277.7	19
GO Bogdanovich	1204.8	26	1287.5	26	1411.7	25
GO Verkh-Neivinsky	684.4	2	772.3	2	886.9	3
GO Verkhniy Tagil	1295.6	29	1382.7	31	1447.1	30
Verkhnyaya Pyshma municipality, including Sredneuralsk municipality	1290	28	1355.7	30	1428.1	27
GO Verkhnyaya Tura	1835.4	52	1746	51	1732.9	47
GO Verkhotursky	810.1	4	811.4	4	836	2
GO Degtyarsk	1102.4	18	1105.5	13	1167.1	11
GO ZATO Svobodny	970.7	8	963.8	6	1917.4	52
GO Karpinsk	1186.3	25	1253.7	25	1418.8	26
GO Krasnouralsk	1632.8	48	1601.7	43	1638.2	41
Krasnoufimsky municipal district, including Krasnoufimsky municipal district	2079.5	57	2046.3	57	2298.6	58
GO Nizhnyaya Salda	1015.2	10	1174.3	23	1457.1	31
GO Pervouralsk, including GO Staroutkinsk	2824.6	59	1575.1	41	1633.2	40
GO Revda	2142.6	58	2117.6	59	2280.5	57
GO Reftinsky	779.3	3	801.6	3	1147.7	10
GO Sukhoi Log	1113.2	19	1105.7	14	1289	21
Gornouralsk GO	1091.8	14	1154.7	20	1254.6	17
Ivdelsky GO	986.9	9	1006	10	987.9	5
Kamensky GO	1365.9	36	1484.2	37	1503.1	33
Kamyshlovsky GO, in including Kamyshlovsky Municipal District	1605.8	47	1608.5	46	1675.6	45
Kachkanarsky GO	1149.9	22	1118.8	15	1119.6	9
Kirovgrad GO	1553	44	1626	49	1649	42
Krasnoturinsk GO	1145.4	21	1151.2	19	1273.5	18
Kushvinsky GO	1525	42	1613.7	47	1758.3	48
Malyshevsky GO	1332.3	33	1401.7	32	1514.3	35
Makhnevskoe municipal district	601.1	1	519.2	1	523.8	1
Municipal district of Alapaevsk	1512	40	1552.9	40	1577	37

Table 46 continued

1	2	3	4	5	6	7
Irbit municipal district and Irbit municipal district	1102.3	17	1137.6	16	1178.2	13
Municipal district of Kamensk-Uralsky	1857.9	53	1878.9	54	2035.3	54
Municipal District of Nizhny Tagil	1540.2	43	1603	44	1705.9	46
Ekaterinburg	1507.6	39	1492.6	39	1505.1	34
Nevyansky District	1340.5	34	1442.6	36	1515.4	36
Nizhneserginsky MR	1100.4	16	1095.7	12	1167.4	12
Nizhneturinsky GO	1745	50	1855.1	53	1866.4	50
Novolyalinsky district	1145.2	20	1149.8	18	1285.1	20
Polevskoy GO	1242.4	27	1346.8	29	1436.2	28
Pyshminsky GO	902.8	5	845.2	5	977.7	4
Rezhevskaya GO	1359.7	35	1430.6	34	1479.3	32
Severouralsky GO	1903.9	55	1918	56	1922.4	53
Serovsky GO	939.6	6	968	7	1106.3	8
Slobodo-Turinsky MR	1521.5	41	1582.4	42	1620.2	39
Sysertsky GO	1099.7	15	1164.2	22	1244.9	16
Tavdinsky GO, including Taborinsky MR	1079.7	12	983	8	1021	6
Talitsky GO	1585.1	46	1603.9	45	1652.4	44
Tugulymsky GO	1152.1	23	1162.1	21	1208.5	15
Turinsky GO	1158.7	24	1140.8	17	1343.5	23
Shalinsky GO	1090.3	13	1056.1	11	1195.2	14

Table 47 – Ranking of municipalities of the Sverdlovsk region in relation to the planned capacity to the actual capacity of outpatient departments of medical organizations in the municipality

Municipality	2017		2018		2019	
	Index	Rank	Index	Rank	Index	Rank
1	2	3	4	5	6	7
Alapaevskoe municipal district	0.37	40	0.31	43	0.34	42
Aramilsky GO	0.50	19	0.57	13	0.55	15
Artemovsky GO	0.60	10	0.57	12	0.66	9
Artinsky GO	0.56	14	0.56	16	0.52	16
Asbestovsky GO	0.40	38	0.38	39	0.33	43
Achitsky GO	1.08	2	1.15	2	1.22	3
Baikalovsky MR	0.48	22	0.93	4	0.88	5
Berezovsky GO	0.49	20	0.47	22	0.44	26
Bisertsky District	0.81	6	0.69	7	0.84	6
Verkhnesaldinsky GO	0.26	49	0.23	50	0.24	50
Volchansky GO	0.17	57	0.19	56	0.27	49
Beloyarsk GO	0.47	30	0.30	44	0.31	45

Table 47 continued

1	2	3	4	5	6	7
GO Bogdanovich	0.19	54	0.22	52	0.24	51
GO Verkh-Neivinsky	0.20	53	0.20	55	0.20	57
GO Verkhniy Tagil	0.44	33	0.45	25	0.38	37
GO Verkhnyaya Pyshma	0.83	5	0.77	6	0.76	7
GO Verkhnyaya Tura	0.21	52	0.22	51	0.22	53
GO Verkhotursky	0.30	45	0.26	48	0.33	44
GO Degtyarsk	0.54	16	0.50	18	0.46	21
GO ZATO Svobodny	1.82	1	2.03	1	1.60	2
GO Karpinsk	0.47	29	0.50	17	0.48	19
GO Krasnouralsk	0.18	56	0.18	57	0.17	58
GO and MO Krasnoufimskiye	0.59	11	0.56	15	0.64	11
GO Nizhnyaya Salda	0.48	23	0.49	21	0.45	23
GO Pervouralsk	0.53	17	0.44	29	0.45	24
GO Revda	0.48	25	0.45	26	0.42	31
GO Reftinsky	0.44	34	0.45	27	0.50	17
GO Sukhoi Log	0.45	32	0.44	30	0.46	20
Gornouralsk GO	0.18	55	0.20	54	0.21	56
Ivdelsky GO	0.08	59	0.06	58	0.07	59
Kamensky GO	0.22	51	0.21	53	0.21	55
Kamyshlovsky GO and MO	0.33	43	0.38	38	0.37	39
Kachkanarsky GO	0.46	31	0.43	32	0.43	29
Kirovgrad GO	0.59	12	0.57	14	0.45	22
Krasnoturinsk GO	0.63	9	0.59	11	0.61	13
Kushvinsky GO	0.43	35	0.41	35	0.37	41
Malyshevsky GO	0.36	41	0.37	40	0.23	52
Makhnevskoe municipal district	0.15	58	0.00	59	3.81	1
Municipal district of Alapaevsk	0.27	48	0.25	49	0.29	48
Irbit municipal district and Irbit municipal district	0.33	44	0.33	42	0.37	40
Municipal district of Kamensk-Uralsky	0.47	28	0.45	24	0.41	32
Nizhny Tagil	0.41	36	0.40	36	0.39	36
Ekaterinburg	1.07	3	1.05	3	1.06	4
Nevyansky District	0.48	27	0.44	28	0.39	35
Nizhneserginsky MR	0.77	7	0.77	5	0.74	8
Nizhneturinsky GO	0.48	26	0.38	37	0.39	34
Novolyalinsky district	0.24	50	0.26	47	0.21	54
Polevskoy GO	0.34	42	0.42	33	0.42	30
Pyshminsky GO	0.40	37	0.34	41	0.38	38
Rezhevskaya GO	0.57	13	0.60	10	0.60	14
Severouralsky GO	0.48	24	0.46	23	0.44	28
Serovsky GO	0.28	46	0.29	45	0.29	47
Slobodo-Turinsky MR	1.00	4	0.69	9	0.65	10
Sysertsky GO	0.27	47	0.28	46	0.29	46

Table 47 continued

1	2	3	4	5	6	7
Tavdinsky GO and Taborinsky MR	0.38	39	0.41	34	0.44	27
Talitsky GO	0.63	8	0.69	8	0.62	12
Tugulymsky GO	0.52	18	0.50	19	0.49	18
Turinsky GO	0.55	15	0.49	20	0.45	25
Shalinsky GO	0.49	21	0.43	31	0.40	33

Table 48 – Ranking of municipalities of the Sverdlovsk region by the share of preventive visits to doctors in the municipalities of the Sverdlovsk region, %

Municipality	2017		2018		2019	
	Index	Rank	Index	Rank	Index	Rank
1	2	3	4	5	6	7
Alapaevskoe municipal district	36.54	32	31.56	52	33.84	43
Aramilsky GO	32.18	48	37.85	26	39.83	26
Artemovsky GO	32.08	49	31.58	51	40.71	24
Artinsky GO	42.24	17	41.04	18	43.43	17
Asbestovsky GO	37.18	30	34.42	35	35.96	37
Achitsky GO	35.14	35	37.82	27	44.62	14
Baikalovsky MR	48.00	8	48.97	7	48.49	8
Berezovsky GO	32.85	47	32.20	48	32.58	45
Bisertsky District	33.67	42	36.06	32	39.61	27
Verkhnesaldinsky GO	59.94	3	41.71	15	48.97	7
Volchansky GO	34.17	39	32.72	45	19.26	59
Beloyarsk GO	46.30	11	53.12	2	50.79	6
GO Bogdanovich	34.36	37	33.71	39	44.03	15
GO Verkh-Neivinsky	34.03	40	34.18	36	30.66	51
GO Verkhniy Tagil	37.91	27	33.93	37	37.61	34
Verkhnyaya Pyshma municipality, Sredneuralsk municipality	43.12	14	39.99	21	41.67	22
GO Verkhnyaya Tura	31.76	50	37.01	29	50.99	5
GO Verkhotursky	60.23	2	60.57	1	56.56	2
GO Degtyarsk	33.89	41	32.85	44	26.50	55
GO ZATO Svobodny	47.87	9	51.40	4	32.33	47
GO Karpinsk	31.41	51	33.01	43	45.80	12
GO Krasnouralsk	54.80	5	49.89	5	51.81	4
GO Krasnoufimsky, MO Krasnoufimsky district	38.32	25	35.38	33	41.24	23
GO Nizhnyaya Salda	58.02	4	52.98	3	43.66	16
GO Pervouralsk	31.22	52	27.24	57	31.24	49
GO Revda	37.31	29	36.96	30	37.20	35
GO Reftinsky	27.52	58	23.55	58	26.46	56
GO Sukhoi Log	39.04	22	41.19	17	37.80	33
Gornouralsk GO	30.80	54	27.55	56	23.06	58

Table 48 continued

1	2	3	4	5	6	7
Ivdelsky GO	22.39	59	14.71	59	30.85	50
Kamensky GO	35.91	33	30.23	55	23.68	57
Kamyshlovsky municipal district, Kamyshlovsky municipal district	39.02	23	45.53	11	55.40	3
Kachkanarsky GO	43.74	13	49.77	6	57.21	1
Kirovgrad GO	39.43	20	33.48	40	28.36	53
GO Krasnoturinsk	34.48	36	33.31	41	33.97	41
Kushvinsky GO	47.40	10	42.46	14	42.90	18
Malyshevsky GO	29.92	55	32.59	46	46.51	11
Makhnevskoe municipal district	66.24	1	35.33	34	33.02	44
Municipal district of Alapaevsk	38.42	24	38.95	25	42.75	19
Municipal district of Irbit, Irbitsky municipal district	50.22	7	47.94	9	44.64	13
Municipal district of Kamensk-Uralsky	33.09	46	32.17	49	34.13	40
Municipal District of Nizhny Tagil	30.83	53	33.88	38	29.71	52
Municipal District of Yekaterinburg	33.45	44	32.35	47	34.36	39
Nevyansky District	34.26	38	40.53	20	37.11	36
Nizhneserginsky MR	33.10	45	31.88	50	31.28	48
Nizhneturinsky GO	42.73	15	31.45	53	34.71	38
Novolyalinsky district	36.69	31	39.41	22	39.24	29
Polevskoy GO	28.07	57	33.08	42	28.35	54
Pyshminsky GO	37.72	28	36.60	31	33.90	42
Rezhevskaya GO	38.13	26	41.33	16	38.28	31
Severouralsky GO	39.09	21	37.43	28	39.22	30
Serovsky GO	29.69	56	39.04	23	42.23	20
Slobodo-Turinsky MR	50.37	6	48.81	8	40.21	25
Sysertsky GO	39.64	19	38.96	24	39.51	28
Tavdinsky GO	44.62	12	46.65	10	46.58	10
Talitsky GO	40.83	18	45.41	12	48.09	9
Tugulymsky GO	35.77	34	40.81	19	38.19	32
Turinsky GO	33.59	43	30.66	54	32.48	46
Shalinsky GO	42.53	16	43.30	13	41.67	21

Table 49 – Ranking of municipalities of the Sverdlovsk region according to the supply of doctors in the municipalities of the Sverdlovsk region, (per 10 thousand population)

Municipality	2017		2018		2019	
	Index	Rank	Index	Rank	Index	Rank
1	2	3	4	5	6	7
Alapaevskoe municipal district	20.6	21	20	22	19.4	20
Aramilsky GO	28.3	2	25.9	4	25.5	4
Artemovsky GO	22.3	15	22.4	10	21.5	12
Artinsky GO	22.6	14	21.7	14	21.2	14
Asbestovsky GO	26.7	5	25.9	4	25	5
Achitsky GO	23.1	12	20.9	19	18	28
Baikalovsky MR	16.4	38	15.2	40	15.4	36
Berezovsky GO	24.6	6	23.8	6	22.1	9
Bisertsky District	32.1	1	29.2	1	27.3	2
Verkhnesaldinsky GO	11.4	52	11.3	49	11.3	50
Volchansky GO	6.6	58	7.8	56	8	57
Beloyarsky municipal district, Verkhneye Dubrovo municipal district, municipal settlement. Ural	18	30	16.4	35	14.9	40
GO Bogdanovich	14.4	45	13.5	47	12.7	47
GO Verkh-Neivinsky	13.7	48	16.2	36	20.7	16
GO Verkhniy Tagil	16.4	38	15.2	40	13.9	43
Verkhnyaya Pyshma municipality, including Sredneuralsk municipality	23.8	8	22.4	10	23.3	7
GO Verkhnyaya Tura	9.8	53	7.7	57	8.9	56
GO Verkhotursky	14.9	43	15	42	15.3	38
GO Degtyarsk	14.2	46	15	42	15.1	39
GO ZATO Svobodny	16.1	40	15.7	38	14.1	41
GO Karpinsk	14.9	43	13.7	46	13.4	45
GO Krasnouralsk	17.8	32	17	32	16.4	31
Krasnoufimsky municipal district, including Krasnoufimsky municipal district	17.5	34	17.9	26	19.9	18
GO Nizhnyaya Salda	9.6	54	10.2	53	10.8	51
GO Pervouralsk (+ GO Staroutkinsk)	26.8	4	26.2	3	26.3	3
GO Revda	24	7	21.3	17	21.9	10
GO Reftinsky	14.2	46	12.5	48	12	48
GO Sukhoi Log	23.2	11	22.5	9	21.5	12
Gornouralsk GO	9.6	54	9.4	54	9.8	53
Ivdelsky GO	6.4	59	4.6	59	6.1	59
Kamensky GO	11.7	50	10.7	52	9.8	53
Kamyshlovsky municipal district, including Kamyshlovsky municipal district	9.6	54	8.8	55	9.4	55

Table 49 continued

1	2	3	4	5	6	7
Kachkanarsky GO	18.5	27	16.5	34	16.3	32
Kirovgrad GO	20.5	22	20.6	20	18.7	22
GO Krasnoturinsk (+GO Pelym)	23.7	9	22.9	7	23.9	6
Kushvinsky GO	16.8	35	16.8	33	16	33
Malyshevsky GO	17.7	33	17.1	31	15.4	36
Makhnevskoe municipal district	6.7	57	6.9	58	7	58
Municipal district of Alapaevsk	21.8	17	21.4	16	22.8	8
Municipal district of Irbit, Irbitsky municipal district	21.5	18	21.2	18	20.6	17
Municipal district of Kamensk-Uralsky	23.4	10	22.9	7	21.8	11
Municipal District of Nizhny Tagil	19.8	25	19.6	24	18.7	22
Municipal District of Yekaterinburg	28.3	2	28.1	2	27.6	1
Nevyansky District	21.2	19	19.4	25	18	28
Nizhneserginsky MR	16.5	37	16	37	15.5	35
Nizhneturinsky GO	23.1	12	20.4	21	19.9	18
Novolyalinsky district	16.6	36	14.4	44	14.1	41
Polevskoy GO	22.1	16	21.8	13	21.1	15
Pyshminsky GO	12.3	49	11.3	49	10.4	52
Rezhevskaya GO	20.1	24	20	22	19.3	21
Severouralsky GO	18	30	17.7	28	15.7	34
Serovsky GO (+Garinsky GO, Sosvinsky GO)	15	42	14.1	45	13.7	44
Slobodo-Turinsky MR	20.4	23	21.6	15	18	28
Sysertsky GO	18.1	29	17.9	26	18.7	22
Tavdinsky GO (+ Taborinsky MR)	11.7	50	11.2	51	11.8	49
Talitsky GO	18.2	28	17.6	29	18.4	27
Tugulymsky GO	20.8	20	22	12	18.5	26
Turinsky GO	15.7	41	15.5	39	13.4	45
Shalinsky GO	19	26	17.2	30	18.6	25

Table 50 – Ranking of municipalities of the Sverdlovsk region according to the provision of paramedical personnel in the municipalities of the Sverdlovsk region, (per 10 thousand population)

Municipality	2017		2018		2019	
	Index	Rank	Index	Rank	Index	Rank
1	2	3	4	5	6	7
Alapaevskoe municipal district	100.2	8	97.4	8	101	6
Aramilsky GO	73.5	34	71.3	35	69.6	35
Artemovsky GO	83.1	23	82.7	18	84.2	15
Artinsky GO	97.6	9	98	7	95.8	8

Table 50 continued

1	2	3	4	5	6	7
Asbestovsky GO	119.8	1	111.5	4	111.5	4
Achitsky GO	101.7	6	93.7	9	94.4	9
Baikalovsky MR	81.4	26	79.5	26	78.9	25
Berezovsky GO	53.8	47	53.4	46	53.1	49
Bisertsky District	100.4	7	99.8	6	100.2	7
Verkhnesaldinsky GO	52.3	49	52.3	49	52.7	50
Volchansky GO	83.2	22	92.6	10	85.2	14
Beloyarsky municipal district, Verkhneye Dubrovo municipal district, municipal settlement. Ural	64.4	41	61.5	43	58.3	44
GO Bogdanovich	75	32	73.5	33	74.4	32
GO Verkh-Neivinsky	31.3	59	32.3	59	37.2	57
GO Verkhniy Tagil	64.1	42	67.8	36	59.9	42
Verkhnyaya Pyshma municipality, including Sredneuralsk municipality	56.2	46	54.8	45	55.7	46
GO Verkhnyaya Tura	63.3	44	52.9	48	56.5	45
GO Verkhotursky	66.6	37	66.5	40	68.7	37
GO Degtyarsk	39.5	57	39.2	57	37.2	57
GO ZATO Svobodny	46.1	54	47.1	54	45.5	54
GO Karpinsk	84.1	20	82.6	19	81.3	21
GO Krasnouralsk	94	10	85.2	16	89.3	11
Krasnoufimsky municipal district, including Krasnoufimsky municipal district	87.7	15	88.1	13	88.9	12
GO Nizhnyaya Salda	39.6	56	39.6	56	35.2	59
GO Pervouralsk (+ GO Staroutkinsk)	82	25	81.8	21	81.9	20
GO Revda	81.2	27	79.1	27	77.6	28
GO Reftinsky	52.5	48	53.1	47	55.6	47
GO Sukhoi Log	91.3	13	88.4	12	88.1	13
Gornouralsk GO	36.7	58	36.2	58	38.8	56
Ivdelsky GO	46.4	53	51.1	51	49.2	52
Kamensky GO	45.5	55	45.4	55	43.4	55
Kamyshlovsky municipal district, including Kamyshlovsky municipal district	61.1	45	57.7	44	54.3	48
Kachkanarsky GO	65.7	39	63.6	42	61.8	41
Kirovgrad GO	66.5	38	67	38	63.4	39
GO Krasnoturinsk (+GO Pelym)	113	4	112.5	2	114.3	1
Kushvinsky GO	80.3	29	79.8	25	81.3	21
Malyshevsky GO	72.8	35	72	34	75.2	31
Makhnevskoe municipal district	50.2	51	51.5	50	59.5	43
Municipal district of Alapaevsk	114.1	3	112.3	3	112.1	3

Table 50 continued

1	2	3	4	5	6	7
Municipal district of Irbit, Irbitsky municipal district	116.8	2	114.2	1	114.2	2
Municipal district of Kamensk-Uralsky	91.8	12	91.9	11	92.5	10
Municipal District of Nizhny Tagil	86.3	17	85.8	14	82.7	18
Municipal District of Yekaterinburg	50.7	50	50.1	52	48.9	53
Nevyansky District	73.6	33	74.1	32	71.5	33
Nizhneserginsky MR	65.4	40	67.2	37	65.4	38
Nizhneturinsky GO	86	19	74.8	31	69.7	34
Novolyalinsky district	80	30	78.5	30	75.8	30
Polevskoy GO	64.1	42	64	41	62.7	40
Pyshminsky GO	83.4	21	82.3	20	81.3	21
Rezhevskaya GO	82.5	24	80	24	78.7	26
Severouralsky GO	87.7	15	84.2	17	83.4	16
Serovsky GO (+Garinsky GO, Sosvinsky GO)	80.8	28	79.1	27	78.4	27
Slobodo-Turinsky MR	106.7	5	107.1	5	110.5	5
Sysertsky GO	48.6	52	50.1	52	51.9	51
Tavdinsky GO (+ Taborinsky MR)	92.8	11	81.7	22	82.6	19
Talitsky GO	88.7	14	85.3	15	81	24
Tugulymsky GO	70.2	36	66.6	39	69.2	36
Turinsky GO	77.3	31	78.8	29	76.6	29
Shalinsky GO	86.3	17	81.7	22	83	17

Appendix G. Ranking of medical organizations providing primary health care by performance indicators

Table 51 – Ranking of medical organizations by average number of visits per person per year for 2017-2019

Name of medical organization	Number of visits per 1 person. 2017	Rank	Number of visits per person 2018	Rank	number of visits per person 2019	Rank
1	2	3	4	5	6	7
Medical organizations providing primary health care to children						
GBUZ SO «Children's City Hospital of Kamensk-Uralsky»	15.77	5	15.49	5	16.17	5
GBUZ SO «Children's Hospital of Pervouralsk»	17.46	3	17.23	4	17.08	3
GBUZ SO «Children's Hospital of Nizhny Tagil»	17.72	2	17.49	2	17.57	1
MAU «Children's City Clinical Hospital No. 9»	17.10	4	17.40	3	16.73	4
MAU «Children's City Clinical Hospital No. 11»	24.71	1	14.12	7	13.51	8
MAU «Children's City Hospital No. 15»	13.03	8	14.10	8	13.52	7
MAU «Children's City Hospital No. 8»	13.96	7	14.28	6	13.55	6
MAU «Children's City Clinic No. 13»	14.54	6	17.88	1	17.15	2
Medical organizations providing primary health care to adults						
GBUZ SO «GP No. 4, Nizhny Tagil»	5.85	4	5.75	3	4.90	12
MBU «Central City Hospital No. 2 named after. A.A. Mislavsky»	4.60	11	4.97	11	5.26	7
MAUZ «Central City Hospital No. 3»	5.09	8	5.16	8	5.14	10
MAU «Central City Hospital No. 20»	5.08	9	5.09	9	5.23	8
GAUZ SO «GB of Kamensk-Uralsky»	6.07	2	5.96	1	6.05	1
GBUZ SO «GB Pervouralsk»	6.03	3	5.91	2	5.97	2
MBU «TsGKB No. 6»	4.83	10	4.99	10	5.05	11
MBU «Central City Hospital No. 7»	5.48	5	5.42	5	5.31	5
MBU «TsGKB No. 1»	5.15	7	5.22	7	5.27	6
MAU «TsGKB No. 24»	5.29	6	5.41	6	5.17	9

Table 51 continued

1	2	3	4	5	6	7
MAU «TsGKB No. 23»	6.10	1	5.63	4	5.47	4
MAU «GKB No. 14»	No	-	No	-	5.60	3
Medical organizations providing primary health care to children and adults						
GBUZ SO «Alapaevskaya GB»	7.89	18	7.73	18	7.50	29
GBUZ SO «Artemovskaya Central District Hospital»	8.05	15	7.91	13	8.69	8
GAUZ SO «GB Asbest»	8.62	8	8.49	7	8.68	9
GBUZ SO «Artinskaya Central District Hospital»	9.30	2	9.19	2	9.68	4
GBUZ SO «Serovskaya GB»	7.86	19	7.67	20	7.38	32
GBUZ SO «Alapaevsk Central District Hospital»	8.07	13	7.91	14	8.27	14
GBUZ SO «Irbitskaya Central City Hospital»	7.15	36	7.00	36	7.89	18
GAUZ SO «Rezhevskaya Central District Hospital»	7.40	29	7.26	30	7.36	33
GBUZ SO «Berezovskaya Central City Hospital»	6.28	48	6.20	48	6.68	44
GBUZ SO «Kamyshlovskaya Central District Hospital»	8.06	14	7.90	15	7.95	17
GBUZ SO «Malyshevskaya GB»	6.91	41	6.55	46	6.46	47
GAUZ SO «Sukholozhskaya RB»	7.37	31	7.28	29	7.59	24
GAUZ SO «Verkhnepyshminskaya Central City Hospital named after. P.D. Borodin»	6.07	51	5.95	51	6.98	39
GBUZ SO «Krasnoufimskaya RB»	8.31	10	8.10	10	8.60	10
GBUZ SO «Revdinskaya GB	7.50	27	7.35	27	7.45	30
GBUZ SO «Polevskaya Central City Hospital»	7.11	37	6.97	38	6.98	40
GBUZ SO «Verkhnesaldinskaya Central City Hospital»	7.58	23	7.43	25	7.26	35
GBUZ SO «Central City Hospital of Verkhnyaya Tura»	7.58	25	7.52	22	6.31	49
GBUZ SO «Kachkanarskaya Central City Hospital»	8.02	16	7.86	16	7.76	22
GBUZ SO «Krasnouralskaya GB»	7.33	32	7.17	32	7.26	34
GBUZ SO «Nizhnesaldinskaya Central City Hospital»	8.73	6	8.59	6	10.62	2
GBUZ SO «Volchanskaya GB»	6.64	46	6.55	45	7.53	27

Table 51 continued

1	2	3	4	5	6	7
GBUZ SO «Ivdel Central District Hospital»	5.21	54	5.12	54	5.49	53
GBUZ SO «Karpinskaya Central City Hospital»	7.43	28	7.32	28	7.56	25
GAUZ SO «Krasnoturinskaya GB»	8.63	7	8.48	8	8.12	16
GBUZ SO «Severouralsk Central City Hospital»	7.96	17	7.81	17	8.23	15
GBUZ SO «Baikalovskaya Central District Hospital»	7.76	21	7.61	21	8.36	12
GBUZ SO «Pyshminskaya Central District Hospital»	6.74	44	6.63	43	6.68	45
GBUZ SO «Slobodo-Turinskaya RB»	8.24	11	8.04	12	9.09	5
GBUZ SO «Tavdinskaya Central District Hospital»	6.85	42	6.65	42	6.95	41
GAUZ SO «Talitskaya Central District Hospital»	7.64	22	7.49	23	8.32	13
GBUZ SO «Tugulym Central District Hospital»	7.53	26	7.37	26	7.54	26
GBUZ SO «Turin Central District Hospital named after. O.D. Zubova»	8.58	9	8.45	9	9.01	7
GBUZ SO «Aramilskaya GB»	8.79	4	8.75	4	9.04	6
GBUZ SO «Beloyarsk Central District Hospital»	6.49	47	6.38	47	6.94	42
GBUZ SO «Bogdanovichsky Central District Hospital»	6.77	43	6.65	41	6.23	50
GBUZ SO «Kamenskaya Central District Hospital»	7.26	33	7.05	35	7.20	36
GBUZ SO «Reftinskaya GB»	6.08	50	6.04	50	6.21	51
GAUZ SO «Sysert Central District Hospital»	5.97	52	5.93	52	6.50	46
GBUZ SO «Achitskaya Central District Hospital»	8.22	12	8.08	11	7.73	23
GBUZ SO «Bisertskaya GB»	10.24	1	10.06	1	7.85	19
GBUZ SO «Degtyarskaya GB»	6.67	45	6.59	44	5.67	52
GBUZ SO «Nizhneserginsk Central District Hospital»	7.40	30	7.24	31	8.38	11
GBUZ SO «Shalinskaya Central City Hospital»	7.86	20	7.73	19	7.44	31
GBUZ SO «Demidovskaya GB»	8.95	3	8.81	3	10.36	3
GBUZ SO «GB of Verkhniy Tagil»	7.09	38	6.98	37	7.51	28
GBUZ SO «Gornouralsk RP»	6.19	49	6.09	49	6.34	48

Table 51 continued

1	2	3	4	5	6	7
GBUZ SO «Kirovgrad Central City Hospital»	7.21	34	7.09	34	7.15	38
GBUZ SO «Central City Hospital of Kushva»	7.09	39	6.96	39	7.17	37
GBUZ SO «Nevyansk Central District Hospital»	6.98	40	6.83	40	6.92	43
GBUZ SO «GB ZATO Svobodny»	8.79	5	8.64	5	10.81	1
GBUZ SO «CRH Verkhotursky district»	7.18	35	7.10	33	7.85	20
GBUZ SO «Nizhneturinsk Central City Hospital»	5.40	53	5.32	53	4.69	54
GBUZ SO «Novolyalinskaya RB»	7.58	24	7.48	24	7.82	21

Table 52 – Ranking of medical organizations according to the actual implementation of compulsory medical insurance TP for AMS by volume of medical care (visits), % of implementation

Name of medical organization	2017		2018		2019	
	Actual implementation of TP compulsory medical insurance	Rank	Actual implementation of TP compulsory medical insurance	Rank	Actual implementation of TP compulsory medical insurance	Rank
1	2	3	4	5	6	7
Medical organizations providing primary health care to children						
GBUZ SO «Children's City Hospital of Kamensk-Uralsky»	115.22	2	106.44	2	100.61	5
GBUZ SO «Children's Hospital of Pervouralsk»	100.66	7	100.51	5	107.33	1
GBUZ SO «Children's Hospital of Nizhny Tagil»	105.88	6	97.11	6	90.97	8
MAU «Children's City Clinical Hospital No. 9»	115.46	1	107.00	1	102.55	4
MAU «Children's City Clinical Hospital No. 11»	107.12	4	91.81	8	94.35	7
MAU «Children's City Hospital No. 15»	111.45	3	101.99	4	104.05	3
MAU «Children's City Hospital No. 8»	106.09	5	104.68	3	104.32	2

Table 52 continued

1	2	3	4	5	6	7
MAU «Children's City Clinic No. 13»	95.69	8	93.62	7	98.62	6
Medical organizations providing primary health care to adults						
GBUZ SO «GP No. 4, Nizhny Tagil»	86.92	11	84.20	11	97.03	7
MBU «Central City Hospital No. 2 named after. A.A. Mislavsky»	83.13	12	94.63	5	83.45	11
MAUZ «Central City Hospital No. 3»	90.36	10	92.84	7	98.21	6
MAU «Central City Hospital No. 20»	99.24	4	81.62	12	99.94	5
GAUZ SO «GB of Kamensk-Uralsky»	100.62	3	101.82	1	99.95	4
GBUZ SO «GB Pervouralsk»	98.96	5	99.47	3	104.18	2
MBU «TsGKB No. 6»	103.53	2	98.87	4	94.66	9
MBU «Central City Hospital No. 7»	104.81	1	91.63	9	101.28	3
MBU «TsGKB No. 1»	93.84	8	92.63	8	86.26	10
MAU «TsGKB No. 24»	97.39	6	89.84	10	82.64	12
MAU «TsGKB No. 23»	91.32	9	93.48	6	96.92	8
MAU «GKB No. 14»	95.88	7	100.77	2	116.51	1
Medical organizations providing primary health care to children and adults						
GBUZ SO «Alapaevskaya GB»	92.56	48	95.74	44	104.27	10
GBUZ SO «Artemovskaya Central District Hospital»	103.60	12	109.23	8	100.51	19
GAUZ SO «GB Asbest»	102.43	14	100.35	30	102.86	14
GBUZ SO «Artinskaya Central District Hospital»	102.26	16	105.07	17	99.23	23
GBUZ SO «Serovskaya GB»	95.59	38	96.10	43	107.61	5
GBUZ SO «Alapaevsk Central District Hospital»	98.49	31	101.60	24	98.89	28
GBUZ SO «Irbitskaya Central City Hospital»	106.73	7	108.56	11	99.19	25
GAUZ SO «Rezhevskaya Central District Hospital»	101.24	23	99.19	35	98.60	29
GBUZ SO «Berezovskaya Central City Hospital»	113.26	3	108.71	9	96.52	37
GBUZ SO «Kamyshlovskaya Central District Hospital»	97.87	33	98.15	37	96.29	39
GBUZ SO «Malyshevskaya GB»	94.71	43	99.36	33	98.94	27
GAUZ SO «Sukholozhskaya RB»	111.62	4	102.91	22	102.64	15

Table 52 continued

1	2	3	4	5	6	7
GAUZ SO «Verkhnepyshminskaya Central City Hospital named after. P.D. Borodin»	110.82	5	120.72	3	106.01	8
GBUZ SO «Krasnoufimskaya RB»	105.55	8	105.88	13	103.69	12
GBUZ SO «Revdinskaya GB	101.87	18	101.01	26	96.32	38
GBUZ SO «Polevskaya Central City Hospital»	101.43	21	96.29	42	90.58	46
GBUZ SO «Verkhnesaldinskaya Central City Hospital»	98.66	30	90.68	48	87.96	51
GBUZ SO «Central City Hospital of Verkhnyaya Tura»	84.72	54	78.96	52	100.75	17
GBUZ SO «Kachkanarskaya Central City Hospital»	94.80	42	86.85	51	78.86	54
GBUZ SO «Krasnouralskaya GB»	98.24	32	100.38	29	97.84	34
GBUZ SO «Nizhnesaldinskaya Central City Hospital»	121.07	1	122.64	2	109.88	2
GBUZ SO «Volchanskaya GB»	101.98	17	112.47	6	105.16	9
GBUZ SO «Ivdel Central District Hospital»	96.29	37	96.59	41	87.49	52
GBUZ SO «Karpinskaya Central City Hospital»	103.23	13	101.49	25	98.03	33
GAUZ SO «Krasnoturinskaya GB»	97.39	35	94.33	46	100.45	20
GBUZ SO «Severouralsk Central City Hospital»	100.80	25	104.20	20	98.52	30
GBUZ SO «Baikalovskaya Central District Hospital»	99.81	27	104.64	18	99.05	26
GBUZ SO «Pyshminskaya Central District Hospital»	97.68	34	97.78	38	106.71	6
GBUZ SO «Slobodo-Turinskaya RB»	104.21	9	109.67	7	99.83	22
GBUZ SO «Tavdinskaya Central District Hospital»	93.95	45	100.89	27	99.21	24
GAUZ SO «Talitskaya Central District Hospital»	99.08	29	108.67	10	94.61	42
GBUZ SO «Tugulym Central District Hospital»	96.91	36	96.85	40	88.71	50
GBUZ SO «Turin Central District Hospital named after. O.D. Zubova»	100.29	26	99.25	34	93.88	44
GBUZ SO «Aramilskaya GB»	94.12	44	102.56	23	89.48	48
GBUZ SO «Beloyarsk Central District Hospital»	101.13	24	115.14	4	107.67	4

Table 52 continued

1	2	3	4	5	6	7
GBUZ SO «Bogdanovichsky Central District Hospital»	90.52	51	94.32	47	108.78	3
GBUZ SO «Kamenskaya Central District Hospital»	93.03	47	100.18	31	98.14	32
GBUZ SO «Reftinskaya GB»	93.80	46	105.10	16	106.21	7
GAUZ SO «Sysert Central District Hospital»	107.38	6	103.77	21	98.28	31
GBUZ SO «Achitskaya Central District Hospital»	99.79	28	94.48	45	103.81	11
GBUZ SO «Bisertskaya GB»	91.28	49	76.55	54	89.31	49
GBUZ SO «Degtyarskaya GB»	86.66	53	88.82	49	103.04	13
GBUZ SO «Nizhneserginsk Central District Hospital»	103.83	10	115.05	5	95.99	40
GBUZ SO «Shalinskaya Central City Hospital»	89.67	52	78.05	53	82.44	53
GBUZ SO «Demidovskaya GB»	101.56	19	107.72	12	91.47	45
GBUZ SO «GB of Verkhniy Tagil»	95.07	39	100.52	28	90.57	47
GBUZ SO «Gornouralsk RP»	101.28	22	105.82	14	100.51	18
GBUZ SO «Kirovgrad Central City Hospital»	90.80	50	98.89	36	95.29	41
GBUZ SO «Central City Hospital of Kushva»	101.54	20	100.01	32	101.25	16
GBUZ SO «Nevyansk Central District Hospital»	94.99	41	97.38	39	94.30	43
GBUZ SO «GB ZATO Svobodny»	119.01	2	130.66	1	109.96	1
GBUZ SO «CRH Verkhotursky district»	102.36	15	105.82	15	100.42	21
GBUZ SO «Nizhneturinsk Central City Hospital»	95.04	40	87.28	50	97.20	36
GBUZ SO «Novolyalinskaya RB»	103.70	11	104.23	19	97.49	35

Table 53 – Ranking of medical organizations by the share of fines/withholdings/withdrawals for AMS, collected by health insurance organizations, TFCMI based on the results of the IEC, EGMC from the actual implementation of TP compulsory medical insurance for AMS, amount of financing, %

Name of medical organization	Share of total fines from the volume of financing, % in 2017	Rank	Share of total fines from the volume of financing, % in 2018	Rank	Share of total fines from the volume of financing, % in 2019	Rank
1	2	3	4	5	6	7
Medical organizations providing assistance to the children's population						
GBUZ SO «Children's City Hospital of Kamensk-Uralsky»	0.18	6	0.22	8	0.18	8
GBUZ SO «Children's Hospital of Pervouralsk»	0.11	2	0.12	4	0.15	7
GBUZ SO «Children's Hospital of Nizhny Tagil»	0.05	1	0.18	6	0.11	6
MAU «Children's City Clinical Hospital No. 9»	0.35	8	0.18	5	0.06	3
MAU «Children's City Clinical Hospital No. 11»	0.15	5	0.11	3	0.05	1
MAU «Children's City Hospital No. 15»	0.13	3	0.08	2	0.10	5
MAU «Children's City Hospital No. 8»	0.14	4	0.07	1	0.06	2
MAU «Children's City Clinic No. 13»	0.27	7	0.19	7	0.10	4
Medical organizations providing primary health care to adults						
GBUZ SO «GP No. 4, Nizhny Tagil»	0.08	4	0.06	2	0.06	4
MBU «Central City Hospital No. 2 named after. A.A. Mislavsky»	0.20	10	0.16	7	0.06	3
MAUZ «Central City Hospital No. 3»	0.40	12	0.15	5	0.09	6
MAU «Central City Hospital No. 20»	0.07	3	0.12	3	0.08	5
GAUZ SO «GB of Kamensk-Uralsky»	0.17	7	0.22	9	0.14	9
GBUZ SO «GB Pervouralsk»	0.23	11	0.31	12	0.15	10
MBU «TsGKB No. 6»	0.18	8	0.23	10	0.21	11
MBU «Central City Hospital No. 7»	0.04	2	0.19	8	0.05	2

Table 53 continued

1	2	3	4	5	6	7
MBU «TsGKB No. 1»	0.14	6	0.13	4	0.13	8
MAU «TsGKB No. 24»	0.20	9	0.15	6	0.23	12
MAU «TsGKB No. 23»	0.11	5	0.28	11	0.11	7
MAU «GKB No. 14»	0.01	1	0.01	1	0.04	1
Medical organizations providing primary health care to children and adults						
GBUZ SO «Alapaevskaya GB»	0.26	31	0.13	7	0.05	3
GBUZ SO «Artemovskaya Central District Hospital»	0.22	24	0.13	8	0.07	9
GAUZ SO «GB Asbest»	0.08	2	0.03	2	0.02	1
GBUZ SO «Artinskaya Central District Hospital»	0.28	33	0.08	3	0.20	29
GBUZ SO «Serovskaya GB»	0.16	10	0.16	14	0.16	21
GBUZ SO «Alapaevsk Central District Hospital»	0.26	29	0.37	39	0.07	10
GBUZ SO «Irbitskaya Central City Hospital»	0.23	27	0.33	34	0.32	47
GAUZ SO «Rezhevskaya Central District Hospital»	0.22	25	0.16	13	0.07	7
GBUZ SO «Berezovskaya Central City Hospital»	0.13	8	0.12	6	0.06	6
GBUZ SO «Kamyshlovskaya Central District Hospital»	0.21	20	0.25	28	0.17	24
GBUZ SO «Malyshevskaya GB»	0.09	4	0.48	47	0.25	41
GAUZ SO «Sukholozhskaya RB»	0.23	26	0.26	29	0.17	23
GAUZ SO «Verkhnepyshminskaya Central City Hospital named after. P.D. Borodin»	0.13	7	0.23	24	0.14	17
GBUZ SO «Krasnoufimskaya RB»	0.08	3	0.15	11	0.20	28
GBUZ SO «Revdinskaya GB	0.24	28	0.24	26	0.18	25
GBUZ SO «Polevskaya Central City Hospital»	0.26	30	0.90	52	0.13	15
GBUZ SO «Verkhnesaldinskaya Central City Hospital»	0.16	12	0.27	31	0.24	40
GBUZ SO «Central City Hospital of Verkhnyaya Tura»	0.61	48	0.36	36	0.21	33
GBUZ SO «Kachkanarskaya Central City Hospital»	0.19	18	0.18	17	0.27	43
GBUZ SO «Krasnouralskaya GB»	0.67	51	0.42	44	0.24	39
GBUZ SO «Nizhnesaldinskaya Central City Hospital»	0.33	37	0.23	25	0.41	51

Table 53 continued

1	2	3	4	5	6	7
GBUZ SO «Volchanskaya GB»	0.76	53	0.39	42	0.28	45
GBUZ SO «Ivdel Central District Hospital»	0.64	50	0.13	9	0.23	37
GBUZ SO «Karpinskaya Central City Hospital»	0.11	5	0.03	1	0.06	5
GAUZ SO «Krasnoturinskaya GB»	0.12	6	0.08	4	0.05	4
GBUZ SO «Severouralsk Central City Hospital»	0.74	52	0.32	33	0.27	44
GBUZ SO «Baikalovskaya Central District Hospital»	0.17	13	0.37	37	0.14	16
GBUZ SO «Pyshminskaya Central District Hospital»	0.29	35	0.20	20	0.25	42
GBUZ SO «Slobodo-Turinskaya RB»	0.28	34	0.91	53	0.58	54
GBUZ SO «Tavdinskaya Central District Hospital»	0.22	23	0.24	27	0.21	32
GAUZ SO «Talitskaya Central District Hospital»	0.19	17	0.19	18	0.21	36
GBUZ SO «Tugulym Central District Hospital»	0.06	1	0.09	5	0.14	18
GBUZ SO «Turin Central District Hospital named after. O.D. Zubova»	0.39	41	1.02	54	0.52	53
GBUZ SO «Aramilskaya GB»	1.10	54	0.34	35	0.16	22
GBUZ SO «Beloyarsk Central District Hospital»	0.52	47	0.22	23	0.11	14
GBUZ SO «Bogdanovichsky Central District Hospital»	0.33	38	0.27	30	0.21	34
GBUZ SO «Kamenskaya Central District Hospital»	0.32	36	0.60	48	0.11	13
GBUZ SO «Reftinskaya GB»	0.14	9	0.22	22	0.04	2
GAUZ SO «Sysert Central District Hospital»	0.21	19	0.18	16	0.07	8
GBUZ SO «Achitskaya Central District Hospital»	0.39	40	0.14	10	0.23	38
GBUZ SO «Bisertskaya GB»	0.18	15	0.28	32	0.09	11
GBUZ SO «Degtyarskaya GB»	0.34	39	0.39	41	0.20	27
GBUZ SO «Nizhneserginsk Central District Hospital»	0.62	49	0.61	49	0.15	19
GBUZ SO «Shalinskaya Central City Hospital»	0.43	43	0.45	46	0.21	35
GBUZ SO «Demidovskaya GB»	0.18	16	0.17	15	0.36	49
GBUZ SO «GB of Verkhniy Tagil»	0.21	21	0.63	50	0.38	50

Table 53 continued

1	2	3	4	5	6	7
GBUZ SO «Gornouralsk RP»	0.40	42	0.21	21	0.20	26
GBUZ SO «Kirovgrad Central City Hospital»	0.49	45	0.45	45	0.21	31
GBUZ SO «Central City Hospital of Kushva»	0.28	32	0.39	40	0.21	30
GBUZ SO «Nevyansk Central District Hospital»	0.16	11	0.20	19	0.09	12
GBUZ SO «GB ZATO Svobodny»	0.51	46	0.37	38	0.42	52
GBUZ SO «CRH Verkhotursky district»	0.18	14	0.40	43	0.30	46
GBUZ SO «Nizhneturinsk Central City Hospital»	0.22	22	0.15	12	0.16	20
GBUZ SO «Novolyalinskaya RB»	0.44	44	0.73	51	0.33	48