IMPLEMENTATION OF THE FEDERAL NATIONAL PROJECT OF THE RUSSIAN FEDERATION: «CREATING A NEW MODEL OF A MEDICAL ORGANIZATION PROVIDING THE PRIMARY MEDICAL AND HEALTH CARE» ON THE PRINCIPLES OF LEAN PRODUCTION

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IMPLEMENTATION OF THE FEDERAL NATIONAL PROJECT OF THE RUSSIAN FEDERATION: «CREATING A NEW MODEL OF A MEDICAL ORGANIZATION PROVIDING THE PRIMARY MEDICAL AND HEALTH CARE» ON THE PRINCIPLES OF LEAN PRODUCTION

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\textbf{Abstract}

The social potential of modern society is largely determined by the level and pace of development of the health care system, which is rightfully attributed to factors not only social welfare, but also economic growth. The issues of improving the system of medical care are constantly in the zone of attention of the President of the Russian Federation and the executive authorities. The article introduces the stages of deployment and the first results of the implementation of the Priority Federal Project «Creating a New Model of a Medical Organization Providing Primary Health Care», which is based on a project-based approach to healthcare management based on lean technologies. The article presents the basic concepts, tools of lean technologies used in healthcare of the Russian Federation, as well as the criteria for a new model of medical organization.

\textbf{Keywords:} Federal national project, new model of medical organization, lean technology, primary health care, project management

\textbf{BACKGROUND}

Over the past years, at all levels of the organization of outpatient care for the population, mainly, the attention has been paid to the problem of improving the health care system. In recent years, one of the largest sections of the Concept of Long-Term Socio-Economic Development of the Russian Federation until 2020 has been devoted to the development of healthcare in the program documents of the Russian Federation. This document states that recently the state has invested significant financial and organizational resources in healthcare, but contrary to expectations, this has not significantly improved the situation, has not ensured the sufficiency of state guarantees for the availability of medical care and its quality, since it was not accompanied by relevant organizational and financial economic activities.

An important criterion for evaluating the performance of the health system is the satisfaction of the population with medical
care (Orel et al, 2018). In Russia, the level of patient satisfaction with the quality of medical care amounted to 45.7% in 2016 (Ministry of Health of RF, 2017). Many modern researchers believe that all troubles are based on only one reason - lack of financial resources. However, it is clear that the quality of medical care largely depends on the rationality of organizational and economic mechanism and of its provision is. The quality of medical care is not only the quality of patient care, but also the quality of management in healthcare, the quality of organization of medical care (Nosyreva&Nosyrev, 2007). In many medical organizations, there is not a financial, but a managerial crisis, when the solution to many problems is delayed due to the inefficient use of all types of resources: employees, material, etc., as well as the lack of adequate management methods. The processes in health care are the reflection of the current model of production and social management. This was confirmed by the use of lean manufacturing principles in the framework of the project management approach in medical organizations providing primary health care, and was a result of the implementation of project management in federal executive bodies and state authorities of the subjects (Ministry of Economic Development of RF, 2013). Since 2018, the state program “Healthcare Development” has also been transferred to project management (Governmental Decree of RF, 2017).

The transfer of the state program to project management mechanisms provided for the allocation of its design and process parts. The part of the state program remaining in the process management includes nine areas (subprograms):

- "Improving the medical care, including the prevention of diseases and the formation of a healthy lifestyle."
- "Development and implementation of innovative methods of diagnosis, prevention and treatment, as well as the basics of private medicine."
- “Development of medical rehabilitation and spa treatment, including children”.
- “Development of human resources in healthcare”.
- “Development of international relations in the field of health care”.
- “Examination and control and supervisory functions in health care”.
- “Health care for certain categories of citizens”.
- "Information technology and industry development management".
- “Organization of compulsory medical insurance for citizens of the Russian Federation”.

The project part of the program includes seven priorities and three departmental projects, including the Federal National Project “Creating a New Model of a Medical Organization Providing Primary Health Care”, implemented using the concept of lean manufacturing.

Activities in this direction began in October 2016, when, with the initiative of the Office for Internal Policy of the Presidential Administration of the Russian
Federation, a pilot project to improve the primary care system “Lean Polyclinic” was launched. The basis for the initiation of the project was the Decree of the President of the Russian Federation of May 7, 2012 No. 598 “On improving the state policy in the field of healthcare” (Orel, 2018).

The project was implemented with the association of the Ministry of Health of the Russian Federation and the State Atomic Energy Corporation “Rosatom” with the aim of introducing lean manufacturing technologies (lean-technologies) into the daily practice of medical organizations that provide primary health care, which contribute to the creation of a patient-oriented system of medical services and a favorable working environment in the areas of:

- ensuring safety and quality,
- execution of orders,
- elimination of losses and cost reduction,
- creating a corporate culture.

Sample clinics were created in 3 regions of Russia: in the Yaroslavl, Kaliningrad regions and in the city of Sevastopol. Then, one pilot region was determined in each federal district, which included St. Petersburg, where two polyclinic samples were created (children's and adult). In the whole country, the following positive results were obtained in the design clinics:

1. 2 times increase in the doctor’s work time directly with patients.
2. Reducing the time for making an appointment with a doctor by 5 times.
3. Reducing the queues up to 8 times, the patient's waiting time for a doctor’s reception at the office - 12 times.
4. A comfortable and accessible environment for patients in clinics.
5. Coverage of medical examination of all attached patients of the clinic.

Given the significant improvements in the organization of medical care, starting in 2018, a pilot project to improve the primary care system “Lean Polyclinic” was deployed to the Priority Federal project “Creating a New Model of a Medical Organization Providing Primary Health Care” (hereinafter as Project) (Ministry of Health of RF, 2017; and Orel, 2018), which is currently an integral part of the state program of the Russian Federation “Healthcare Development”.

Lean Polyclinic is a concept of medical management based on a steady desire to eliminate all types of wastes, which involves each employee in the process of optimizing the medical activities and maximizing patient orientation.

In accordance with the Project passport, this concept should lead to the following results: reduction of queues, time of appointment to the doctor and patient expectations at the doctor’s office, reduction of the terms of the medical examination, as well as an increase in the quality of the medical services provided and the level of patient satisfaction with the organization of the work of clinics (Ministry of Health of RF, 2017; and Orel, 2018). The start date of the Project was July 26, 2017, its completion is expected on April 1, 2023.
PROJECT GOAL
The aim was to increase the public satisfaction with the quality of medical care on an outpatient basis by 60% by 2020 and 70% by 2022 by creating a new model of a medical organization that provides primary health care on the basis of lean production in 33 regions of the Russian Federation, followed by replication this model in 85 subjects of the Russian Federation.

IMPLEMENTATION OF THE PROJECT
For the implementation of the Project, an office was created in Moscow - the Center for the Organization of Primary Health Care (hereinafter referred to as the COPHC). In all regions of the country, on a functional basis, regional centers for the organization of primary health care (hereinafter referred to as the PHC) have been created, the tasks of which, inter alia, include the implementation of measures that have shown high efficiency in the Lean Polyclinic project.

From 2018 to 2022 The Center for Primary Health Care will provide organizational and methodological support and coordination of the work of the Primary Health Care Center and other project participants, analyze the organization of primary health care in the regions, develop measures to eliminate typical problems in the medical organizations participating in the Project, and organize the testing of lean manufacturing principles in them, participate in the creation of the “New Model of a Medical Organization”, collect information and prepare analytical materials for submission to the Ministry of Health of Russia on the replication of best practices.

Primary health care centers will carry out functions on methodological support and coordination of the work of medical organizations, educational organizations, territorial compulsory health insurance funds (HIF), territorial bodies of Roszdravnadzor (federal service for healthcare control) to analyze the organization of primary health care in the territories participating in the pilot project, to take part in the development measures to eliminate common problems in medical organizations - participants of the Project, in the implementation of testing the principles of lean production, the creation of a "new model of medical organization", to collect information from the project participants to represent in PHC and ensure replication of best practices within the boundaries of specific territories.

The main directions for the implementation of the Project were identified as follows:
• redistribution of the load between the doctor and paramedical personnel;
• optimized logistics of patient movement with the separation of flows into patients and healthy;
• transition to electronic document management, reduction of paper documentation;
• open and polite reception;
• comfortable conditions for the patient in waiting areas;
• organization of medical examination and preventive examinations based on the principles of a continuous flow of patients in compliance with the standards for the time of admission per patient;

• implementation of monitoring of compliance with the actual waiting time for medical assistance by a doctor from the moment a patient contacts a medical organization with the established waiting time in accordance with the State Guarantee Program for free provision of medical care to citizens.

The project is implemented in close cooperation with the compulsory health insurance system, with the help of which it examines patients' satisfaction with medical care, finances educational programs for medical workers on issues of lean manufacturing, finances some measures for informatization and equipping medical organizations, conducting repairs, etc.

In the clinics where the Project is being applied, insurance medical organizations (IMOs) form a post for insurance representatives with the establishment of an appropriate work schedule. At the same time, they conduct a weekly survey of citizens in order to assess the satisfaction of the attached population with the work of a medical organization and the quality of medical care provided.

The educational component is of great importance in the implementation of the Project. The introduction of new educational technologies of the “Process Factory” is planned on the basis of universities under the Ministry of Health of the Russian Federation: 5 universities in 2018 and 11 universities in 2019.

The Department of Social Pediatrics and Organization of Health Care of the Federal State Budgetary Educational Establishment of Higher Education “St. Petersburg State Pediatric Medical University” of the Ministry of Health of Russia has implemented an additional professional training program for doctors “Lean Technologies in Medical Practice”, of which the module “Factory of Lean Processes in Medical Practice” is part of. In the learning process, the theoretical foundations of lean manufacturing are considered, the tools for implementing this technology in a medical organization, the experience of the practical implementation of the principles of “lean manufacturing” in medical organizations and the organization of work on federal projects are presented: “Lean Polyclinic”, “New Model of a Medical Organization Providing Primary Medical -sanitary assistance”, the use of “best practices” of medical activity.

The main lean manufacturing tools that are already used in the Project are as follows:

• standardization of work,
• workspace organization (5S),
• value stream mapping (VSM),
• visualization,
• kanban,
• Kaizen.

Further work on the project involves expanding the list of lean manufacturing tools to improve the activities of medical
organizations. Waiting for their implementation:

- Andon system,
- built-in quality,
- quick changeover (SMED - Single-Minute Exchange of Die),
- protection against unintentional errors (poka-yoke),
- general equipment maintenance (TPM - Total Productive Maintenance).

This will allow us to consider the results of the Project at a new level, taking into account the increase in the economic efficiency of medical organizations.

The lean manufacturing principles that underpin the implementation of the Project are as follows:

- focus on creating value for the consumer,
- organization of the stream of creating value for the consumer,
- continuous improvement,
- stretching,
- reduction of wasting,
- visualization and transparency,
- priority security
- building a corporate culture based on respect for the person,
- built-in quality,
- strategic orientation
- factual decision making.

The organizational values that underpin the implementation of lean technologies within the framework of the Project can be represented as follows:

- safety of medical activities,
- value for the consumer (including the quality of services, processes, systems),
- patient orientation
- reduction of losses,
- time
- respect for the person.

Losses are the actions of a medical organization, during the implementation of which resources are consumed, but no values are created. In the concept of lean manufacturing, the comprehensive elimination of losses is seen as the main way to reduce costs.

The structure of the main types of losses the Project aims to eliminate can be represented as follows:

1. Overproduction - the service is produced in a larger volume than required by the customer, for example, the results of not all prescribed tests are subsequently claimed by doctors.

2. Surplus stocks - storage of any stocks (consumables, medicines, etc.) in an amount significantly exceeding the minimum required.

3. Transportation - excessive movement, for example, the need for patients to visit the clinic several times on different days.

4. Delays - large downtime between the stages of a medical service.

5. Additional processing - unnecessary actions due to inadequate planning and design of medical services, for example, duplication of analyzes.

6. Movement - excessive human movement due to improper organization of the workplace, loss in the selection of materials, the search for components, tools, information, documents.
7. Defects - completion, improper performance of the service.

The goal of lean manufacturing is to increase the speed of any process by reducing all types of losses. The first steps in the implementation of lean technologies in the healthcare sector show the feasibility of improving the organization of medical care in the near future, increasing its accessibility and quality, as a result - increasing public satisfaction with the quality of medical care on an outpatient basis. One of the results of the pilot project implementation was a reduction in the total waiting time in queues by 66.5%, a reduction in the time required to complete the necessary documentation by 76%, a reduction in the patient waiting time for research results by 76.6%, and a time for passing the first stage of the clinical examination by 30.5%, a decrease in the number of intersection points of patient flows from 9 to 2, an increase in patient satisfaction with the organization of medical care by 17%, and satisfaction of polyclinic employees with working conditions from 51 to 70%.

In the future, the result of introducing the concept of medical management based on the principles of lean manufacturing will be the creation of a “New model of a medical organization providing primary health care”. Such a model is a patient-oriented medical organization, the hallmarks of which are a friendly attitude to the patient, the absence of queues due to the proper organization of processes and staff work, the quality of medical care, and the priority of preventive measures in primary health care.

A new clinic is a process model of a clinic with a unified teamwork approach, with the prospect of creating samples when there are clear criteria for assessing the performance of a medical organization in certain areas, the methods for visualizing a project are clearly defined, and industry and regional standards for the activity of a network of medical organizations are developed. The educational component in the functioning of the new model of medical organization is also important.

The process model of the clinic (polyclinic "on turn-key basis") involves:

- all processes are visualized (developed schemes, flowcharts),
- processes are being built in the framework of the current legislation, which is being improved,
- clinic processes are distributed by levels,
- the structure of processes, their gradation (basic, auxiliary, supporting) are determined,
- processes have clear boundaries, which means that responsibilities are distributed, which eliminates duplication of management,
- the processes are interconnected, complement each other, touch at the exit-entry stage,
- criteria for the effectiveness of each process are formulated,
- Each process is standardized.

The universality of the process model is the maximum possibility of replication at
the level of the healthcare industry in the region and the country as a whole. According to the results of the completion of the Project, evaluation of the success of its implementation and economic efficiency, the “New Model of Medical Organization” can later be extended to all medical organizations not only in primary health care of the constituent entities of the Russian Federation, but also in hospitals, taking into account their specifics. Then it will be possible to introduce a broader concept of “Lean Healthcare”.

In the creation of favorable conditions, project management can become one of the tools for the development of the healthcare industry, which allows effective management of state programs and activities to improve the work organizing in medical structures.

CONFLICT OF INTEREST
The authors declare that they have no competing interests.

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