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VALUE BASED APPROACH AS A DRIVER OF MODERN HEALTHCARE

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ABSTRACT

Modern healthcare is characterized by a clear trend towards a value-based approach first presented by M. Porter in 2004 as a competitive strategy for US healthcare system. The concept expands the focus from operating solely with clinical data by including a patient's values. The **goal of the study** is to present a personal experience of implementing value-based approach in various field of clinical practice and summarize the key findings and metrics. **Methods** The experience of implementing a methodology in several sites of the public healthcare is analyzed and summarized. The following tools were used: processes standardization, "patient's pathway" analysis, cost estimation, patients' values evaluation, shared decision-making, patients' adherence, satisfaction with the quality of medical services, assessment of quality of life. **Results** Through the implementation of the Matrix tool, a structured roadmap was developed to orient efforts and resources towards transformation. This transition moves beyond measuring processes only, to measuring outcomes that matter to patients. Adding measurable subjective values is the essence of a value-based approach that improves an effectiveness of medical care**. Conclusions** Healthcare needs applied research aimed at forming an evidence base of quality improvement projects. Current research provides further guidance of dissemination the value-based approach in practice.

Keywords: value-based healthcare; healthcare management; public health; patient centricity; trends.

INTRODUCTION

Modern healthcare is characterized by the clear focus on a value-based approach. Over the past 10 years, healthcare around the world has made a big step towards the transition from the traditional model of payment to a value-oriented model (Lewis, 2019). This shift was caused by increase of the cost of medical care, and patients' demands for quality. Payment for the service and per capita financing led to an unreasonable increase of its volumes (Porter, 2006; Porter, 2010). The understanding that payment for medical care should reflect the actual result achieved, and not just its volume, led to the need to change the payment model and transition to the medical care oriented to patients' needs.

The idea of a value-based healthcare (VBHC) was first announced in 2006 by Harvard University professor Michael Porter and was initially aimed to solve problems of quality and accessibility of medical care in the United States by increasing competition at a private medical sector (Porter, 2006).

M. Porter et al. (Porter, 2006) proposed a radically new approach, defining patient-centricity as the basis for reforming the healthcare system. "The value of medical care for a patient should not be determined at the level of a medical organization or its specific unit. Value is created through the determination of the patient's health status and the study of the results and costs of achieving these results during the entire cycle of treatment of the disease" (Porter, 2010).

The concept of the value of medical care has resonated with patients, health care providers, insurance companies and the government. Over the past years, a lot of efforts have been made to implement the VBHC concept in practice, transferring best practices to healthcare models and different medical segments. However, this aspiration was hindered by the lack of transparent and standardized data on the methodology of implementing such projects and the means of measuring

the results. The term "value" was most often understood as uncontrollable "humanistic principles" or, on the contrary, economic incentives to reduce costs, which often led to a deterioration in the availability of medical care (EIT Health, 2020). Since the formulation of this concept, programs have been implemented worldwide to implement this approach in pilot projects. However, until recently, the experience of pilot projects has not been generalized and systematized.

In 2020, the Guidelines of the European Institute of Innovation and Technology (EIT Health) were published (EIT Health, 2020), where a methodology for implementing and scaling pilot projects was proposed. The management of EIT Health tried to solve the problem of practical implementation of VBHC in healthcare. The EIT Health matrix includes the following stages and elements:

- nalysis of the context and conditions of medical care;
- mapping the patient's pathway to the site of delivery of medical care;
- defining conditions to choose treatment options by a patient;
- individual approach to the therapy appointment and patient's ability to participate in the choice of treatment method;
- assessment of the patient's experience.

As an approach to measuring the results, the authors used the following groups of indicators (EIT Health, 2020):

- economic costs;
- clinical outcome indicators — the results of instrumental and physical research methods that can be evaluated and related to the treatment;
- results associated with the patient's condition — subjective feelings, such as quality of life, pain;
- results of patient experience.

The results of the patient's experience reflect the patient's assessment of interaction with the medical institution and staff - those contribute to the subjective assessment of the value of medical care. Indicators of the patient's experience can be assessed through satisfaction with the quality of services. The patient's experience could have a direct impact on the development of the patient's adherence to treatment. These groups of indicators contribute by making a synergistic effect when measuring "success" in healthcare. Given the complexity and resource-intensive nature of the implementation of such projects, it is necessary to evaluate and adjust the methodology at the early stages of implementation (Zuenkova, 2021).

The purpose of the study is to present the experience of implementing the EIT Health methodology in the radiotherapy service in oncological dispensaries of the budgetary healthcare system.

MATERIAL AND METHODES

Within 17 months from June 2020 to October 2021, the EIT Health methodology was implemented into radiotherapy departments of 3 oncology sites of the budgetary healthcare system: the Mariinsky Hospital (Kicha, 2021), the Clinical Oncological Dispensary of St. Petersburg (Zuenkova, 2021), the Sverdlovsk Regional Oncological Dispensary (Izyurov, 2020).

The tools and approaches of the EIT Health Management were used:

- processes standardization;
- patient pathway analysis;
- cost estimation;
- identification of patients' values;
- shared decision-making;
- patient adherence development;
- satisfaction with the quality of medical services;
- assessment of the quality of life.

The operational efficiency of X-ray rooms was assessed at two sites — the Sverdlovsk Regional Oncological Dispensary and the City Mariinsky Hospital. The dynamics of work within 16 years (indicators of the dynamic series) was evaluated, the analysis of the structure of nosologies (n = 16,011), the turnover (n = 2091), the influence of factors on operational efficiency were analyzed. Methods of direct observation and timekeeping (22 sessions) of work were used, patient data was copied from the health records (n = 2553) in 2019.

Based on the regulatory documents, the possible risks of increasing the start time of treatment, the risks of the patient's refusal of treatment were assessed. Using the method of simulation modeling by the AnyLogic software, an organizational experiment was conducted. As a result of which a new model of organization of oncodermatology care was proposed.

An observational incomparable prospective, long-term single-center cohort quality of life study was conducted at the Sverdlovsk Regional Oncological Dispensary. 42 patients were included in the study according to the criteria. To assess the patient's quality of life and experience, a validated questionnaire for patients with skin cancer "FACE-Q | Skin Cancer" was used.

RESULTS

In each hospital, 8 main VBHC tools were applied.

Cost estimation

Cost measurement is one of the most difficult problem of implementing value-based principles due to its complexity, lack of accurate information about the cost of a full cycle of medical care, and different assessment methods.

At the current study the measurement of costs seemed relatively transparent, since they were assumed to be equal to the tariff of compulsory medical insurance (CHI). The tariff was calculated on the basis of technological maps, depended on the number of fractions and taking into account regional coefficients.

Thus, the assessment of economic costs did not allow to demonstrate the effect of VBHC. In this regard, the concept of costs was expanded — personnel, time, spatial, material saving were included into evaluation. Saving of time and personnel were in all cases and were associated with the optimization of processes.

Process evaluation, optimization and standardization

The dynamics of the work of radiation therapy rooms — the number of treatment cases and irradiation sessions - was evaluated, the indicators of the dynamic series were calculated: absolute growth, growth rate. Based on these calculations, conclusions are drawn about the causes of changes in patient admission and operational efficiency, which allows us to predict the redistribution of personnel and temporary (number of work shifts) resources within the structural unit. The dynamics of patient admission was influenced by the following reasons: the COVID-19 pandemic, the commissioning of new devices, an increase in the capacity of the department, promotional campaigns.

In order to predict the operational efficiency of the department, 22 sessions were timed in different patients, which showed that the total average session time is 12.1 minutes (Izyurov, 2020). The analysis showed that useful actions take the longest time — 67% (n = 8.09 minutes), while the remaining stages (paperwork, cleaning, etc.) each take no more than 1-2 minutes and total less than 33% (n = 4.03 minutes) of the total time (Kicha, 2021).

Patient pathway analysis

The study of patient behavior patterns when evaluating options for choosing a medical site, doctor, treatment method has been called "patient pathway study". This methodology was first used in medical institutions in Sweden (Kinsman, 2009) and later became widely used in the USA to improve the quality of medical care. The results of the study of the "patient pathway" serve as the basis for the design of routing and planning of medical care. The purpose of such studies is to

describe the steps that patients take from the initial point of seeking medical help to the moment of cure.

We evaluated the actual "patient pathway" by methods of clinical observation, analysis and measurement and compared it with regulated routing in the region. The results of observation and survey of patients made it possible to model the patient behavior. The proposed simulation model was implemented in the AnyLogic software that supports discrete event modeling. As a result of the change, the entire process from the patient's first visit to the discharge was reduced from 26 to 20 days.

Determining patients' value priorities

Values can be considered as objective norms and regulators of social behavior, but also as subjective concepts of the patient. In psychology, there are different approaches to assessing the values of an individual (Schwartz, 1990). According to M. Rokeach, which classifies values into two types: terminal or "super—values" and instrumental - "values-means" (Rokeach, 1973).

The assessment of the patients' value system was carried out through informal interviews with open questions to clarify the underlying motives and beliefs of patients (Zuenkova, 2021).

The purpose of this interview was to record the spread of opinions and preferences of patients regarding the methodology, procedure, schedule, format of radiotherapy treatment. The developed communication algorithm took into account the needs of the patient and included mandatory discussion of the clinical outcome of the procedure, issues of treatment safety and adverse reactions, requirements for cosmetic results, convenience of the treatment regimen.

The implementation of this communication algorithm six months later showed a satisfactory result — all patients adhered to the prescribed treatment schedule, their concern about the results of treatment decreased, all questions concerning the results of therapy were removed at the initial stage of treatment in the process of therapy planning.

Quality of life assessment

To assess the quality of life and the subjective state of the patient, the questionnaires "FACE-Q | Skin Cancer", "Cancer anxiety" and "Satisfaction with the appearance of the face" were used. Factors influencing the choice of treatment method in patients with non—melanoma skin cancer were identified - factors associated with the disease (ECOG stage, localization of skin cancer, radiosensitivity) and patient-associated factors (cosmetic result, fear of radiation, pain threshold, ability to visit a doctor).

The analysis showed the relation between age, gender and the level of psychoemotional distress: young age ($r = -0.398$; $p = 0.009$) and female gender ($r = -0.475$; $p = 0.001$). Positive involvement was observed in 67% of patients. Older patients were less involved in the choice of treatment method ($r = -0.633$; $p = 0.001$). All respondents had a level of satisfaction with doctor–patient communications of more than 50 points, which suggests that patients' expectations of treatment coincided with the information they received before the start of treatment.

Shared decision making

The principles of shared decision-making about treatment originated in the late 1990s and is based on the assumption that a patient is rational in his or her decisions, is able and willing to participate in the discussion of treatment options and make an informed choice. Shared decision-making means a change in the relationship between the doctor and the patient. However, not all patients are ready to rebuild their usual daily behavioral practice.

The patient's choice of treatment options is determined by a number of factors: the available resources (human, technological, etc.) in the medical organization, the degree of implementation of clinical guidelines, the patient's willingness to discuss treatment options with the doctor and the ability to make a decision, the availability of sufficient time for the doctor and the patient to discuss treatment options and assess possible outcomes. In the current study diagnostic and therapeutic modalities specified in the clinical guidelines for non-melanoma skin cancer were taken as the basis of the choice options.

Since the expansion of diagnostic and therapeutic opportunities for the patient can lead to an increase in resource costs (the introduction of new treatment methods, the purchase of medicines and medical equipment, additional personnel), optimization possibilities should be considered — training doctors to work on several modalities, the use of resources from other departments in the absence of necessary equipment, etc. In current research, expanding the possibilities of therapeutic choice did not lead to an increase in resources and costs. Surgeries were also trained for pother modalities: photodynamic therapy and cryotherapy.

The patient's choice of treatment options was carried out taking into account two groups of factors: factors related to the disease (ECOG stage, cancer localization, radiosensitivity) and patient-associated factors (cosmetic result, fear of radiation, pain threshold, ability to visit a doctor).

Patient adherence

The problem of patients' adherence is one of the most significant for modern medicine and society. This problem is especially significant for radiation therapy, because interruption of the course of radiation therapy can threaten a relapse of the disease, which leads to a decrease in survival. Patients' adherence to treatment is influenced by socio-demographic and cultural factors.

The development of patient commitment is an important element of 4P medicine. The points of contact of the patient with the medical site and the doctor play an important role in the commitment. Managing contact points allows to organize the most effective system that increases the conversion of the patient at each stage of the life cycle and increases his or her involvement in the treatment process.

Satisfaction with the quality of medical services

As part of the general trend of value-based healthcare, the patient's experience is becoming increasingly important in assessing the quality of medical services. All medical organizations participating in the implementation of the program of state guarantees of free medical care to citizens are required to conduct an independent assessment of the quality of services provided.

The main criteria for such an assessment include openness and accessibility of information about a hospital, comfort of service and accessibility of care, waiting time, friendliness, politeness, competence of employees.

When implementing a VBHC at the level of structural divisions it is necessary to adapt existing questionnaires to the goals of the project and the specifics of the work.

Active involvement of patients in the assessment of the quality of medical services is an important element of value-based medicine. However, the introduction of subjectivity inevitably leads to an increase in the complexity of the system. The use of the results of the assessment of the patient's experience as a management tool requires approaches to their measurement that would inspire confidence and could be interpreted unambiguously by all stakeholders.

DISCUSSION

The idea of value-based healthcare are undoubtedly of interest to the industry, since it is aimed at improving the quality and accessibility of medical care while maintaining its costs. At the same time, the science of quality improvement collects evidence obtained in various disciplines: management, marketing, logistics, computer science, etc.

Modern medicine needs applied research aimed at forming an evidence base on how to disseminate the results of quality improvement projects. In this regard, the analysis and generalization of the experience of implementing managerial innovations in the field of healthcare organization is important for the subsequent effective application of new managerial ideas in practice.

CONCLUSIONS

Value-based healthcare (VBHC) will undoubtedly set the trend for the development of global healthcare in the coming years. To implement VBHC it is important to build bridges between functions; allocate the necessary resources to achieve long-term results; increase the importance of interdisciplinary teamwork.

The success of any management innovation depends primarily on the correct use of the methodology and its adoption to the situation. The possible barriers for VBHC implementation are the following: lack of standardized data, lack of clarity and unambiguity in the definition, scope and content of the professional medical term "value", uniform algorithms and implementation methods — all this can become an obstacle to the transition of healthcare to value-oriented pathway.

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