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ORGANIZATIONAL AND ECONOMIC FACTORS OF HEALTH SYSTEM OPTIMIZATION

Abstract. *The article discusses approaches to optimizing the health care system in the context of reform. In the article identified institutional and organizational constraints to shape the health care system model with the necessary components: quality assurance, financial constraints, and optimization of budgetary resources. In the article developed the approaches to the formation of the health care system at the regional level. To this aim, the factors that influence the efficiency of the organization and functioning of the medical system are identified. Particular attention is paid to the organization of quality medical care in the united territorial communities of the Sumy region. The factorial analysis made it possible to form models of organization of medical institutions in the united territorial communities, taking into account financial and organizational constraints. In the process of research used the conditionally constant and variable factors in the model to adapt effectively to changes in the external environment. Modeling is based on a functional approach (model based on data flow construction). This approach allows you to identify functional problems of the system, to determine the basic requirements of stakeholders, to determine the structure of information flows in the model. In this case, the health care system is considered as a set of processes (related or independent) that achieve this goal. Then the overall management of the system can be represented as the management of a set of these processes in order to obtain the end result (with the specified characteristics). The peculiarity of this approach to modeling is to summarize a large array of input information, to establish direct and feedback between economic, demographic, geographical, social indicators of community development and medical indicators (results) that characterize the level of public health. The introduction of an integral indicator in the calculation model will solve both general institutional tasks, such as temporal dynamics within the created unified territorial community and creating a competitive position in comparison with other unified territorial communities of the region, and making local management decisions based on the influence of individual factors on the functioning of the health care system. The application of the model makes the practical importance in the control of deviation of the actual value of the integral indicator from the normative and planned result.*

Keywords: health care, optimization, economic model, socio-economic development, system, integral indicator, structural changes, reform, institutional problem.

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Introduction. The lack of a systematic regional policy in Ukraine led to the spontaneous formation of approaches to the organization and management of health care in the regions. In this regard, the most important problem of the domestic health care system is the scientific argument and development of effective organizational and economic models for the provision of medical care to the population of the regions, taking into account their current level of socio-economic development, demographic status, incidence rate, etc.

Experts of the National Institute for Strategic Studies in the analytical note «On the priority areas for improvement of the domestic health care sector» (2010) point to significant shortcomings in the structural and organizational model of the national health care system. In particular, note «... in Ukraine, in addition to the health care system administered by the Ministry of Health of Ukraine, there are a number of parallel medical services of the systems of ministries and departments, which finance 42,3% of health care expenditures health from the state budget».

Pak (2011) indicates that «the modern organizational structure of health care facilities functions without any consistency. ... their organizational structure does not correspond to the new economic mechanism, thus the incentives for changes in activities are weakened, and there are contradictions between the incentives».

An independent problem, which significantly complicates the formation of an effective domestic organizational and economic model of the health care system is, objectively determined, the task of its simultaneous functional and spatial optimization. Such optimization should take place simultaneously at three levels - national, regional, and subregional, with a clear definition of subject-object management principles.

Literature Review. It should be noted that in recent years a number of studies have been conducted to establish the relationship between the structural and organizational model of the health care system, formalized relationships between different levels of medical obedience within such a system, volumes and sources of funding and health effectiveness.

The results of systematic research, which examines various aspects of health care reform, are presented in the monograph (Reid et al., 2005) in which the team of authors has adapted a four-level model by (Ferlie and Shortell, 2001) to clarify the structure and dynamics of the health care system, the rough divisions of labor and interdependencies among major elements of the system, and the levers for change.

It should be noted that scientific papers study, as a rule, four important components that directly affect the quality of medical services: regional differences; financing; economics and equity in access to health services; efficiency of the health care system.

In the work of (Reschovsky et al., 2014) proposed models for estimating regional differences in treatment costs. The connections between the quality of medical services, the factors of public health for specific conditions and the total costs of medical institutions in the respective regions are proved.

The geographical accessibility to hospitals relies on the configuration of the hospital network, spatial impedance and population distribution. In the work of (Dumitrache et al., 2020) explores the potential geographic accessibility of the population to public hospitals in Romania by using the Distance Application Program Interface (API) Matrix service from Google Maps and open data sources.

The purpose of the study is to analyse the utilisation of inpatient care in Estonia(Roovali and Kiivet, 2006) and Portugal (Costa et al., 2020) using small-area analysis the age and sex of municipality residents and travel time to the nearest hospital were linked to the frequency of use and length of stay of respective inpatients.

In the work of (Jin et al., 2019) states that the balanced development of medical service facilities is of great significance. Public medical service facilities can be divided into different levels according to their

medical equipment, service catchment, and medical quality, which is very important but has been ignored for a long time in accessibility evaluations.

The European Commission's report «Joint Report on Health Care and Long-Term Care Systems & Fiscal Sustainability» (2019) focuses on the need to ensure fiscal sustainability and financing of the health care system in the long run given the aging population and related problems.

A number of publications are devoted to the analysis of purely economic factors in the modeling of the health care system. In particular, in the work of (Kaplan and Porter, 2011) authors suggest approaches to expanding sources of funding for the industry. And in the work of (Kuenen et al., 2015), emphasizes the need to eliminate economically unreasonable differences in treatment decisions.

This (Wang, 2012) reviews recent methodological advancements in three issues related to inequality in health care accessibility: measurement, optimization, and impact. Various methods have been proposed to measure health care accessibility, accounting for both spatial and nonspatial factors.

In the monograph of (Cylus et al., 2018), in particular in Section 4, discusses different approaches to pricing in health care and emphasizes the need to clearly delineate budgeting methods based on specific goals and objectives set in decision-making.

Issues of accessibility and equity in the health care system are studied in the paper (Neutens, 2014). In the work of (Cylus et al., 2016) looks at the role that efficiency metrics can play in shaping and evaluating policy choices in middle- and high-income countries using a conceptual policy development framework against which a number of country examples are appraised. Country examples compare the role of efficiency metrics across the stages of the policy cycle, following the ROAMEF (rationale, objectives, appraisal, monitoring, evaluation and feedback) model, which is a stylized framework for rationale policy development.

In practice, policy development diverges from this cycle, which is highly stylized and excludes key factors such as political context, values and events (Hallsworth M. et al., 2011). The model is used here as a theoretical framework rather than a description of policymaking in practice.

In the work of (Medeiros and Schwierz, 2016) conducted estimate relative efficiency of health care systems across all EU countries. The paper uses a comprehensive battery of models with different combinations of input and output variables. In particular, the report «Operational productivity and performance in English NHS acute hospitals: Unwarranted variations» (2016) based on a comparison of morbidity, budget expenditures, economic development of individual regions analyzed the effectiveness of English non-specialized hospitals (primary level) and concluded about unjustified changes in the system of medical services.

The report of the European Commission (Medeiros and Schwierz, 2015) proposed approaches and assessed the relative effectiveness of health systems in all EU countries. The paper uses a set of models with different combinations of input and output variables. And in the work of (Kreif et al., 2015) proposed to implement synthetic control method aims to estimate treatment effects by constructing a weighted combination of control units.

Methodology and research methods. The purpose of the article is to identify organizational and economic factors and theoretical justification of the optimization model of the health care system that takes into account the forms of management, management structures, sources of costs, resource provision, morbidity, treatment efficiency (cures, disability, and mortality), staffing of medical institutions, etc.

To build a model, we propose to use a functional approach (a model based on the construction of a data stream). This approach will give a complete understanding of all functional challenges of the system, identify the main requirements of the interested persons, clarify the data structures to be present in the model and data flows. In the process of model development, the requests of certain groups of the interested persons of the system are characterized.

Thanks to this structure, there are many possibilities to create logical queries, since it is possible to use an unlimited number of query components, including service requests, that transmit information or service commands during processing. Additional process decomposition is not necessary because the basic principle of each can be described by a simple process specification. Any system can be represented as a set of processes (connected or considered as independent) that realize the goal. Then the overall control of the system can be represented as a control of a set of these processes in order to obtain a final result (with the specified characteristics). In this concept, the activity should be represented as a set of processes with inputs, performers, resources, management and outputs, by means of which the system interacts with the super system, for example, the social sphere of society.

A feature of this method is to increase the interpretation of the model, the identification and misunderstanding of the relationship between input actions (technical indicators) and initial values - the result. Using this method is relevant for decision makers when analyzing large automated knowledge bases. When using fuzzy decision trees, knowledge is not lost that an object can possess the properties of either one attribute or another in one way or another.

Figure 1 presents the health care system optimization model, which consists of three main blocks: data analysis and phasification, mathematical model of target function optimization, formation and selection of the most optimal health care facility system.

On the basis of the analysis the set of indicators which provide achievement of the final result are allocated (Table 1).

Table 1. Indicators to provides the final result

Designation	Indicator Name
x_1	Incidence rate;
x_2	Treatment effectiveness (indicators of the number of cured, disability and mortality) of the population;
x_3	Form of ownership (village, community);
x_4	Legal status (hospital, paramedic-midwifery point, district hospital);
x_5	Indicators of the material base (number of healthcare institutions, availability and structure of equipment);
x_6	Level of financial income (medical subvention from the state budget, subsidy from the local budget, subvention from the local budget to reimburse the cost of medicines for the treatment of certain diseases);
x_7	The number of medical personnel (the number of doctors, the number of nursing staff);
x_8	Area of territory / transport accessibility;
x_9	Population;
x_{10}	Age and sex structure of the population;
x_{11}	Qualifications and training of doctors (number of doctors in each category, continuing education courses);
x_{12}	Motivational mechanisms (salary level, number of hours worked, bonus fund);
x_{13}	Life expectancy.

Sources: developed be the authors.

Data fuzzification is carried out to synthesize a fuzzy database and build a decision tree based on fuzzy rules and procedures. The decision tree is built based on finding an extremum point. The indicator reaches an extremum point when it reaches the top and a data conjunction occurs, created for all indicators. Let M be the multiplicity of all indicators ($M = \{x \in X\}$) that are caused by thermal conjunctions that do not intersect in pairs, and their union represents a set of indicators X.

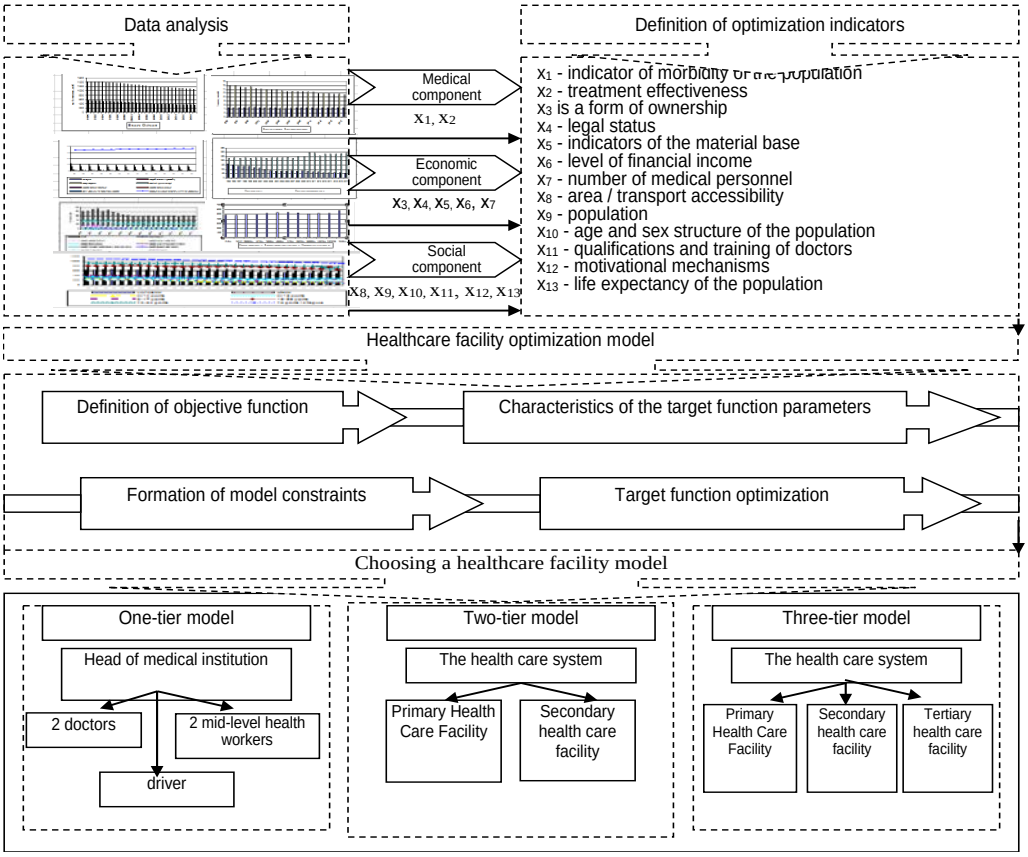

Figure 1. Stages of healthcare system optimization

Sources: developed be the authors.

Thus, based on the analysis, a new multiplicity of indicators is formed, which reflects the optimal achievement of the final result. Yes. We have formed three sets $C = \{x \in (x_8, x_9, x_{10}, x_{11}, x_{12}\}$, $H = \{x \in (x_1, x_2\}$ and $E = \{x \in (x_3, x_4, x_5, x_6, x_7\}$.

At the second stage, a grouping of selected indicators by appropriate parameters and a prediction of optimization efficiency are carried out. The result is a formalization of the objective function, which allows to achieve the optimal structure of the healthcare system.

The mission of this model can be formed as follows: «ensuring the health of the population».

The main goal is to provide quality medical services, medical care and timely preventive measures.

The main task that the optimization of the system is aimed at is providing the population with high-quality, affordable, equal, acceptable medical care.

The goal of optimization is to improve the functioning of the healthcare system based on a combination of the activities of state authorities, corporate structures, public structures and individual citizens.

The aim of the model is to increase the availability of medical care, the quality of services provided and the effective redistribution of funds taking into account the socio-demographic and economic situation that has developed.

Results. The objective function can be determined from the output/cost predicate and calculated based on the validity of certain parameters.

$$I_p(X) = \left\{ \frac{Effect}{Cost} \right\} \quad (1)$$

where $I_p(X)$ is an integral indicator of health system optimization, a fraction of a unit.

According to requirements of optimizing model of a health care system the formula (2) taking into account a system (1) can be presented in the form:

$$I_p(X) = \left\{ \frac{F_{V0}^{1}; O_{p0}^{1}; F_{OZ\,opt}^{\max}; P_{F\,opt}^{\max}; K_{M\,opt}^{\max}; S_{TER0}^{\max}; T_{PTp1}^{\max}; K_{N\,Kn1}^{\max}; T_{LTl1}^{\max}; G_{K0}^{1}; L_{M\,\min}^{opt}}{K_{SIC\,Ksic1}^{\min}; K_{D\,Kd1}^{\min}; K_{IN\,Kin1}^{\min}; V_{1h}^{\min}; R_{7km}^{\min}; W_{opt}^{\min}} \right\} \quad (2)$$

where F_{V0}^{1} is the form of ownership (the indicator takes the values1 - in case the united territorial community is created 0 - in the case of another form of organization of ownership), the share of the unit; O_{P0}^{1} - legal status (the indicator takes the values 1 - in the case of the state legal form of a medical institution and 0 - in the case of another legal form), the share of a unit; F_{Ozopt}^{max} - an indicator of the availability of material and technical base (calculated indicator of capital-labor ratio, which takes values from the calculated optimal to the maximum level), a fraction of a unit; P_{Fopt}^{max} - the level of receipt of financial resources (calculated as the sum of all financial receipts in the health care system, the indicator takes values from the calculated optimal to the maximum level), monetary units; K_{Mopt}^{max} - an indicator of the number of medical personnel in the healthcare system (calculated as the total number of all available medical personnel, the indicator takes values from the calculated optimal to the maximum level), persons; S_{TER0}^{max} - indicator characterizing the area of the territory (determined on the basis of statistical information on the total area of the territory, the indicator takes values from 0 values to the maximum level), area units; T_{PTp1}^{max} - an indicator characterizing transport accessibility (population density is calculated on the basis of the population and the total area of the territory, the indicator takes values from 0 values to the maximum level), fractions of a unit; K_{NKn1}^{max} - population indicator (determined on the basis of statistical information on the population of the territory, the indicator takes values from 0 values to the maximum level), person; T_{LTl1}^{max} - indicator of average life expectancy (defined as statistical information on a certain level of life expectancy of the population, the indicator takes values from the calculated for the current period to the maximum level), years G_{K0}^{1} - an indicator characterizing the qualifications and level of professional training of medical personnel (calculated as the ratio of workers with high qualification and timely completion of advanced training courses for nurses, indicator l takes values from 0 value to 1), a fraction of a unit; L_{Mmin}^{opt} - an indicator that characterizes the level of incentive and motivational measures (defined as the sum of paid salaries and bonus events, the indicator takes values from a minimum certain level to the optimal value), monetary units; $K_{SICKsic1}^{min}$ - an indicator of the incidence of the population (the number of registered cases of diseases is determined for various reasons, the indicator acquires the value calculated for the current period to a minimum level), person; K_{DKd1}^{min} - mortality rate (determined by the number of registered deaths for various reasons, the indicator takes on the value calculated for the current period to a minimum level), person; K_{INKin1}^{min} - indicator of population disability (the number of registered cases of newly established disability is determined for various reasons, the indicator acquires the value calculated for the current period to a minimum level), person; V_{1h}^{min} - indicator of the doctor's access to the patient (determined by the legally established level of the minimum defined at 1:00 to the minimum level), h; R_{7km}^{min} - indicator of the doctor's access to the patient (determined by the legally established level of the

minimum defined at 7 kilometers to the minimum level), distance units; W_{opt}^{min} - the level of expenses for medical services (determined by the estimated total level of expenses for the provision of medical services, the indicator takes on a value from a calculated optimal level to a minimum value), monetary units.

At the same time, the determination of the parameters of this function can be limited by the action of environmental factors (respondents, stakeholders, consumers and service providers). The main ones can be defined in this interpretation:

– ensuring the availability of medical care (large area of services, low population density, transport accessibility, speed of access for a doctor to a patient should be up to 1 hour on foot or up to 7 km distance, etc.);

– the possibility of worsening socio-demographic indicators of the development of the territory (decrease in average life expectancy, increase in the incidence of the population, etc.)

– deterioration of the material and technical base of healthcare system institutions (the indicator of the provision of medical institutions with equipment and technologies should correlate with the needs of the population and financial security, the determination of capital-labor ratio, capital intensity, capital intensity, etc.);

– taking into account the «human factor» (in accordance with the concept of reform, a person, his needs should be in the spotlight, however, the level of population incomes and the possibility of paying insurance and other contributions to the health system can lead to a rejection of priorities and «dehumanization of society»).

Minimization of these restrictions can occur due to the introduction of an additional compatibility coefficient into the model, which will take into account the minimum allowable limits of the available indicator level, minimization or maximization of certain indicators. Thus, formula (2) can be transformed in the following way:

$$I_p(X) = \left\{ \frac{F_{V0}^{1}; O_{p_0}^{1}; F_{OZ\,opt}^{\max}; P_{F\,opt}^{\max}; K_{M\,opt}^{\max}; S_{TER0}^{\max}; T_{PTp1}^{\max}; K_{N\,Kn1}^{\max}; T_{LTl1}^{\max}; G_{K0}^{1}; L_{M\,\min}^{opt}}{K_{SIC\,Ksic1}^{\min}; K_{D\,Kd1}^{\min}; K_{IN\,Kin1}^{\min}; V_{1h}^{\min}; R_{7km}^{\min}; W_{opt}^{\min}} \right\} \cdot \{K_{sym}\} \quad (3)$$

where K_{sym} is the calculated index of the compatibility factor, the fraction of one.

Thus, the criterion of an optimization model of the health care system may be the ownership forms of organizations that should provide health care services within the framework of certain state programs. Such organizations include public health institutions and private health institutions. The provision of health care services can be provided on the basis of two forms of ownership equally. That is, the private model of a health care facility should be characterized by the presence of a comprehensive health care system and access by a large part of the population to the statutory medical care. At the same time, given the development of competition and the availability of incentives to innovate, consumers are given greater freedom of choice, access to cutting-edge technology and high quality of care.

Additionally, in order to improve the health care system, it is necessary to address the allocation of the area of responsibility. The main subjects that should regulate the health care system are the state, social insurance funds of various levels, as well as other institutions and associations.

Conclusions.

1. Model (2) has different structural and logical contents for the created United Territorial Community (UTC) and for the conditions of the UTC creation process. The model has both a number of conditionally constant factors (S_{TER0}^{max}, K_{NKn1}^{max}, V_{1h}^{min}, R_{7km}^{min}), and a number of variables. It is this circumstance that significantly narrows the “field of optimal values” of $I_p(X)$. For the conditions of the process of creation of

UTC, all factors of model (3) are a priori variables. It is precisely the consideration of the medico-organizational and economic factors of the functioning of the health care system in the formation of budget-able UTCs that should have been one of the main constraints / conditions.

2. The proposed model (2) is a tool for solving three common institutional problems. The first is to study the temporal dynamics of $I_p(X)$within the framework of the UTC created. In addition, a number of derivative problems can be solved, such as the study, for example, of the influence of individual factors of the functioning of the health care system on the integral index $I_p(X)$ for the purpose of making local management decisions. The second task is to compare the integral indices of $I_p(X)$ for different UTC within, for example, one region. Such a comparison, the analysis of dynamics will allow to consider more objectively the objective regional peculiarities in improving the intergovernmental transfer policy. The third task is to investigate the deviation of the current $I_p(X)$ value from some baseline / normative indicator. At the same time, there is a problem of determining such a basic, calculated value of $I_p(X)$. Obviously, this is one of the main tasks of the Ministry of Health of Ukraine, the Ministry of Finance of Ukraine, regional state administrations (taking into account, including the financial viability of the UTCs) to calculate the baseline $I_p(X)$, which, obviously, will differ depending on regions of Ukraine, taking into account the integrated current indicators of the incidence rate, the level of appeals to medical institutions, the duration of inpatient and outpatient treatment and household losses, due to temporary loss of working capacity you.

3. Model (2) contains two important financial indicators: in the numerator - P_{Fopt}^{max} (the level of receipt of financial resources (calculated as the sum of all financial receipts in health systems, the indicator takes values from the calculated optimal to the maximum level), monetary units), and in the denominator - W_{opt}^{min} (level of expenses for medical services (determined by the estimated total level of expenses for the provision of medical services, the indicator acquires a value from a calculated optimal level to a minimum value), monetary units). Here it is necessary to understand the different economic nature of these indicators. Obviously, all things being equal, as W_{opt}^{min} increases, the efficiency of the health care system will decrease. This is logical because non-production costs are rising. On the other hand, when all things being equal, the P_{Fopt}^{max} value rises, the efficiency of the health care system increases. Formally, the question may arise - why? In fact, the P_{Fopt}^{max} indicator characterizes the potential capability of the system. And the difference between P_{Fopt}^{max} and W_{opt}^{min} is the saving of resources (efficient use of them) while providing the identical natural result of rendering medical services.

An example of the analysis of the effectiveness of the use of financial support of health care facilities of individual territorial communities of Sumy region is given in Table 2 (as of 2021).

Table 2. Comparative analysis of the effectiveness of the use of financial support for health care facilities in local communities.

Community	Indicators of financial support of health care institutions, thousand UAH				Citizens assessment of their own health (according to the results of a poll), %	
	P_{Fopt}^{max}	W_{opt}^{min}	P_{Fopt}^{max}/ W_{opt}^{min}	P_{Fopt}^{max} - W_{opt}^{min}	Good	Very good
Bezdrik	1403,0	1173,0	1,20	230,0	43,0	9,0
Tokary	1735,0	1235,0	1,40	500,0	36,7	11,1
Verhnya Syrovatka	4228,0	4228,0	1,00	0	45,3	3,6
Nizhnya Syrovatka	3824,0	3504,0	1,10	320,0	40,0	22,0
Hotyn	3728,0	3293,0	1,13	435,0	44,5	5,5

Sources: developed be the authors.

Indicator W_{opt}^{min} is calculated using the «capitation rate» method. All these resources were fully used for the provision of medical services. The is P_{Fopt}^{max} an increase in the amount of W_{opt}^{min} by the amount

that communities have allocated from a special fund to fund health facilities: P_{Fopt}^{max} - W_{opt}^{min}. As a rule, these funds were directed to the repair of premises, purchase of equipment, etc.

Thus, the difference between P_{Fopt}^{max} - W_{opt}^{min} cannot be considered as saving financial resources in the classical sense. Obviously, these resources indirectly affect the improvement of the quality of medical services. At the same time, the relative effectiveness of additional financial resources P_{Fopt}^{max}/ W_{opt}^{min} can be concluded only in comparison with the indicators of the state of health of citizens (for example, comparing the corresponding indicators for the Tokary and Verhnya Syrovatka communities).

4. The practical application of model (2) is possible only on the basis of a formalized approach to the problems / problems that such model is intended to solve. At the same time, we assume that the health care system is, above all, a social institution. The effectiveness of the system is assessed by indirect factors: fertility, mortality, mortality, morbidity, and others. But such an assessment cannot be called reliable, since the factors listed depend not only on the efficiency of the health care system. It should be noted that in the specialized literature on health care organization there are no indicators by which the analysis of the health care system as an institution would be possible. At the same time, this kind of analysis is extremely important, considering the complex of structural changes both in the administrative and territorial structure of Ukraine and in the corresponding structural changes in the health care system.

5. The results of the modeling should be considered as an information basis for institutional changes in the national system «administrative-territorial structure - the end-to-end function of health care - levels of medical services - the economic potential of administrative systems – funding».

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Організаційно-економічні фактори оптимізації системи охорони здоров'я

У статті розглядаються підходи до оптимізації системи охорони здоров'я в контексті реформування. Визначено інституційні та організаційні обмеження для формування моделі системи охорони здоров'я з необхідними складовими: забезпеченням якості медичних послуг, фінансовими обмеженнями та оптимізацією бюджетних ресурсів. Розроблено підходи до формування системи охорони здоров'я на регіональному рівні. З цією метою визначені фактори, що впливають на ефективність організації та функціонування медичної системи. Особлива увага приділяється організації якісної медичної допомоги в об'єднаних територіальних громадах Сумської області. Факторний аналіз дозволив сформувати моделі організації медичних закладів об'єднаних територіальних громад з урахуванням фінансових та організаційних обмежень. У процесі дослідження використовувалися умовно-постійні та змінні фактори моделі для ефективної адаптації до змін зовнішнього середовища. Моделювання базується на функціональному підході (модель на основі побудови потоку даних). Такий підхід дозволяє виявити функціональні проблеми системи, визначити основні вимоги стейкхолдерів, визначити структуру інформаційних потоків у моделі. При цьому система охорони здоров'я розглядається як сукупність процесів (пов'язаних чи незалежних), що забезпечують якість медичних послуг. Тоді загальне управління системою можна представити як управління сукупністю цих процесів з метою отримання кінцевого результату (із заданими характеристиками). Особливістю такого підходу до моделювання є узагальнення великого масиву вхідної інформації, встановлення прямого та зворотного зв'язку між економічними, демографічними, географічними, соціальними показниками розвитку громади та медичними показниками (результатами), що характеризують рівень здоров'я населення. Запровадження інтегрального показника в розрахункову модель дозволяє вирішити як загальноінституційні завдання, такі як часова динаміка в межах створеної об'єднаної територіальної громади та створення конкурентної позиції порівняно з іншими об'єднаними територіальними громадами області, так і прийняття місцевих управлінських рішень на основі оцінки впливу окремих факторів на функціонування системи охорони здоров'я. Застосування моделі дозволяє контролювати відхилення фактичного значення інтегрального показника від його нормативного та планового значення.

Ключові слова: економічна модель, інституційна проблема, інтегральний показник, охорона здоров'я, реформа, оптимізація, соціально-економічний розвиток, система, структурні зміни.