

# THE MAIN PROBLEMS CREATION OF ELECTRONIC HEALTH SYSTEM

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***Annotation:** The authors suggest proven methods and approaches that can be useful in the implementation of a public eHealth project. The proposals are based on many years of knowledge and accumulated experience in the development, implementation, use and scientific presentation of health management information on a large scale. This can be done with the help of a systematic approach and the preparation of relevant project-estimate documents, taking into account the current standards approved at the national level.*

***Key words:** medical information systems, design, systematic approach, healthcare system, goals, sequence and efficiency.*

***Аннотация.** Авторы предлагают проверенные методы и подходы, которые могут быть полезны при реализации общественного проекта электронного здравоохранения. Предложения основаны на многолетних знаниях и накопленном опыте разработки, внедрения, использования и научного представления информации по управлению здравоохранением в больших масштабах. Сделать это можно с помощью системного подхода и подготовки соответствующих проектно-сметных документов с учетом действующих нормативов, утвержденных на национальном уровне.*

***Ключевые слова:** медицинские информационные системы, проектирование, системный подход, система здравоохранения, цели, последовательность и эффективность.*

Among other countries of the world, the Republic of Uzbekistan is beginning to use innovative solutions. We see an example of the work being done in the

healthcare sector. In the Republic of Uzbekistan, advanced work in the field of healthcare is being introduced. An example is the Decree of the President of Uzbekistan “On measures to introduce an innovative model of healthcare management in the Republic of Uzbekistan”.

The document lists systemic problems hindering effective healthcare reform. Among them are the lack of a long-term strategy for the development of health care, due to which the reforms are “fragmentary and non-systematic”, an effective system for monitoring the improvement and maintenance of the proper level of professional qualifications of medical and pharmaceutical workers, as well as the imperfection of clinical protocols and medical standards.

The Decree defines the strategic goals of introducing an innovative model of healthcare management in Uzbekistan:

- *sustained improvement in the health indicators of the country's population and the level of satisfaction with the health care system, determined according to international methods;*
- *achieving a leading position in terms of the effectiveness of medical care in the region and a worthy place in world rankings;*
- *a significant increase in the share of the private sector of medical care, improving its quality and accessibility;*
- *formation of medical tourism as a budget-forming sector of the economy;*
- *creation of a modern system of continuous education and advanced training of medical and pharmaceutical workers, including management personnel.*

On the basis of the Research Institute of Public Health and Organization of Health under the Ministry of Health, the National Chamber of Innovative Health of the Republic of Uzbekistan is being created, which will have structural units in Karakalpakstan, regions and Tashkent. [1,2]

The main problem associated with the construction of effective information systems and technologies, in addition to the lack of financial resources and specialists, is the lack of a unified theory that links together data, information and

knowledge. There are many approaches to the concept of "information" from philosophical or cybernetic positions, including the so-called "technical" theory of information, which should be called the "theory of transmission and storage of data", etc.

One can find dozens of sometimes contradictory definitions of what is information, data or knowledge, and how they are interrelated.

It is believed that informatization is one of the most important ways to improve the efficiency and functioning of any branch of the Life Support System (LSS), including the health protection system (HPS) of the population, which has been much talked about at all levels of government for more than half a century [1, 3, 8]. Indeed, healthcare, like no other industry, needs the most modern information technologies, since no other industry collects and uses such large volumes of socially significant information resources. Every year, the amount of information used in various areas, including in the field of health protection, is increasing in the world. An excess of information often interferes, harm prevails over usefulness. The human body is a complex, self-regulating biosocial system that requires an individual approach from medical workers.

The main problem of existing medical information systems (MIS) is the insufficiency of the doctor's ability to obtain the necessary information to make a decision adequate to the needs and form clinical thinking. At the same time, a specialist doctor spends time on work that is unusual for him: searching for the required information, filling out additional accounting documents and issuing referrals for additional diagnostic studies, which leads to irrational use of resources and a decrease in the effectiveness of the doctor's professional activities.

In this regard, there is a primary need to create adequate information support for the professional activities of a doctor [4,5,8]. In order to subsequently apply standards, recommendations, procedures, the doctor must make a preliminary diagnosis. That is, the doctor must master systemic clinical thinking and have the appropriate information support to carry out his professional activities. No less

problematic is the fact that the object of informatization does not take into account all the relationships, especially for external relations [20].

All this reduces the efficiency and effectiveness not only in the field of health care, but also in the entire LSS of the region and the country as a whole. Therefore, successful reforms of any systems and facilities, including in the field of public health, are possible only if the features of their functioning in the relevant periods are carefully studied. Here it is necessary to ensure the relationship between the past and the future - to take all the best from the past. From scientific, empirical observation and self-observation, we can reveal that part of the observed past on the problem under consideration corresponds to the needs of the consumer and society as a whole and can be useful for the future. In this case, you should eliminate what interfered, find the causes and solutions. At the same time, it becomes very important to identify factors that negatively affect the performance of systems, and to identify ways to solve problems. However, it is important to remember that there are no ready-made methods that will allow you to succeed in the development of an eHealth project, bypassing everything else that cannot be controlled. A miracle will not happen, it will simply be noted somewhere that another regular project has been completed.

Therefore, studying the past, it is worth not only looking for and analyzing problems, but also accepting and transforming what has become familiar to the user and useful to patients, and medical specialists, for whom HIS are created in order to optimize their work. At the same time, it is no less important to search for and apply everything progressive, especially that appeared in the new millennium in science and a number of sectors of the national economy, primarily in the economy as a world science, as well as in the economy as a national industry. For example, using the principle of paternalism from Behavioral Economics, one can specify certain parameters of the relationship between the state and society.

Dealing with worries about the fact that something does not suit us in healthcare informatization is a road to nowhere. Another option is more constructive - the use of technologies of a systematic approach and system analysis [2,7]. This is the path to improvement and must be used. Attention should be paid to the expediency of

a wider application of democratic procedures, including the method of expert assessments, for example, in such areas as:

- *analysis of the effectiveness of existing medical information systems and technologies in medical organizations and profiles of medical services in the regions of Uzbekistan;*
- *selection of the best samples for replication;*
- *identifying health technologies for improvement and including them in the eHealth programme.*
- *examination of the regulatory framework, project documents, regulatory and reference data and information exchange protocols for the development of e-health.*

Improving the effectiveness of medical organizations and the health care system as a whole largely depends on an adequate management information support model created on the principles of a systemic (process) approach that will achieve the goals set. In this case, the most important condition is the implementation of the following procedures of system analysis:

- *selection of the object of informatization;*
- *identification and analysis of problem situations;*
- *formulation of the general goal and its decomposition;*
- *setting specific goals to achieve goals;*
- *determination of the true need for basic types of medical care;*
- *assistance in both medical services and all types of resource support.*

Equally important is a complete definition and a clear understanding of the “final products” of the functioning of facilities, as well as the creation of a management system for ensuring their quality (timeliness, completeness, efficiency and other indicators), as well as the organization of effective monitoring of their achievement. As you can see, we are talking about the design and development of medical information systems in accordance with the current standards and other legal acts, which reflect the main types of support: technical, software, organizational, information. Thus, in the current conditions of the socio-economic development of

the country, the system of public health protection becomes the object of informatization, where the healthcare industry is the central link of all entities directly or indirectly involved in the field of public health protection.

As a general goal of such an object of informatization, there may be a reduction in preventable losses of life and labor potential according to the criterion of "health". Of course, this goal should be interconnected with the goal of a higher level, namely with increasing life expectancy and improving the quality of life of citizens.

It should be noted that the country has accumulated considerable experience in the use of information technologies at different levels and functional areas of organization and management in healthcare, which will be discussed below. However, the changes that have taken place and the current conditions in the country require a new approach in the implementation of such programs.

The accumulated electronic medical databases are practically not used to conduct scientific research and determine the need for various types of medical care and resource support. The completeness of medical and statistical data on public health and their reliability also raises doubts. The volume of medical care provided by private medical organizations is increasing, and the diseases identified by them, the types of care provided and the effectiveness are not taken into account by state medical statistics, etc. This problematic situation requires urgent elimination.

On the other hand, there are opportunities to use qualitatively new information technologies, such as artificial intelligence, the development of decision support systems, the use of predictive models in management, etc., which will have a dramatic impact on making timely and adequate decisions at all stages of medical care. which will certainly affect the availability and quality of medical care and the level of public health.

From the foregoing, the image of the model of the functional structure of the unified state health information system emerges, its main functions are:

*1. operative provision of the medical specialist with the necessary information and knowledge in the treatment and diagnostic process.*

2. *minimization of the contractor's time spent on registration of accounting and reporting medical and other documentation.*

3. *formation of solutions by specialists in various situations in the performance of professional duties.*

4. *determination of the necessary need for all types of process support for the implementation of professional duties.*

5. *ensuring continuous quality management of medical care at all stages of its provision.*

6. *carrying out continuous monitoring of the effectiveness and efficiency of activities of both specialists, structural divisions participating in the treatment and diagnostic process, and other activities, as well as a medical organization, service, healthcare system.*

In the course of the study, we modeled several possible trends in the development of digital medicine, taking into account the factors influencing the improvement of healthcare:

- *general movement towards a comprehensive human-centered system;*
- *formation of personalized medicine;*
- *development and implementation of a full-scale information and analytical data exchange system;*
- *development and maintenance of the unified telemedicine network of healthcare organizations;*
- *creation of unified industry classifiers for the purpose of unification and standardization of information and software of medical electronic systems.*

Digital technologies in general help to strengthen national health systems, expand the coverage of medical care, improve the transparency, accessibility and quality of medical services and information, and open up new opportunities for patients as part of the transition to a people-centered health system.

Based on the foregoing, it becomes obvious that the country has all the objective prerequisites for the practical implementation of e-health, which can significantly increase the effectiveness and efficiency of the public health system.

However, this can be achieved with a well-thought-out system study (system study) in the process of designing the Uniform State Health Information System, where medical (clinical) information technologies should take the leading place at all stages of the treatment and prevention process, and all subjects directly or indirectly involved in this process should be involved process.

The decision making process can be optimized by applying action algorithms, decision tables, expert systems, simulations, and the like.

Any innovations, development and implementation of comprehensive and targeted programs and projects, including informatization programs in the field of health care, should be created and developed on the principles of a systematic approach. An important role here should belong to the users of the systems; their active participation in the development of project documentation will be required, especially at the stage of setting tasks, of course, taking into account the wishes of specialists from management bodies at all levels. And as noted above, the development of software and technical documentation for the Unified State Health Information System, trial operation, as well as scientific and software and technical support is implemented centrally at the state level.

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