МЕДИЦИНА, ПЕДАГОГИКА И ТЕХНОЛОГИЯ: ТЕОРИЯ И ПРАКТИКА
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THE USE OF INFORMATION COMMUNICATION TOOLS, THEIR MODELING AND OPTIMIZATION IN MEDICINE

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Abstract: *This article is about the stages of development of medicine in our country and the world, the organization of optimization of their use, and the development of new medical equipment models and practical implementation measures that meet the needs of the times.*

Key words: *model, medicine, artificial intelligence (SI), optimization, modeling, information, communication.*

In the era of the rapid development of information technology in the world, the development of medical technologies, the development of solutions to the pandemic situation as soon as possible has become an urgent issue. Clinical

sciences that study human diseases, their treatment and prevention are divided into therapy and surgery according to the main method of treatment. These sections of medicine, in turn, are divided into different areas for the detailed study of diseases of various organs and systems.[1] The use of modern information and communication technologies in developed countries began 40-50 years ago, and by now countries such as the United States, Germany, Israel and India are developing solutions to hundreds of problems in their medical field. The most important thing is that hundreds of mini-operations are being optimized in the field of medicine, reducing the human factor. And the models of new medical devices show how important and necessary the process of working with computer technology is. The world of information technology (IT) has changed the way modern healthcare systems receive, store, access, and deliver medical information. These developments bring great benefits to patients and healthcare providers, but they also pose ethical and legal challenges in protecting patients' privacy and confidentiality. The traditional and humanistic concept of the doctor-patient relationship is also under threat, as information technology is being used to circumvent the need for personal consultations. One of the effective ways to continue using IT in the medical field and minimize its potential risks is through legal reforms and the establishment of government standards for the availability and expression of patient autonomy. Ultimately, the role and limitations of IT as a means to achieve medical goals must be carefully considered, clearly defined, and reasonably defined to ensure their effectiveness and safety.[2] History of medical information systems development In the mid-50s of the 20th century, the first attempt was made to use computer technology to create a medical information system in healthcare. TAT's first project was MEDINET, created by General Electric. The head of the Institute of Surgery, A.V. Vishnevsky, began by automating the analysis. When using EUS in healthcare, a typical situation developed: various technological operations of automated control systems (ATS) were performed sequentially, which made it possible to achieve a set goal. Since the 70s, the development of ATT has been divided into 2 different directions:

1) the structure of an integrated complex in which one powerful computer (server) is used to support various applications;

2) creation of distributed systems that support the execution of specialized applications with independent computers. In both developments, the principle of

the general availability (principle) of a single database in which patient information is stored prevailed. Social hygiene and health organization, general hygiene, hygiene of children and adolescents, communal hygiene, food hygiene, radiation hygiene, occupational hygiene, epidemiology and medical geography, as well as medical ethics and deontology[3].

Such a division of medicine is necessary because social processes are directly related to all medical sciences, as well as scientific and practical fields (military medicine, space IT, sports medicine, forensic medicine, etc.). The experimental method, characteristic of the biomedical sciences, is included in the field of clinical and hygienic medicine. Medicine is closely related to natural sciences (biology, physics, chemistry) and social sciences and technologies. Medical equipment is indispensable for many diagnostic devices using computer programs. Applications of computer programs in medicine include hospital information systems, medical data analysis, laboratory computing of medical imaging, computer-based medical decision-making, critical care, computer therapy, etc. In developing medical institutions, we see the use of IT technologies before starting treatment. For example, a patient client can make an appointment by registering at hospitals online by filling out a medical form electronically. This, in turn, serves as a solution to prevent queues and conflicts in hospitals. In some cases, patients were infected with non-existent diseases due to an incorrect diagnosis by doctors. Modern medical technologies are considered as a solution to gradually reduce the above-mentioned negative situations. After all, medical devices working with an artificial intelligence system accurately show the physical and mental state of a patient without the involvement of a human factor and serve to increase work efficiency. The use of ICT and software in the field of medicine Medical information is information related to any medicine in a broad sense. Information related to a person (as a patient) in the narrow sense, that is, information about his health, the characteristics of his body, past illnesses, etc. Types of medical information:

1. Alphanumeric information makes up an extensive substantial part of medical information (printed and handwritten documents).

2. Visual information: Statistical: various images (X-rays, echocardiograms, etc.). Dynamic: unconscious behavior and facial movements (facial expressions),

articular reflexes, pupil response to light, dynamic images generated by diagnostic equipment.

3. Sound information: speech: the attitude of the attending physician, neurological and psychologically pathological speech of the patient: sound signals generated by diagnostic equipment: Doppler signals of blood flow in the EXOCG, flowmetric signals, etc.; natural sounds of the human body, amplified by electronic means;

4. Combined types of information - combinations of various alphanumeric, visual and audio information. Medical information systems Information technology (IT) is a set of methods, equipment, and programs used in information processing. An information system is a complex of information and means of its organization that ensure the work of a methodological, software, technical, and information organization. The Medical Information System is a database of information and knowledge used in various automation processes in medical institutions. A model term. Modeling of medical systems. The study of events and processes and the solution of related issues is carried out by modeling and managing them based on information technology. In this sense, having the appropriate knowledge of management, optimal management concepts, the concept of communication that allows you to manage, modeling physical, biological, economic problems, in particular, data modeling and computer modeling, is the need for an hour, and automatic systems, physical, mathematical, biological, economic and other models, mathematical modeling and its stages, modeling using computer programs and its essence.

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