MODERN AREAS AND PROSPECTS FOR THE APPLICATION OF MEDICAL INFORMATION SYSTEMS

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Resume

In this article, the introduction of information technology in daily health methods has led to radical changes in the organization of its specialists. Each stage in the development of healthcare and the medical system is associated with the emergence of new integrated knowledge, which include the general scientific basis: information on computer science, medical cybernetics, economics, healthcare, management and marketing is given.

Keywords: general scientific, computer systems, clinical processes, expert systems, bio signals, biological studies, analysis.

The introduction of information technology into everyday healthcare practice is conducting fundamental changes in the organization of labor of its specialists. Each stage of development of the health and medicine system is associated with the emergence of new integrated areas of knowledge that carry general scientific foundations: medical cybernetics, economics, healthcare, management and marketing, etc. 10-15 years ago, the tasks solved by medical informatics concerned the scientific field, however, the informatization of healthcare, the introduction of digital medical devices and equipment, as well as the distribution of telecommunication technologies have led to the fact that computer systems are currently used to support clinical processes in all areas , in particular, to create electronic databases and image processing systems. Currently, medical information systems are used not only by scientific personnel, but also by practicing doctors. Many experts emphasize the importance of information technology in medical practice: "It is difficult to present high -quality provision of medical care to patients without supporting computer science (computer), which plays an important role in modern medicine in the provision of and storage of patient data and medical knowledge, modeling biological processes, processing bio signals, images or images

or images statistical analysis of clinical research "[Prof. V. Hillen] The dynamic development of computer science - hardware and software in recent years and decades has changed life in all areas, especially in medicine. Health care plays a large role in the research and processing methods. In recent years, more and more patients have been served using information systems. Electronic recording of patients has become a reality, patients with specialists of doctors on various sites are consulted, etc. On the one hand, this can make patients more effective and high -quality, on the other hand, will bring new problems, in particular in the field of patient safety and confidentiality.

Specialized medical software.

Practical medicine is becoming more and more automated. The software includes systemic and applied. The system software includes a network interface that provides access to data on the server. Applied support is programs for which, in fact, the computer is intended. Complex modern studies in medicine are unthinkable without the use of computing technology. Such studies include computed tomography, tomography using the phenomenon of nuclear magnetic resonance, ultrasonography, studies using isotopes. The amount of information that turns out to be so huge during such research that without a computer a person would be unable to perceive and process it.

Expert systems.

Expert systems are computer programs that can analyze certain source data and are able to replace specialists of a narrow profile in problem situations. The systems themselves are considered as models of expert behavior, and, like people's experts, use knowledge in their work. For ES, "knowledge" is presented in the form of bases of knowledge that can be changed and supplemented.

Self -learning intellectual systems.

Among expert medical systems, the so -called self -learning intellectual systems (SIS) occupy a special place. They are based on the methods of automatic classification of situations from real practice or on methods of learning by examples. The most striking example of SIS is artificial neural networks.

Medical information systems.

The classification of medical information systems is a key link in the informatization of healthcare is an information system. The classification of medical information systems is based on a hierarchical principle and corresponds to a multi - level healthcare structure. Distinguish:

1. Medical information systems of the basic level, the main of which is computer support for the work of doctors of different specialties; They can improve the quality of preventive and laboratory and diagnostic work, especially in the conditions of mass maintenance with a shortage of time of qualified specialists.

2. Medical information systems of the level of medical institutions.

3 Medical information systems of the territorial level.

4 Medical information systems of the state level.

Medical instrument-computer systems.

An important variety of specialized medical information systems is medical instrument-computer systems (MPKS).

Typical representatives of the MPKS are medical monitoring systems for patients, for example, during complex surgery; computer analysis systems of tomography, ultrasonic diagnostics, radiography; Systems of automated analysis of data from microbiological and biological studies, analysis of cells and human tissues.

Medical information technologies include means of influencing the body with external information factors, a description of the methods and methods of their application and the process of teaching practical skills. Accordingly, the further development of these technologies requires the consideration and solution of the following practical issues. In the first place is an urgent question about the need for wide implementation in the clinical practice of tested means and methods of information impact that meets the requirements as safety and ease of use, high therapeutic efficiency of their application. The next urgent issue is to stimulate and encourage the development and creation of new means and methods of influencing the human body corresponding to the principles and postulates of information medicine. Further development and improvement of this field of medicine is associated with the optimization of means and methods of reverse biological communication in information effects adequate to changes in the body.

One of the main ways to solve a number of medical, social and economic problems is currently an informatization of the work of medical personnel. These problems include the search for effective tools that can provide an increase in three most important healthcare indicators: the quality of treatment, the level of safety of patients, and the economic efficiency of medical care. The basic link in informatization is the use of modern clinical information systems in hospitals equipped with decision -making support mechanisms. However, these systems are not widespread. According to the "State Program for the Development of the Digital Economy and the Information Society for 2016-2022", in order to increase the level

of informatization in the field of healthcare, an automated republican telemedicine system of unified medical counseling was developed, a personified information and analytical system for accounting for medical and pharmaceutical personnel of the Republic of Uzbekistan, the information and analytical system Republican epidemiological register of patients with hematological diseases for monitoring and analyzing the level of medical care to the population, an information and analytical system for planning and monitoring centralized competitive procurement of drugs for healthcare organizations.

Classification of modern computers and their characteristics. The main components of the computer. Medical peripheral devices.

There are various classifications of computers (computers). Consider some of them. According to the used elemental base, computers are conditionally divided into generations:

• 1st generation, 50s: computers on electronic vacuum lamps;

• 2nd generation, 60s: computers on discrete semiconductor devices (transistors);

• 3rd generation, 70s: computers on semiconductor integrated schemes with small and medium integration (hundreds-thousands of transistors on one crystal);

• 4th generation, 80s: computers on large and ultra-large integral schemes-microprocessors (tens of thousands-millions of transistors on one crystal);
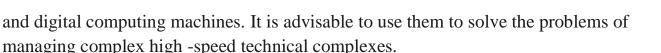
• 5th generation, 90s. - To the present: a computer with many dozens of parallel working microprocessors that allow you to build effective data processing systems.

In recent years, a 6th generation computer with mass parallelism and a neural structure has appeared-with a distributed large number (tens of thousands) of simple microprocessors modeling the architecture of neural biological systems. The computer data has not yet gained widespread. According to the principle of action, computers are divided into:

1 analog - computing machines of continuous action, work with information presented in a continuous (analog) form, i.e. In the form of a continuous series of values of any physical value: pressure, temperature, etc. (most often in the form of electric voltage).

2 digital - computing machines of discrete action, work with information presented in discrete or digital form.

3 hybrids - computing machines of combined action, work with information presented both in digital and in analog form; They combine the advantages of analog

and digital computing machines. It is advisable to use them to solve the problems of managing complex high -speed technical complexes.

By purpose, they distinguish:

1. Universal (general purposes)-are designed to solve a variety of problems: economic, mathematical, biological, information and others. They are widely used in computing centers of collective use and in other powerful computing complexes.

2. Problem-oriented-serve to solve a narrower circle of problems, as a rule, with the management of individual objects; registration, accumulation and processing of relatively small volumes of data; performing calculations on relatively simple algorithms.

3. Specialized-are used to solve a narrow cool of problems or the implementation of some strictly defined group of functions. Such a narrow orientation of computers allows you to clearly specialize their structure, to significantly reduce their complexity and cost while maintaining high performance and reliability of their work.

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