



## THE ROLE OF INFORMATION TECHNOLOGY IN MODERN MEDICINE

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### Annotation

This article describes the current trends in the development of medical information systems. Based on the conducted research, the authors draw conclusions about further possibilities for the development of information systems in medicine.

**Keywords** - healthcare, information systems, medicine.

### Introduction

Information technology (IT - information technology is the use of computers and telecommunications equipment to store, retrieve, transmit, and process data, often in the context of a business or other enterprise. Today, information technology is being used in a wide variety of fields, and one promising area is the medical science known as health information technology.

In medical institutions, both domestic and foreign, one of the most topical problems was the low efficiency of healthcare management processes. Since, for objective reasons, speed is one of the fundamental values in medical care, this problem required an early and high-quality solution. This solution was medical information systems (MIS) - systems that automate document flow for medical institutions, which combine medical decision support systems, electronic medical records about patients, medical research data in digital form, patient monitoring data from medical devices, means of communication between employees, financial and administrative information. MIS allowed to significantly reduce the time from the moment a patient applied to a medical institution to the immediate start of work with the patient by the necessary





specialist and facilitate the work of doctors, allowing them to perform routine actions faster and more conveniently, such as prescribing examinations and tests, tracking current treatment, and much more.

Information technology has greatly helped the health sector. One example of the significant progress that IT has brought to hospitals is the development of EMR (electronic medical records - electronic medical records). This technology allows you to transform medical information into a single database. This technology not only reduces paper costs, but also allows healthcare providers to access relevant patient information such as medical history, medications, insurance information, and more with a single click.

HIT (health information technology - health information technology) is an information processing application, including both computer hardware and software, that stores, searches, exchanges and uses medical information, data and knowledge for communication and decision making. HIT technology is a computer and communication attributes that can be networked to create systems for the transmission of medical information.

### **The healthcare information program provides for:**

1. Creation of an electronic patient record;
2. Providing access to accurate information from all points of the health system;
3. Control medical information;
4. Providing control over chronic diseases;
5. Ensuring access to medical services;
6. Improving financial control and billing of medical services;
7. Creating a world-class healthcare system to keep money in the country or export medical services;
8. Meeting the needs of the population in the field of medical services at the state level [2]

Health informatics tools include computers, clinical guidelines, official medical terms, and information and communication systems. It is applied in the fields of general medicine, nursing, clinical care, pharmacy, public health, occupational therapy, and medical research.

One of the leading trends in the development of medical information systems is the use of systems in the SaaS model [2, 3]. SaaS Model (Software as a Service, which means “software as a service”) is a system for selling a software product, in which access is provided to the user via the Internet. That is, instead of buying and installing



software on your computer locally, the service is available through the World Wide Web or, as they say, from the cloud.

The user of the SaaS system, who gets access to the application, rents it, as it were, paying a certain amount for a period of time. As a result, this solution is cost-effective. But its main advantage is that the user does not need to deal with the technical side of the issue: installation, support, updating, compatibility and other issues - that is, he can only use the necessary functionality for his business purposes.

This advantage, subject to a conscientious service provider, is extremely important in the case of medical information systems, since it allows not to spend a huge amount of time and resources on system maintenance, which with current systems not only complicates the work of medical personnel, but also, in extreme cases, can lead to disastrous consequences for patients.

In addition, SaaS -type systems have several other advantages.

Firstly, as mentioned above, SaaS systems do not imply the obligatory purchase of a license for use, but only the payment of a lease for a certain time, which implies that all obligations for system maintenance are assumed by the system supplier. This fact, in addition to the advantages already mentioned, is also capable of bringing economic benefits to a medical institution, removing the cost of purchasing a license and maintenance costs, replacing them only with a fee for the opportunity to use the product.

The second advantage smoothly transitions from the first: if the system does not suit you or the need to use it is gone, you can simply not renew the payment for the service. The third advantage is the ability to use the system simultaneously by several clients from different points, from different operating systems and browsers. For medical information systems, this advantage allows the right specialist, if necessary, to consult and give appointments even while outside the medical institution. Subsequently, with the development of technology, this function will allow specialists to conduct remote examination and even treatment of patients.

Among the shortcomings of SaaS systems, by and large, one can single out only problems associated with the imperfection of technologies, for example, the possible instability of the Internet connection or the state of the hardware. However, today, with the proper approach, all these problems are completely solvable and not significant.

SaaS model systems, although they are quite promising, are currently not very common in the medical field.

Analyzing the given data, we conclude that the further development of medical information systems will make it possible not only to redirect the resources of medical



institutions to help seriously ill patients, but will also allow people to personally monitor all their medical indicators, such as normal heart rate and much more, and also manage their own health by signing up for consultations, examinations and other procedures, removing the need for a bureaucratic nightmare familiar to every person who has ever contacted a medical institution.

On the impact of IT (information technology) there is no need to argue for medicine and education. But there are still many areas that need to be improved before we can use IT to its full potential. Last but not least, no matter how advanced the technology is, it can never replace the interaction of doctors and students with the patient and the clinical judgments that great doctors make. Thus, in the pursuit of modern technology, we must be careful not to lose sight of the doctor-patient relationship.

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