

**Буров Дмитрий Андреевич**

студент

**Фомичева Татьяна Леонидовна**

канд. экон. наук, доцент

ФГБОУ ВО «Финансовый университет  
при Правительстве Российской Федерации»

г. Москва

DOI 10.21661/r-508927

## **ТЕХНИЧЕСКИЙ ПРОГРЕСС – КЛЮЧ К ИСЦЕЛЕНИЮ**

**Аннотация:** статья посвящена вопросу применения и развития информационных технологий в медицине. В работе рассмотрены и проанализированы этапы внедрения компьютерных технологий в сфере здравоохранения.

**Ключевые слова:** медицина, информационные технологии, компьютеризация, технологический прогресс.

**Abstract:** the article discusses the application and development of information technology in the field of medicine. In this paper, the stages of the introduction of computer technology in the healthcare industry are reviewed and analyzed.

**Keywords:** medicine, information technology, computerization, technological progress.

At present, it is very difficult to imagine life without the existence of highly developed information technologies. Technological progress has made a huge contribution to the development of various spheres of human activity. As for medicine, it is difficult to imagine its functioning without information technology, because for some medical research their use is simply necessary.

The introduction of modern information technologies in medicine occupies one of the key roles in its development:

- new vaccines are created that can cure even the most terrible diseases;

- high-tech equipment is appearing to help identify symptoms of serious diseases in the initial stages of their manifestation;

- use of modern equipment created on the basis of the latest technologies and the use of its functions in clinical trials contributes to the creation of new, previously non-existent, drugs.

The health of each person directly depends on the level of development of medicine and the qualifications of specialists working in this field. At the same time, the image of the familiar medical worker has recently changed dramatically in connection with the introduction of new information technologies. We will try to analyze what connects a modern doctor and the development of modern IT technologies.

Over the past 20–25 years, enormous changes have occurred in the field of medicine. Recently, an article on the «robot – dentist» appeared in one of the scientific journals. Scientists managed to create a competent synthetic dentist, whose skills were not inferior to the abilities of a human doctor.

Researchers conducted an experiment on one patient with dental problems. Before receiving a patient, the robot prepared all the necessary tools, then conducted a thorough examination of the oral cavity and started treatment. At one stage of the work, he found that the patient's tooth was incurable. The robot provided researchers with a clear analysis of their activities. He explained that the man had congenital problems with the structure of the nerve of the tooth, and that the treatment in this case is absolutely useless – «A rational solution is to pull out the tooth and install a new implant», the machine issued a verdict.

The proposed treatment option seemed dubious, but a photograph of the patient's jaw made by the researchers who observed the work of the dentist robot confirmed the inappropriateness of the medical procedures indicated by him.

This example fully confirms the thesis that medicine does not stand still. Already in this, so responsible and rather narrow sphere, inventions based on modern technologies appear and are used, the effectiveness and accuracy of which are not inferior to the skills of a professional doctor.

It is worth mentioning another way of introducing information technology in medicine, which can be demonstrated by the use of 3D printers capable of producing prostheses, implants. This innovation can improve the quality of life of many people, especially the elderly.

Every day in the world there is news on the topic of 3D printing, among which are the creation of models of various organs, on which doctors have the opportunity to train for successful and accurate operations, and the printing of tissues and organs. Skin, muscles, cartilage, liver, bladder. They have been transplanted for a long time, and they take root well, just like other donor organs.

Recently there was information about a printed heart on a 3D printer. This development promotes medical research without the participation of animals, that is, the preservation of their lives. Synthetic ovaries, which allowed infertile mice to give birth, can serve as another example. In the future, this innovation can be used to help those families that for a long time cannot have children.

3D scanning allows you to clearly adapt the model to the parameters of the patient, it is also possible to create your own design. It is it that helps children with disabilities feel more comfortable and helps to cope with complexes.

Information technology also finds its application in optimizing the interaction of medical institutions and patients. Any citizen can make an appointment with a doctor via the Internet, choosing a comfortable day and time for visiting. The system itself will select and display the free dates, and, literally, within a few seconds you will have a record coupon on hand. Also, the patient can get acquainted with various reviews, and decide on the choice of a doctor. Of course, this method is gaining popularity these days, saving a lot of time. Such technology makes life easier not only for patients, but also for medical workers, because under such recording conditions the number of people in clinics decreases, which helps to improve the quality of medical services.

Separately, it is necessary to note the use of modern information technologies in laboratory research.

In this case, we are talking about specialized software, within the framework of which certain diagnostic algorithms are implemented.

Thus, a database of diseases is created in which each of them corresponds to certain symptoms. Then the patient is interviewed, and the results of the analysis of his answers will determine the range of possible diseases. The result of the program is a list of the most probable diagnoses: from the most probable to the least.

After a full examination, the patient receives information which doctors he needs to contact for treatment.

The task of specialists involved in this area is to improve the program, issuing on the basis of data received from the patient, to minimize the estimated list of possible diseases and minimize it. To achieve this goal, constant updating of the program and updating of the database are necessary.

Summarizing all of the above, it can be noted that the use of new modern developments in medicine helps to determine various diseases with maximum accuracy, identify symptoms and prescribe the right treatment for a speedy recovery. Automation of the administrative component of the medical process is also being introduced everywhere – electronic medical records are being kept, an online appointment is being made to the doctor, test results can be sent by e-mail and phone, disease statistics are kept, and patient reports are compiled. The above conditions increase the efficiency of the provision of medical services, make treatment convenient and comfortable without the extra time and money.

Unique, completely new inventions are created that can defeat previously incurable diseases. Various vaccines are being developed to prevent and treat dangerous diseases.

Technological progress does not stand still. It is likely that in the near future, scientists will be able to invent such vaccines and medicines, to carry out such operations that can fight terrible diseases from which millions of people die. The introduction of information technology in hospitals and clinics can significantly simplify a number of work processes and increase their efficiency in providing medical care to citizens.

## **References**

1. Kodyakov S.G. Implementation of it in medicine and healthcare // Science, education, society: trends and development prospects. Collection of materials of the IX International Scientific and Practical Conference. Editorial Board: O.N. Shirokov [et al.]. – 2018. – P. 59–61.
2. Online translation of surgical operations: from fantasy to reality / E.A. Vikulina, T.L. Fomicheva // Education and science in modern realities. Collection of materials of the III International Scientific and Practical Conference. Editorial Board: O.N. Shirokov [et al.]. – 2017. – P. 182–184.
3. How 3D printing is used in medicine [Electronic resource]. – Access mode: <http://www.ccdi.ru/articles/medicina-i-zdorove/medicinskoe-oborudovanie/kak-3d-pechat-ispolzuetsja-v-medicine.html> (accessed: 29.09.2019).
4. Information technology in medicine [Electronic resource]. – Access mode: [https://info-farm.ru/alphabet\\_index/i/informacionnye-tehnologii-v-medicin.html](https://info-farm.ru/alphabet_index/i/informacionnye-tehnologii-v-medicin.html) (accessed date: 29.09.2019).