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The Level Of Use Of Modern Information Technologies Today, Their Role In Data Collection, Diagnosis And Treatment In Various Areas Of Medicine

Mukaddas Valisherovna Urinova
Namangan State University
Teacher of the Department of Applied Mathematics and Digital Technologies

Abstract: the article examines the level of use of modern information technologies today, their role in data collection, diagnosis and treatment in various fields of medicine.
Keywords: level, use, modern, information technology, today, role, data collection, diagnosis, treatment, medicine.

УРОВЕНЬ ИСПОЛЬЗОВАНИЯ СОВРЕМЕННЫХ ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ СЕГОДНЯ, ИХ РОЛЬ В СБОРЕ ДАННЫХ, ДИАГНОСТИКЕ И ЛЕЧЕНИИ В РАЗЛИЧНЫХ ОБЛАСТЯХ МЕДИЦИНЫ

Мукаддас Валишеровна Уринова
Наманганский государственный университет

Аннотация: в статье рассматривается уровень использования современных информационных технологий сегодня, их роль в сборе данных, диагностике и лечении в различных областях медицины.
Ключевые слова: уровень, использование, современный, информационные технологии, сегодня, роль, сбор данных, диагностика, лечение, медицина.

Modern medical practice is completely dependent on information technology. Information technologies in medicine play a key role in the processes of diagnosis, treatment, monitoring and rehabilitation of patients. The introduction of information technologies at various stages of the medical process makes it possible to optimize processes, accelerate their implementation, ensure a higher level of quality of medical care and increase the effectiveness of treatment.

In addition, information technology in medicine can facilitate the collection and analysis of large amounts of medical data, which in turn can lead to new discoveries and innovations in the field of medicine. Discoveries in the field of information technology and their application in medicine can contribute to the creation of new high-tech treatments and improve the quality of life of people with various diseases.

Given the high social significance and relevance of the problem of the use of information technology in medicine, research in this area is especially important and interesting.

The main purpose of the study is to study the impact of information technology on medical practice.

In addition, within the framework of this study, the following goals can be identified:

1. The study of basic information technologies used in medicine.
2. Analysis of existing information systems in medicine and assessment of their effectiveness and efficiency of use.
3. Assessment of the impact of information technology on the processes related to diagnosis, treatment, monitoring and rehabilitation of patients.
4. Assessment of the impact of information technology on the quality of medical care and patient safety.
5. Identification of the potential of information technologies to improve the processes of medical practice and the creation of new high-tech treatment methods.

The study of these goals will provide a complete understanding of the impact of information technology on medical practice and open up new opportunities to improve the quality and accessibility of medical care.

In the field of information technology in medicine, many studies have been conducted aimed at studying the use of various information technologies in the process of medical practice.

Some of the examples of work in this field are:

1. Lin C. H. et al. A double triage and telemedicine protocol to optimize infection control in an emergency department in Taiwan during the COVID-19 pandemic: retrospective feasibility study. This work studied the use of telemedicine to control epidemics of infectious diseases [1].
2. Eysenbach G. et al. What is e-health? This work defines the concept of "e-health" and examines the possibilities of its use in medical practice [2].
3. Topol E. J. High-performance medicine: the convergence of human and artificial intelligence. The work examines the use of artificial intelligence in medicine and its impact on the processes of treatment and diagnosis [3].
4. Agha Z. et al. Patient satisfaction with physician–patient communication during telemedicine. This work studied patient satisfaction with communication with a doctor in the telemedicine process [4].
5. Petersen C., Adams S. A., DeMuro P. R. mHealth: don't forget all the stakeholders in the business case. The work examines business models for mobile technologies in medicine, and also takes into account all stakeholders, including doctors, patients, and insurance companies.

These and many other works provide valuable information on how information technology can influence medical practice and how it can be used to create more effective methods.

The following research methods were selected in the study:

1. Literature analysis: this technique includes the study of scientific papers on the use of information technology in medicine. In the process of analyzing the literature, researchers can gain access to the latest scientific discoveries and research results.
2. Survey of medical workers: this technique involves the use of questionnaires that can be extended to medical workers who use information technology in their work. The survey makes it possible to assess the attitude of medical professionals to the information technologies used, as well as to assess their effectiveness and sufficiency.
3. Observation and participation in medical processes: this technique involves the direct participation of researchers in the medical process and observation of how information technologies are used in the process of diagnosis, treatment, monitoring and rehabilitation of patients. Observation and participation allow us to collect primary data and gain a complete understanding of how information technology affects medical practice.

4. Statistical data analysis: This method includes the processing and analysis of data obtained as a result of questionnaires and observations in medical processes. Statistical analysis reveals patterns and connections between various factors, including the use of information technology and the quality of medical care.

The combination of these methods will allow researchers to gain a complete understanding of how information technologies are used, how they are perceived by medical professionals, how they affect the processes of treatment and monitoring of patient health, as well as how they can be further optimized to create more effective treatment methods and improve the quality of medical care.

The following groups were selected as the study sample:

1. Doctors of various specialties working in medical institutions who use information technology in their daily work (for example, electronic medical records, telemedicine, artificial intelligence and other technologies).
2. Patients receiving medical care in medical institutions who have experience interacting with various information technologies within the medical process (for example, remote consultations, medical applications for smartphones, etc.).
3. Representatives of medical institutions responsible for the development and implementation of information technologies in medicine, such as computer scientists, database administrators and other experts in the field of information technology.

The total number of selected participants is large enough to ensure that the results of the study are sufficiently representative. At the same time, the sample was formed in such a way as to include participants from various professional groups in medicine in order to obtain diverse opinions and views on the use of information technology in medical institutions. The use of information technology in medicine has numerous ethical aspects that must be taken into account when developing and using medical information systems and technologies.

1. Confidentiality and data protection. It is important to ensure reliable protection of patients' medical data from unauthorized access or disclosure. Medical information systems and technologies must comply with international data security and protection standards.
2. Economic accessibility. The use of information technology in medicine should not lead to additional costs for medical services for patients. It is necessary to

ensure the availability of medical care and information technology for all categories of citizens.

3. The quality and completeness of the information. Information technologies should ensure high quality and completeness of medical information in order to increase the effectiveness and accuracy of diagnosis and treatment. There are dangers of incomplete and inaccurate information, leading to incorrect diagnosis, incorrect treatment and negative consequences for patients.

4. Roles and responsibilities of medical personnel. The introduction of information technology in medicine is changing the role and responsibility of medical personnel. This may be due to the danger of new forms of errors and distortions of information. At the same time, medical professionals should be trained to work with new technologies and their professional ethics may need to be rethought.

5. Neutrality towards patients and diseases. Information technology should not discriminate against patients based on race, gender, nationality, social status or disease.

6. Ethnopsychological aspects. The use of technology in medicine may not always be accepted in certain cultures, or there may be a misconception of technology by patients.

In addition, it is necessary to take into account the numerous conflicts between the nature of medical work and technology. For example, a private meeting between a patient and a doctor may be partially replaced by online treatment, which may affect the quality of medical services. All these aspects should be taken into account when implementing information technologies in medicine and used for the benefit of patients and medical services in general.

The use of information technology in medicine has yielded numerous positive results.

1. Improving the quality of medical care. Information technology makes it possible to deliver diagnoses faster and more accurately, determine the most effective treatment methods, conduct the necessary research and allow better monitoring of the condition of patients.

2. Increasing the availability of medical care. Information technologies allow remote consultation with medical experts, eliminating the need for patients or medical personnel to travel, leads to a reduction in queues for appointments with specialists, and also allows for home treatment, which reduces the cost of patient visits to medical institutions.

3. Facilitating the work of medical personnel. Information technologies automate processes related to the management of medical records, can unify processes in the treatment of patients, and allow faster and more accurate transfer of information between medical professionals.
4. Improving patient safety. The use of information technology in medicine allows you to monitor the health of patients, prevent potentially dangerous mistakes when writing prescriptions for medicines, detect necessary procedures, and monitor the side effects of medicines.
5. Increasing the efficiency of the healthcare system. Information technologies make it possible to manage medical institutions, monitor the effectiveness of their work, and optimize patient flows.
6. Reducing the cost of medical services. Information technology reduces the cost of patients visiting medical institutions, facilitates the work of medical personnel, which reduces the cost of paying salaries and preventing errors in the treatment of patients.
7. Thus, the use of information technology in medicine provides numerous advantages and helps to improve the work of the health care system as a whole.
8. Comparing the results obtained from the use of information technology in medicine with the results of similar studies, the following conclusions can be drawn:
9. Increasing the availability of medical care. A number of studies show that the use of information technology in medicine significantly improves the availability of medical care. The use of electronic medical records allows patients to receive their laboratory and instrumental research results faster and more conveniently, which has a positive effect on the quality of treatment.
10. Improving the quality of medical care. Many studies show that the use of information technology in medicine improves the quality of medical care. The use of electronic medical records increases the accuracy of diagnostic measures and increases the number of timely treatments.
11. Reducing the cost of medical services. Many studies show that the use of information technology in medicine can reduce the cost of medical services. The use of electronic medical records reduces the cost of storing and transferring medical data.
12. Facilitating the work of medical personnel. A number of studies show that the use of information technology in medicine facilitates the work of medical personnel. The use of electronic medical records reduces the time spent by

medical personnel working with medical documentation, which allows them to focus on quality medical care.

Thus, the results of our study converge with the results of similar studies conducted in other countries, which confirms the importance of using information technologies in medicine and their positive impact on the quality and accessibility of medical care.

The results obtained from the use of information technologies in medicine show that these technologies can significantly improve the quality and accessibility of medical care, make the work of medical personnel more efficient and reduce the cost of medical services. There are several general results of the use of information technology in medicine:

1. Improving the quality and accuracy of diagnostics. With the help of modern data processing and analysis technologies, it is possible to obtain a more accurate diagnostic conclusion, which in turn increases the effectiveness of treatment.
2. Improving the quality of patient care. Information technology helps to maintain medical records, allows you to monitor the implementation of prescribed procedures by a doctor, and also improves coordination between medical professionals.
3. Improvement of treatment processes. The use of information technology makes it possible to speed up the processes of diagnosis and treatment, make them less costly, and improve the interaction between patients and medical professionals.

However, a number of problems and risks associated with the use of information technologies in medicine have also been discovered, which must be taken into account when implementing them. One of the main problems associated with the use of information technology in medicine is to protect the confidentiality of patients' medical data. This is especially relevant in light of the spread of cyber crime. Therefore, it is important to ensure reliable protection of patients' medical data from unauthorized access and data leaks. It was also found that the effectiveness of the use of information technology in medicine may depend on the level of preparedness and training of medical personnel. Therefore, it is important to ensure an appropriate level of training for medical personnel to work with new technologies.

Another problem associated with the use of information technology in medicine is the limited availability of these technologies for certain categories of the

population, such as the elderly and low-income groups. Therefore, it is necessary to ensure equal access to information technologies in medicine for all categories of citizens. Despite these challenges, the results of our study show that information technology has enormous potential to improve medical care and reduce the cost of medical services. Therefore, it is important to continue working on the development and improvement of medical information systems and technologies.

Let's put forward hypotheses and recommendations for further research:

1. The use of artificial intelligence in medicine can significantly improve the accuracy of diagnosis and prediction of diseases. It is necessary to conduct a study that includes an analysis of the effectiveness of the use of artificial intelligence in the diagnosis of various diseases, as well as a comparative analysis of diagnostic results with and without the use of artificial intelligence.
2. The use of remote consultations of doctors using telemedicine can improve the availability of medical care in remote and hard-to-reach regions. It is necessary to conduct a study aimed at evaluating the effectiveness of telemedicine consultations and obtaining additional medical services in peripheral regions, and compare the quality of treatment and availability of medical services with and without the use of telemedicine.
3. The application of machine learning to individualize treatment can increase the effectiveness of treatment of various diseases. It is necessary to conduct a study that will assess the effectiveness of using machine learning to individualize treatment and determine the best treatment strategy for each patient individually. It is also necessary to conduct a comparative analysis of the results of treatment with and without the use of machine learning.
4. The use of Big Data in medicine can help in finding links between risk factors and diseases, which can lead to the development of new methods of prevention and treatment.

It is necessary to conduct a study that will determine the effectiveness of using Big Data to find relationships between various risk factors and diseases, and assess the possibility of using this data in the development of new methods of prevention and treatment. It is also necessary to conduct a comparative analysis of the results of treatment with and without the use of Big Data.

Conclusion

The novelty of the work lies in the fact that it covers a wide range of topics related to the use of information technology in medicine. This work not only

describes existing technologies and their applications, but also examines their prospects and potential risks associated with their use. In addition, this work puts forward hypotheses and recommendations for further research aimed at the development of information technologies in medicine. Such research may already be in demand in the future to develop new technologies, improve the quality of medical care and increase the availability of healthcare. Thus, the work is relevant and in demand, because it provides a complete overview of the application of information technologies in medicine, provides new prerequisites for the development of this industry precisely with the help of new technologies and methods of multiple studies. The results of the application of information technologies in medicine can be applied in practice to improve the quality of medical care and optimize healthcare costs.

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