PECULIARITIES OF USING INFORMATION AND COMMUNICATION TECHNOLOGIES IN MEDICAL EDUCATION

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Abstract: This article analyzes the role and importance of information and communication technologies (ICT) in medical education. In modern education, ICT tools play a significant role in deepening students’ theoretical knowledge, developing practical skills, and engaging them in research activities. The article discusses effective methods of using virtual simulators, online platforms, and multimedia resources. In solving medical problems, general informatics serves as a core discipline that establishes data-processing methods. Based on these methods, it supports the management of various objects and relies on information computer systems. As an applied discipline, informatics studies the laws of information processes, the creation of information communication models, as well as information systems and technologies in specific fields. Specialized medical informatics examines the applications of medical information technologies. It considers the use of both standard and universal tools to address medical tasks, special medical information technologies, and systems.

Keywords: IT in medicine, ICT in medical education, VR/AR technologies, mothers with young children, communicative competence, medical information technology, registry, admission department.

INTRODUCTION. A simulation-based learning environment is one of the most important characteristics of medical education. It includes simulators, virtual laboratories, and the use of VR/AR technologies, ensuring student safety during training. Interactive tests, virtual laboratory sessions, and access to global medical data are integral components. Students gain experience working with medical databases, electronic medical records, patient charts, laboratory analyses, and radiographic data, along with the use of clinical decision-support systems. Visualization tools in medical education make the learning process active, interactive, and personalized. Online tests and quizzes, clinical case discussions, and group-based online debate platforms improve learning quality. ICT tools also help familiarize students with medical information systems. In healthcare, information technologies support the following tasks Maintaining patient records in clinics, remote monitoring of patients' health status, storing and transmitting diagnostic results, monitoring the accuracy of prescribed treatment, conducting remote education, consulting and monitoring inexperienced healthcare personnel. ICT also ensures the security of medical information. Keeping electronic medical documents reduces the time clinical staff spend on preparing paper forms. All patient-related information can be stored within a unified system accessible to medical specialists. With the use of ICT, students also learn to:protect patients' personal data, correctly store and transmit medical information, understand cybersecurity fundamentals. Diagnostic test and procedure results are entered directly into the electronic medical record. This enables other specialists to evaluate the quality of prescribed treatment and detect uncertainties in diagnosis. The use of IT in medicine allows doctors to conduct online consultations and consiliums at any convenient time, significantly increasing the effectiveness of medical services. Patients can receive qualified assistance remotely from experienced doctors—especially beneficial for those living in remote areas, people with disabilities, the elderly, and mothers with young children. Thus, neither patients nor doctors need to travel long distances to receive or provide consultations.

By using modern information technologies, a physician can assess the patient's condition, examine them, and review all diagnostic results.

RESULTS AND DISCUSSION: Modern IT opportunities in healthcare positively impact all aspects of medical care. Using information technologies in medicine enables: conducting remote education, establishing connections for experience exchange between colleagues, obtaining the most recent healthcare-related information. In addition, information technologies improve the management of medical institutions. They enable the automation of healthcare systems, clinical management, planning, HR, finance, pharmacies, and material resources. Managers gain the ability to collaborate more effectively with mandatory medical insurance funds and regional healthcare authorities. IT in medicine also optimizes the work of physicians, registries, admission departments, and other administrative units. Innovative systems simplify the supply of pharmaceuticals. New technologies help: record financial operations (income and expenses), monitor warehouse inventories, create requests for medication delivery, track drug consumption, write off materials and supplies, generate reporting documents and submit them to higher authorities. Scientific research and technological innovations in medicine play a decisive role in improving human health and effectively treating diseases. Together, these two factors drive the development of modern medicine, increase healthcare efficiency, and lead to the creation of new diagnostic and treatment methods. Research helps identify the causes of diseases and their mechanisms in the body, leading to the development of new pharmaceuticals and therapeutic approaches. At the same time, technological innovations enable the practical application of these scientific achievements, such as early disease detection, personalized treatment plans, and improved surgical procedures.

Innovations in modern medicine also enhance medical research, facilitate collaboration between researchers and clinicians, and accelerate the translation of scientific discoveries into clinical practice. Technologies such as telemedicine,

wearable medical devices, and remote patient monitoring have expanded access to healthcare, especially in remote or underserved regions, improving health outcomes and increasing patient engagement.

Innovative medical technologies have significantly improved the ability to detect diseases at early stages, tailor treatments to individual patient needs, and enhance overall healthcare quality. For example, the integration of artificial intelligence and machine learning into medical imaging has revolutionized diagnostic interpretation, enabling more accurate and timely diagnoses for conditions such as cancer, cardiovascular diseases, and neurological disorders. Furthermore, the rise of precision medicine, genomics, and personalized therapies has opened new pathways for targeted treatment, improving effectiveness while reducing adverse effects. By analyzing a person's genetic makeup, medical history, and lifestyle factors, healthcare providers can develop individualized treatment plans, ultimately improving clinical outcomes and patient satisfaction.

The purpose of this article is to conduct medical education effectively, conveniently, and using modern methods. The main goal of ICT in medical education is to ensure high-quality teaching, rapid information exchange, and the development of practical skills through interactive and digital methods.

Teachers in educational institutions actively use computer technologies in the learning process. This indicates that computer technologies have become a crucial requirement in organizing modern lessons. ICT enhances teachers' computer literacy and communicative competence. Teachers voluntarily attend training courses, participate in the development of electronic resources, join online courses and webinars, and take part in projects and practical training sessions.

Conclusion. The use of information and communication technologies (ICT) in medical education is an integral part of the modern pedagogical process. ICT helps strengthen students' theoretical knowledge, develop practical skills, and build

competencies necessary for making independent decisions in clinical situations. Simulation environments, virtual laboratories, VR/AR technologies, electronic medical records, clinical decision support systems, and online learning platforms significantly increase the effectiveness of medical education. The application of modern ICT automates medical processes, ensures the secure storage and rapid exchange of patient data, and expands opportunities for distance learning and telemedicine for both physicians and students. These advantages are especially important for providing quality healthcare to populations living in remote areas. The introduction of IT solutions in medicine improves diagnostic procedures, enhances the quality of treatment, optimizes the workflow of medical staff, and increases the efficiency of management in healthcare institutions. As a result, the quality of medical services, patient satisfaction, and the overall development of the healthcare system improve. Thus, ICT serves as an essential innovative factor in medical education and clinical practice, providing students with in-depth knowledge, facilitating the work of educators, improving the management of medical institutions, and contributing to the overall enhancement of healthcare quality.

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