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DIGITIZATION OF MEDICAL DOCUMENTS MAINTAINED BY NURSES IN THE CONTEXT OF HEALTH INSURANCE.

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Abstract

The digitalization of medicine is of great importance in improving the healthcare system. The digitalization of the healthcare system in our country is being carried out at a rapid pace, advanced digital technologies are being introduced. Requirements for the automation of primary medical care activities have been developed, the "Electronic Polyclinic" and "Electronic Hospital" information systems are being improved. An updated version of the Unified Medical Information System has also been developed, and important work is being carried out to automate the activities of the Republican Specialized Scientific and Practical Medical Centers.

Keywords

Healthcare, digital medicine, electronic medical records, telemedicine, medical services, remote diagnosis, healthcare system, medical costs, healthcare digitization, medical law, nurse.

Digitalization studies in the healthcare sector show that doctors can make diagnoses and prescribe treatments more efficiently when they have access to patient information more quickly. It is estimated that the time spent on paperwork is reduced by 38%, the process of viewing instrumental examination results is accelerated by 85%, and the time spent on medical history is reduced by more than 70% [1]. Due to the improvement in efficiency and safety, doctors are increasingly using digital health tools in their practices. According to studies conducted by the American Medical Association (AMA) in 2019 and 2022, the adoption of telemedicine increased from 14% to 28%, the adoption of remote monitoring and management increased from 13% to 22%, and the adoption of remote monitoring efficiency increased from 28% to 37% [2].

Research shows that document management systems are now playing a significant role in the effective organization and management of documents. The

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widespread use of these systems began in the 2000s, and in 2023 the market for document management systems was worth 6.57 billion US dollars and is expected to reach 12.94 billion US dollars by 2028. This growth forecast is an average of 14.50% (2023–2028). By implementing document management, the risk of document loss is reduced and the security of access to them is increased. In the near future, tasks related to document management, storage and use in all sectors are expected to be solved using technological approaches. These trends will help to effectively solve the problems facing healthcare organizations through the digitization of document management systems [3].

The emergence of new management models and technological solutions in private and public healthcare systems creates the need to update organizational, production and management processes to ensure the adaptation of innovative technologies to organizations. The theoretical analysis of the use of digital tools in the document management system in healthcare in the study shows that in modern conditions the management mechanism of a medical organization cannot exist without the use of technological innovations, one of which is digital products and solutions. Currently, the main direction is the digitization of information flows and their transfer to electronic management systems, which increases the efficiency of any organization implementing DMS. The main trend of medical management systems in the future is the introduction and use of digital technologies, which will ensure the efficiency of document management, storage and use. In the near future, the digitization of documents and other operational processes will continue and develop further [4].

There are a number of legal issues related to the use of telemedicine technologies in the process of digitization, the resolution of which is of great importance. These issues include:

1. Determining the legal nature of providing medical services using telemedicine technologies - it has not yet been fully clarified how the processes of remote medical consultation, diagnosis and treatment should be legally regulated in comparison with traditional medicine. Therefore, it is necessary to develop a legal framework for relations in this area.

2. Determining the legal status and scope of responsibility of the parties involved in the telemedicine process - the rights and obligations of doctors, medical institutions and patients providing remote medical services should be clearly defined, as well as the legislative framework should be improved to prevent possible legal disputes in this process.

3. Determining liability in case of harm caused by the provision of medical services using telemedicine technologies - the question of who and under what conditions will be liable in cases of harm caused to a patient as a result of remote

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medical consultation or treatment is still not clearly defined. Legal regulations on this issue should be developed [5].

The introduction of a single information platform in medical institutions is mandatory, which will ensure the secure storage of patient data. Doctors will be able to read the entire patient history electronically without paper documents, and the possibility of losing or changing data disappears. Online consultations are also developing, but this format differs from the traditional diagnostic process. For example, in Lithuania, although the practice of remote consultations began during the pandemic, doctors prefer to communicate with the patient in person. Although an electronic medical record allows for scheduling appointments, the level of responsibility increases[6]. Many countries want to move to a single information system, but not all can do it. So far, the United States, Russia, and China do not have fully integrated platforms. The faster implementation of an electronic health record will help improve overall results [6].

Currently, in addition to WHO, various international non-governmental organizations are operating, focusing on important issues in the field of medicine. For example, organizations such as the World Medical Association (1947), the World Association of Medical Law (1967), and the International Association of Bioethics (1992) organize international congresses on the development of legislation in the field of medicine and the digitization and regulation of healthcare.

In order to establish and develop telemedicine services, it is necessary, first of all, to regulate them technically. Many interstate documents are being adopted in this regard. Technical regulation of telemedicine is especially important from the point of view of ensuring information security [7].

While this process creates uncertainty among medical students about their future medical careers, the situation is somewhat different for their clinical practice. This problem is not limited to students, but also the differences in the approach to technology of different generations of doctors. The lack of digital medicine-related courses in current medical education programs in Germany further exacerbates the problem[8].

To overcome the current barriers to digital medicine, it is necessary to significantly improve the opportunities for education, training and ongoing practice in this area. This will help reduce the fear of doctors using large amounts of data, increase their ability to use management and communication systems safely and effectively, and confidently face possible digital challenges. As a result, current and future medical workers will be better prepared to continue their activities effectively in the conditions of digital transformation [8].

Based on the experience of the pandemic, the digitalization of the medical sector is expanding. Remote medical services are being increased, electronic records

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are being introduced in clinics and hospitals. Specialized centers of the republic and their branches are being connected via telemedicine technologies, expanding diagnostic and treatment options in the regions.

Electronic medical records (EMR) are being successfully used in Finland, France, Sweden, Estonia and Japan. Blockchain technology is preferred by the USA, Canada, Japan and some European countries. Estonia has been using blockchain in its electronic medical records system since 2016, but many European countries are not planning to implement the technology due to its complexity and high costs. [9]

ccording to the author's research results: "3482 articles were analyzed in the field of digitization, of which only 35 met the inclusion criteria. The study identified 15 main dimensions, 7 of which are work-related factors: Electronic health record (EHR) use and workload, filling and reviewing clinical documents, working with EHR outside of working hours and remotely, administrative tasks, cognitively difficult working conditions, fragmentation of the work process, and interaction with patients. In addition, 4 time-related factors (average time, time ratio, timely completion of work, activity level) and 11 units of analysis were identified. Only 45% of the studies assessed the impact of EHR on doctors and patients, and 40% recorded the state of fatigue of doctors [10]. Of the articles studied, 23 were found to meet the inclusion criteria. Three main themes identified: 1) the benefits of using EMR in an academic setting, 2) the challenges and limitations of EMR programs, 3) the development of an academic EMR program and its gradual implementation into the educational process. All documents emphasized that EMR should be standard in the health care system and considered an integral part of undergraduate nursing programs[11].

Due to the rapid development of electronic documentation systems in health care institutions, it is important for nursing students to be trained in the use of EMR in a simulated clinical environment. Research has shown that there is an urgent need for higher education institutions to support undergraduate students and faculty in the effective implementation of EMR. [11].

The results of a study analyzing the importance of digital technologies in improving the quality and safety of healthcare show that modern innovations are leading to significant changes in the field of medicine. The study systematically studied scientific articles from 1973 to 2018 and analyzed 53 articles in depth based on the priority index. According to the results, the development trends of digital medicine were divided into the following main areas:

Integrated management of information technologies - solutions aimed at improving the flow of information in the healthcare system and optimizing processes.

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Medical imaging - the use of advanced technologies to automate and increase the accuracy of the diagnostic process.

Electronic medical records - systems that allow storing, managing and effectively using patient data.

Portable and mobile medical devices - technologies that allow monitoring and analyzing patients in real time.

E-health - expanding the possibilities of remote access to medical services.

Telemedicine is the simplification of communication between a doctor and a patient and the provision of medical advice remotely.

Confidentiality of medical data

One of the important aspects of the study is to improve the health system through the use of digital technologies and to identify directions for future research. Therefore, it is urgent to conduct new research in each area and apply innovative approaches. [12].

According to a report by the UK Institute for Financial Research, in 2015, the average hospital costs for an 89-year-old patient were three times higher than for a 70-year-old patient and almost nine times higher than for a 50-year-old patient. Therefore, the amount allocated to health care in OECD countries is projected to increase from 6% of GDP in 2015 to 9% by 2030 and 14% by 2060, which may become a serious financial burden in the future. Experts believe that in order to ensure the sustainability of healthcare systems under such pressure, it is necessary to integrate healthcare delivery processes with digital technologies. [13]

In the 21st century, the digitalization of medicine plays an important role in the modern healthcare system and introduces significant changes to the process of providing medical services. One of the key aspects of digital medicine is electronic medical records (EMR). Previously, patients' medical data were stored in paper form, which made it difficult to access them and exchange information between medical institutions. The transition to an electronic system increases the security, reliability and ease of storage of medical records. EMR, while making documentation processes more efficient, allows doctors to quickly and completely view the necessary information about patients, which serves to improve the quality of medical care provided [14].

The results of the study provide an understanding of the problems that arise during the implementation and use of digital technologies. In order to adapt to the digital transformation of primary care in Sweden, the traditional roles and responsibilities of nurses need to be rethought. Established views on work processes and nursing practice need to be adapted to new policy and technological developments[15]. The study also highlights the need for further research to ensure that e-health systems can meet diverse needs. Such systems should be effective

tools for supporting patient self-management, provide primary care nurses with the necessary resources, and maintain the principles of person-centered care [15].

According to the results of the Russian study: "In 2023, digital technologies will be widely implemented in the healthcare sector in Russia, improving the quality of medical services. In particular, the expansion of telemedicine services will make it easier to receive medical care through remote consultations, creating convenient conditions for residents of remote areas. Mobile applications that allow monitoring the condition of patients, reminding them to take medication, and making appointments with a doctor are also becoming popular. The digitalization of medical education is paving the way for the widespread use of online courses and digital technologies to improve the knowledge of students and doctors. In addition, the introduction of medical information systems is becoming increasingly important in optimizing the work of hospitals and maintaining a single database of patients" [16,17,18,19,20].

Conclusion

The process of digitizing medical documents in nursing practice is helping to make the healthcare system more efficient, safer, and more integrated. Digital technologies provide doctors and nurses with quick access to patient information, automate documentation processes, and reduce the administrative burden. Research shows that electronic medical record (EMR/EHR) systems increase productivity, improve patient care, and prevent document loss. The digitization of medical documentation poses new challenges for nurses, including fragmentation of workflows and the need to ensure data security. Therefore, training professionals in the use of electronic systems is becoming increasingly important. At the same time, telemedicine and mobile applications are facilitating the documentation process and improving patient monitoring. Further improvements to these systems are expected to increase the speed and accuracy of documentation in the future.

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