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INFORMATION MANAGEMENT IN HEALTHCARE

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ІНФОРМАЦІЙНИЙ МЕНЕДЖМЕНТ В ОХОРОНІ ЗДОРОВ'Я

Abstract.
The article examines the concept of information management in the healthcare system as one of the key elements of the digital transformation of the medical industry. The main goals, objectives and tools of information management are determined, in particular, medical information systems, electronic medical records, big data analytics and clinical decision support systems. The impact of information management on the quality of medical care, patient safety, and resource management efficiency is analyzed. Special attention is paid to the challenges of implementing digital solutions in healthcare, such as technical, legal and organizational barriers. Examples of international experience and modern initiatives in Ukraine are considered. Prospects for the development of information management are outlined with an emphasis on personalized medicine, telemedicine and the use of artificial intelligence.

Анотація.
У статті розглянуто концепцію інформаційного менеджменту в системі охорони здоров'я як одного з ключових елементів цифрової трансформації медичної галузі. Визначено основні цілі, завдання та інструменти інформаційного управління, зокрема медичні інформаційні системи, електронні медичні записи, аналітику великих даних та системи підтримки клінічних рішень. Проаналізовано вплив інформаційного менеджменту на якість медичного обслуговування, безпеку пацієнтів, ефективність управління ресурсами. Окрему увагу приділено викликам упровадження цифрових рішень у сфері охорони здоров'я, таким як технічні, правові та організаційні бар'єри. Розглянуто приклади міжнародного досвіду та сучасні ініціативи в Україні. Окреслено перспективи розвитку інформаційного менеджменту з акцентом на персоналізовану медицину, телемедицину та застосування штучного інтелекту.

Keywords: *information management; healthcare; medical information systems; electronic medical records; eHealth; digitalization of medicine; clinical solutions; telemedicine; information management; artificial intelligence in medicine.*

Ключові слова: *інформаційний менеджмент; охорона здоров'я; медичні інформаційні системи; електронні медичні записи; eHealth; цифровізація медицини; клінічні рішення; телемедицина; управління інформацією; штучний інтелект у медицині.*

In the modern world, healthcare is undergoing profound changes due to the rapid development of information and communication technologies. Digitalization encompasses not only individual processes of providing medical services, but also changes general approaches to managing medical institutions, interaction between patients and doctors, processing clinical data and ensuring evidence-based medicine. Against this background, information management is of particular importance – a system for managing information flows and resources, which allows ensuring the effective functioning of medical organizations in the context of digital transformation.

In countries with a developed healthcare system, information management has long become a necessary condition for improving the quality of medical services, reducing costs, improving the accessibility of medical care and increasing patient safety. The use of medical information systems), electronic medical records, clinical decision support systems, analytical platforms based on big data and telemedicine technologies is significantly changing the role of information in the medical field – from an auxiliary resource to a strategic tool [1].

In Ukraine, as in many other countries, the digital transformation of healthcare has become a state priority program, implemented through the implementation of an electronic healthcare system (eHealth), electronic prescriptions, declarations and referrals. However, the implementation of information management faces a number of barriers: from technical and regulatory to personnel and ethical. Given the relevance of the topic, this study is devoted to the analysis of theoretical and practical aspects of information management in healthcare, the study of modern information technologies, the assessment of their impact on the medical field and the identification of key problems and prospects for further development.

The **purpose of the article** is to analyze the role and significance of information management in the

healthcare system, study its main components, tools, impact on the quality of medical services and identify the main problems and prospects for development in the context of digitalization of the medical industry.

Research material and methods. The materials for the study were scientific publications, analytical reports, official documents of the Ministry of Health of Ukraine, legislative acts in the field of digital transformation of medicine, as well as examples of the implementation of information systems in medical institutions in Ukraine and abroad [2].

The following scientific methods were used in the study: analysis of scientific literature; comparative method; system approach and generalization method.

Results. Information management in healthcare is an integrated system of methods, processes and technologies aimed at the effective management of information resources of medical institutions in order to improve the quality of patient care, ensure evidence-based medicine and improve management decisions [3].

Main tasks:

► Collection, processing and analysis of medical data (clinical, epidemiological, administrative, etc.).

► Ensuring continuity and consistency of information flows.

► Optimization of decision-making processes.

► Monitoring and evaluation of the effectiveness of medical services.

► Support for electronic document flow in the healthcare system.

Components and tools of information management:

1. Medical information systems. These are specialized software and hardware complexes that automate the activities of medical institutions. They cover various subsystems: registration, laboratories, pharmacy support, diagnostics, finances, etc.

2. Electronic medical documentation:

■ Electronic medical records – digital versions of traditional patient cards containing medical history, test results, prescriptions.

■ Electronic prescriptions – reduce service time and reduce the risk of errors when prescribing medications.

3. Clinical decision support systems. Intelligent systems that analyze incoming medical information and offer the doctor the most optimal diagnostic or treatment options based on the evidence base.

4. Information analytics:

● Forecasting the development of diseases.

● Identification of risk groups.

● Assessment of treatment effectiveness.

● Formation of state health policy.

The importance of information management at the level of health care institutions [4]**:**

1. Increasing efficiency. Process automation allows healthcare professionals to spend more time with patients, not on paperwork. Fewer errors, more transparency in work.

2. Ensuring patient safety. Thanks to electronic information exchange, the risk of incorrect diagnosis or treatment is reduced, especially in the case of repeated hospitalizations.

3. Optimizing management. Analytics allow administrators to better plan resource allocation, monitor staff workload, financial costs and treatment outcomes.

4. Problems and barriers to implementation:

■ Technical difficulties:

- lack of common standards for interaction between systems;

- limited infrastructure in rural areas.

■ Human factor:

- staff resistance to change;

- low level of digital literacy among doctors.

■ Ethical and legal issues:

- confidentiality and protection of personal data;

- lack of sufficient regulation at the state level.

5. Global and national examples:

● International experience:

- Estonia: fully digitalized healthcare system; access to medical history online.

- Israel: powerful analytics systems for pandemic management.

- Ukraine: implementation of the eHealth system – a unified electronic healthcare system; connection of institutions to the National Health Service of Ukraine; implementation of electronic referrals, declarations, prescriptions.

6. Development prospects:

- artificial intelligence in diagnostics;

- telemedicine for remote patient monitoring;

- integration with international data exchange systems;

- expanding patients' opportunities for independent access to their own medical information.

Conclusions. Information management in healthcare is not just a technical tool, but a strategic element of the transformation of the entire system. Its successful implementation requires a comprehensive approach: investments in technology, staff training, updating the regulatory framework and active participation of patients. It is thanks to modern information solutions that medicine has a chance to become more personalized, effective and accessible to everyone.

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