EASTERN PARTNERSHIP CIVIL SOCIETY FORUM

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e-Health system in Ukraine

What should you know about e-Health

BUSINESS ECONOMICS

AMEP АГЕНЦІЯ МІСЦЕВОГО ЕКОНОМІЧНОГО РОЗВИТКУ ЯВОРІВЩИНИ

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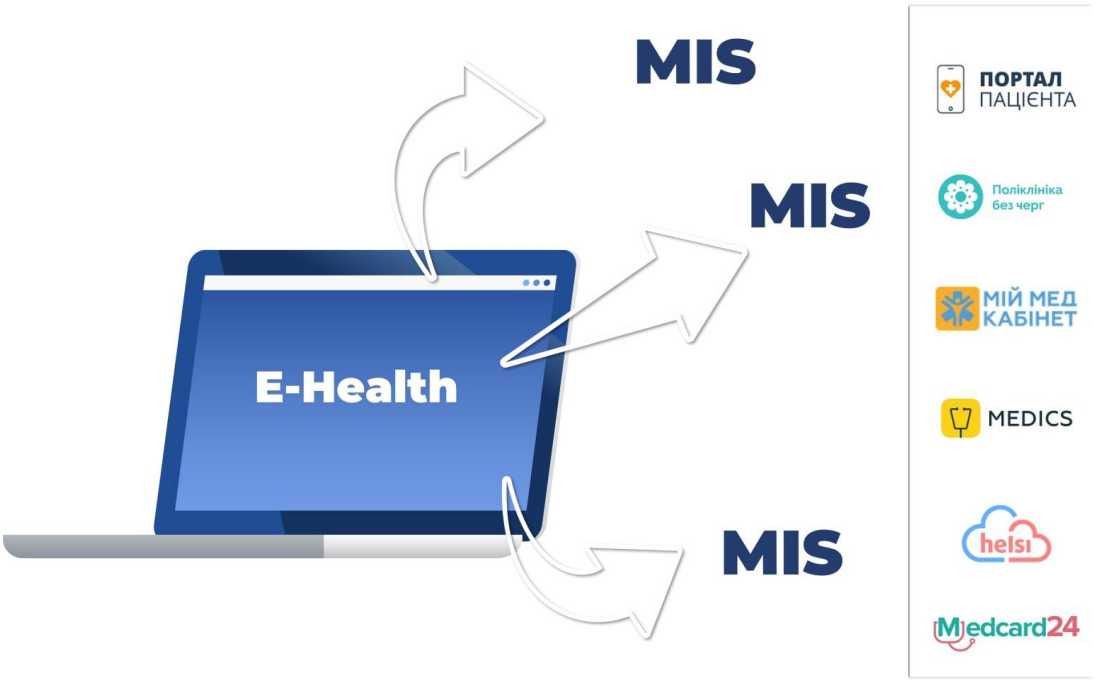
What is e-Health?

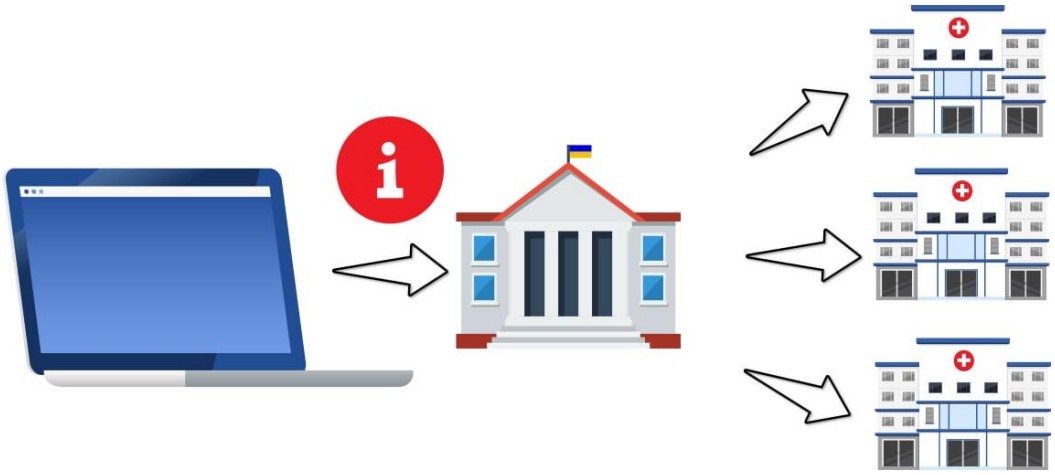
Electronic healthcare system (E-Health) is a convenient service for doctors, patients and institutions in healthcare system that helps to provide and receive the necessary medical services effectively.

E-Health facilitates the lives of doctors and medical workers, as it allows them to create medical reports, prescriptions, referrals and access to patients' case reports quickly and without redundant paperwork.

For this purpose, e-Health is connected with different types of medical informational systems (MIS). For patients, these are convenient electronic services for quick access to the doctor and own medical informational (for example, a medical history / case reports), which can be found in the personal e-Health electronic cabinet, or for using an electronic queue tool.



E-Health system helps government to collect the necessary information for rational distribution of money for medicine.



From a technical point of view, e-Health is a complex system that is gradually being implemented in Ukraine for several years. Initially, it covered the primary healthcare level - family doctors, therapists and paediatricians. Citizens were invited to conclude declarations with their chosen doctors, and doctors registered these declarations in the e-Health system. Thus, the government can now pay doctors for visits of patients, and patients can receive free medical services guaranteed by the state.

That is, e-Health is now implementing the principle "money follows the patient".

E-Health system enables citizens to receive medical information quickly. E-Health gives doctors a tool for making correct diagnosis, considering the holistic picture of the patient's health. There is no need for paper medical cards and printed information that can be lost or forgotten. Doctors prescribe electronic prescriptions that can be neither lost nor falsified. The e-Health system contains the whole medical history of the patient, which is available to the patient and his doctors.

On the other hand, the state bodies got the opportunity to understand clearly where to spend state funds to bring maximum benefit, because the system accumulates a large number of statistics on diseases and treatments.

e-Health structure

The electronic healthcare system is essentially an ecosystem of informational relations between participants of the state medical environment based on the economically efficient and safe use of information and communication technologies aimed at supporting the healthcare system, including medical services, preventive healthcare, medical literature and medical education, knowledge and research. In terms of management, the e-Health structure can be described as follows.

The Cabinet of Ministers of Ukraine ensures policy in the field of e-Health through measures aimed at creation of material and technical base and other conditions necessary for the development of electronic healthcare system.

The Ministry of Health of Ukraine generates guidelines (policy) on the development of electronic healthcare system in the country and takes measures to implement such policy.

The National Health Service of Ukraine provides financial and operational management of the system (for example, development of Medical Guarantees Programme, payment for medical services, accounting of declarations signed between doctors and patients).

Specially created state-owned enterprise "Electronic Health" (eZdorovya) administers and supports the software of the Central Database.

Electronic medical informational systems provide links between healthcare institutions, patients and Central Database.

Healthcare institutions (hospitals, laboratories, pharmacies, etc.) provide healthcare services for the population and/or provide rehabilitation aid using the functional of the electronic healthcare system.

The management structure of the electronic healthcare system in Ukraine can be visualized schematically.

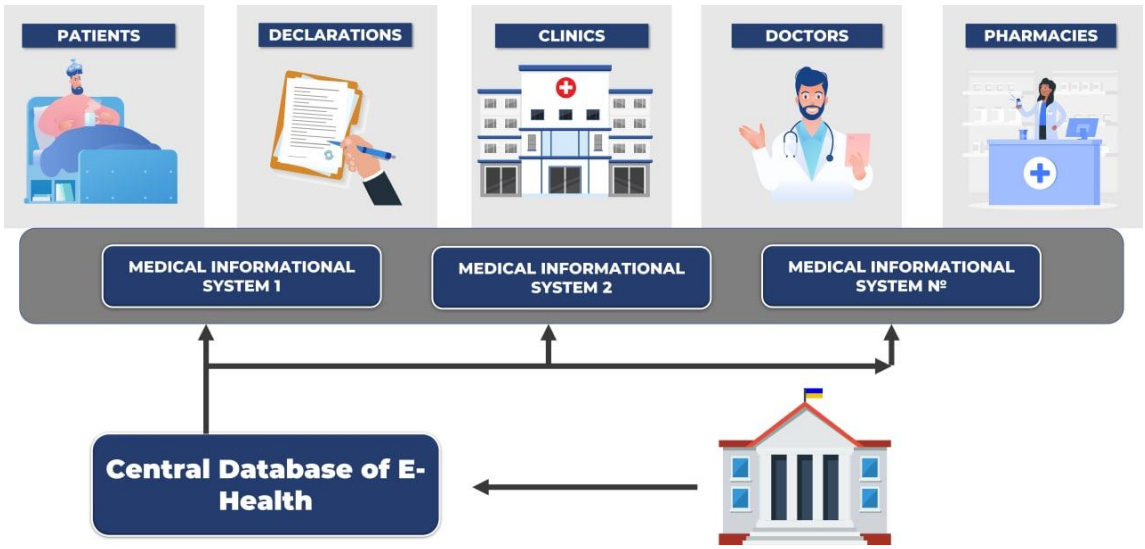
MANAGEMENT STRUCTURE
OF THE ELECTRONIC HEALTHCARE SYSTEM IN UKRAINE

The electronic healthcare system allows users (doctors, patients) to interact with the state on medical issues in electronic form (through a smartphone or computer).

The e-Health system has 2 components for this purpose:

1) the component visible to users (doctors and patients): **electronic medical informational systems (MIS)** – digital systems that allow users to access the necessary services in a convenient way;

2) the component that the state works with: **Central Database of e-Health** – software with a set of information that allows to provide medical services online.



Central Database of e-Health is an information-telecommunication system that contains the following elements:

- registers;
- software modules;
- electronic medical information-analytical system for optimizing operational-dispatching services of centres for emergency medical aid and disaster medicine;
- informational system of the National Health Service of Ukraine in terms of implementing state financial guarantees of medical attendance of the population.

The Central Database provides the opportunity to create, revise, exchange information and documents between registers, state electronic informational resources, electronic medical informational systems.

The Central Database includes the following basic **registers** (as of the end of May 2022):

1. Register of patients containing patient information.
2. Register of declarations concluded with chosen doctor who provides primary healthcare.
3. Register of healthcare entities.
4. Register of medical specialists.
5. Register of health workers.
6. Register of contracts on providing the healthcare services to the population.
7. Register of medical reimbursement contracts.
8. Register of medical records, records on medical referrals and prescriptions.
9. Register of medical reports.
10. Other registers (the sets of data are determined by the National Health Service of Ukraine).

The electronic healthcare system of Ukraine operates on a modular system.

Software modules – services in the electronic healthcare system that ensure filling and exchanging the information between registers and informational system of the National Health Service of Ukraine. As of the end of May 2022, the Central Database of e-Health has the ability to connect MIS software modules, provided below.

Group 0: For all healthcare providers.	
Module 0.1:	Administrative module for medical service providers of primary healthcare and specialized medical care
Module 0.2:	Creating electronic prescriptions
Module 0.3:	Creating electronic medical reports on temporary disability
Module 0.4:	Access to data in e-Health
Module 0.5:	The workplace of midlevel health personnel
Functional 0.5.1:	Creating electronic medical records and diagnostic reports
Functional 0.5.2:	Creating electronic records on medical procedures or medical surgery
Functional 0.5.3:	Processing and closing electronic medical referrals
Functional 0.5.4:	Vaccination data registration
Module 0.6:	The workplace of the medical records administrator

Group 1: For primary healthcare institutions	
Module 1.1:	The workplace of doctor – medical service provider of primary healthcare
Functional 1.1.1:	Working with electronic declarations
Functional 1.1.2:	Creating electronic medical records
Functional 1.1.3:	Immunization: creating electronic patient vaccination records
Functional 1.1.4:	Creating electronic medical referrals
Functional 1.1.5:	Creating electronic prescriptions within Affordable Medicines Reimbursement Programme
Module 1.2:	Administrative module for medical service provider of primary healthcare
Functional 1.2.1:	Registration of healthcare providers, units, users
Functional 1.2.2:	Concluding capitation agreements with the National Health Service of Ukraine
Functional 1.2.3:	Viewing electronic declarations
Group 2: For service providers of specialized medical care	
Module 2.1:	The workplace of doctor of specialized medical care
Functional 2.1.1:	Working with electronic medical records of specialized medical care
Functional 2.1.2:	Immunization: creating electronic patient vaccination records
Functional 2.1.3:	Working with electronic diagnostic reports
Functional 2.1.4:	Creating electronic referral of specialized medical care
Functional 2.1.5:	Processing and closing electronic referrals of specialized medical care
Functional 2.1.6:	Creating electronic medical records on resorting the patients to the hospital
Functional 2.1.7:	Creation of electronic medical records on patients' discharge from hospital
Functional 2.1.8:	Working with electronic medical records and electronic referrals for non-identified patients
Module 2.2:	Working with electronic records on patients
Functional 2.2.1:	Working with electronic records on identified patients
Functional 2.2.2:	Working with electronic records on non-identified patients
Functional 2.2.3:	Patient verification status checking (authenticity of data in e-Health)
Functional 2.2.4:	Connection of electronic records of non-identified patient to identified
Module 2.3:	Developing an electronic treatment plan
Module 2.4:	Creating an electronic medical report on the birth of a child
Module 2.5:	Creating electronic neonatal screening records for newborns
Functional 2.5.1:	Creating electronic medical referrals
Functional 2.5.2:	Processing and closing electronic medical referrals
Group 3: For pharmacy establishments	
Module 3.1:	Pharmacy administrative module
Functional 3.1.1:	Registration of pharmacy, units, users in e-Health
Functional 3.1.2:	Concluding agreements between pharmacy and National Health Service of Ukraine
Functional 3.1.3:	Deactivation / activation of obligations under agreements between pharmacy and National Health Service of Ukraine
Module 3.2:	Pharmacist's workplace
Functional 3.2.1:	Closing electronic prescriptions
Functional 3.2.2:	Closing electronic prescriptions within Affordable Medicines Reimbursement Programme

One of the e-Health's Central Database elements is the **electronic medical information-analytical system for optimizing operational-dispatching services of centres for emergency medical aid and disaster medicine**. As of the end of May 2022, work on the development of the «Central 103» system is carried out. «Central 103» is a system that: (1) provides the opportunity to call for emergency care in non-vocal way; (2) collects, processes, analyses the information in order to ensure timeliness and control over

the quality of emergency medical care; (3) provides prompt involvement of emergency medical care brigades.

An extremely important e-Health's Central Database element is the **informational system of the National Health Service of Ukraine** – a set of informational subsystems (aimed at concluding and implementing the contracts, data analysing, forming analytical and financial reports, exchanging the information between users) that ensure the performance of functions assigned to the National Health Service of Ukraine in terms of state policy implementation in the field of state financial guarantees of medical attendance of the population.

In addition to the Central Database, medical informational systems play important role within electronic healthcare system of Ukraine, because they allow users (healthcare institutions and patients) interact with e-Health's Central Database.

Medical informational system – is a software with the main task to manage and organize information within medical institution or pharmacy. It helps employees of healthcare facilities to interact more effectively with patients and governmental healthcare bodies. The medical informational system provides the functional needed for interaction within e-Health system (including with National Health Service of Ukraine).

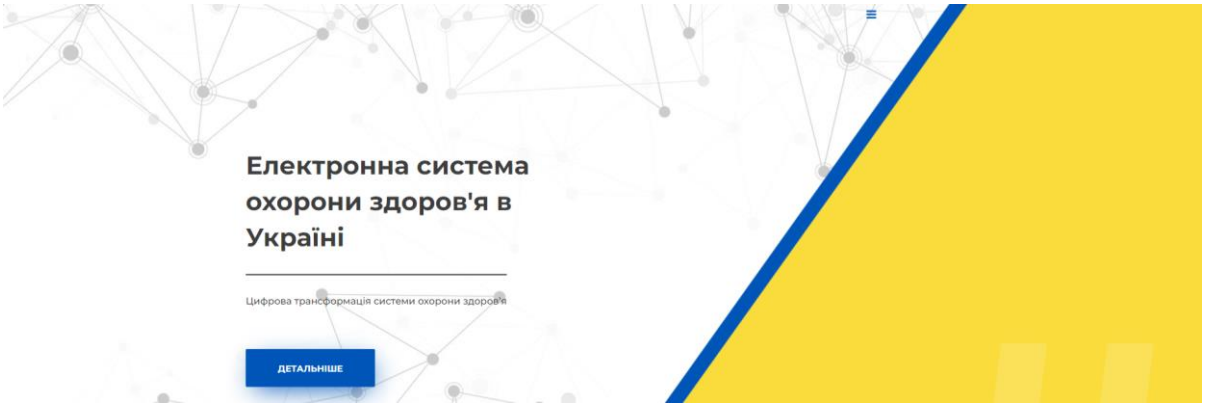
MIS are useful for communal and private hospitals, medical offices, clinics, laboratories, medical centers, pharmacies (they use such type of MIS as pharmacy informational systems) in terms of automatization of healthcare management and participation in Medical Guarantees Programme.

MIS provide a complex set of opportunities for automatization of various processes within healthcare institutions:

- ❖ improving reception functioning, simplifying the procedures of creating medical cards and making an appointment;
- ❖ arranging all administrative information;
- ❖ unifying medical documentation: patient cards, doctor's prescriptions, information on employees and medical services, schedule, analytics and statistics, reports;
- ❖ systematizing all medical research data;
- ❖ managing and allocating resources of medical institutions, including finances and accounting;
- ❖ analysing the activity of medical institution or pharmacy;
- ❖ maintaining a warehouse accounting in healthcare institutions, checking the status of warehouses and receiving data on stocks, deliveries, calculations, circulation of consumables;
- ❖ tracking and adjusting the functioning of diagnostic cabinets and laboratories;
- ❖ automatizing standards for providing medical care.

The following steps should be done in order to connect healthcare institution to e-Health: entering into an agreement with the National Health Service of Ukraine; selecting MIS (connected to the Central Database of e-Health) with sufficient functionality for operating within e-Health system; concluding a service contract with MIS developer.

Patients can select proper MIS by using the information provided on the official website of the electronic healthcare system of Ukraine: https://ehealth.gov.ua/pidklyucheni-do-ehealth-mis/

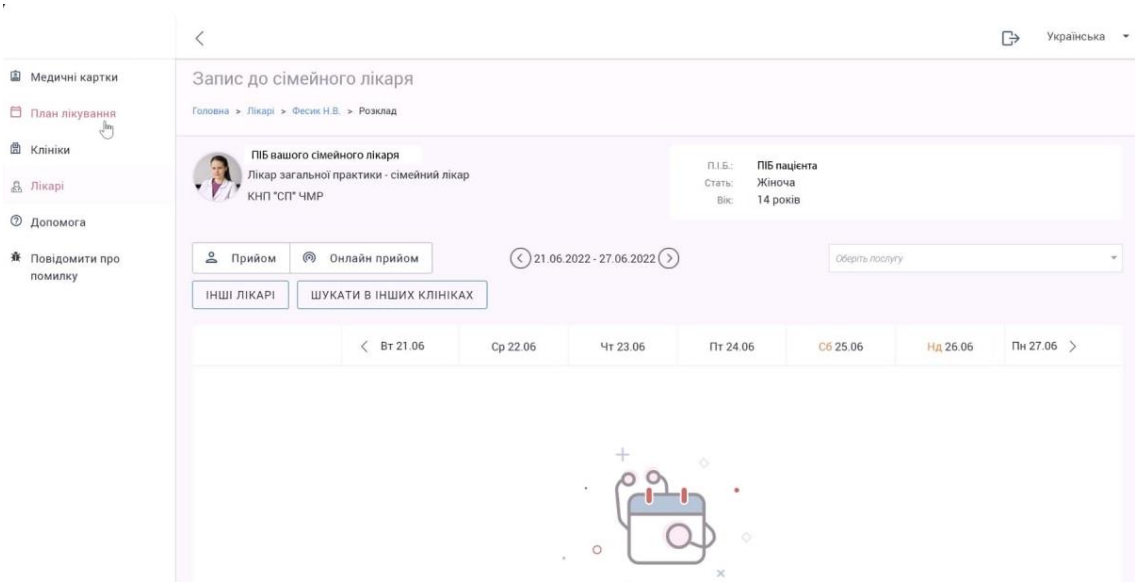


Підключені до eHealth МІС

Медичні інформаційні системи	Для всіх надавачів медичних послуг								
	Адміністративний модуль НМП ПМД та СМД	Електронний рецепт	Медичні висновки про тимчасову непрацездатність	Доступ до даних	Робоче місце середнього медичного персоналу				Робоче місце адміністратора медичних записів
					ЕМЗ та діагностичні звіти	Процедури	Обробка і погашення ЕН	Вакцинація	
ВІСА	—	—	—	—	—	—	—	—	—
Дніпро-МТ	✓	✓	✓	✓	✓	✓	✓	—	✓
Доктор Елекс	✓	✓	✓	✓	✓	✓	✓	✓	✓
Дорадо	✓	✓	✓	✓	—	—	—	—	✓
Електронна лікарня 2.0	✓	✓	✓	✓	—	—	—	—	—
еАптека-Компендіум	—	—	—	—	—	—	—	—	—
ЕМСІМЕД	✓	✓	✓	✓	✓	✓	✓	✓	✓
Каштан	✓	✓	✓	✓	✓	✓	✓	—	✓
МЕДЕЙР	✓	✓	✓	✓	✓	✓	✓	✓	✓

How to use the e-Health system?

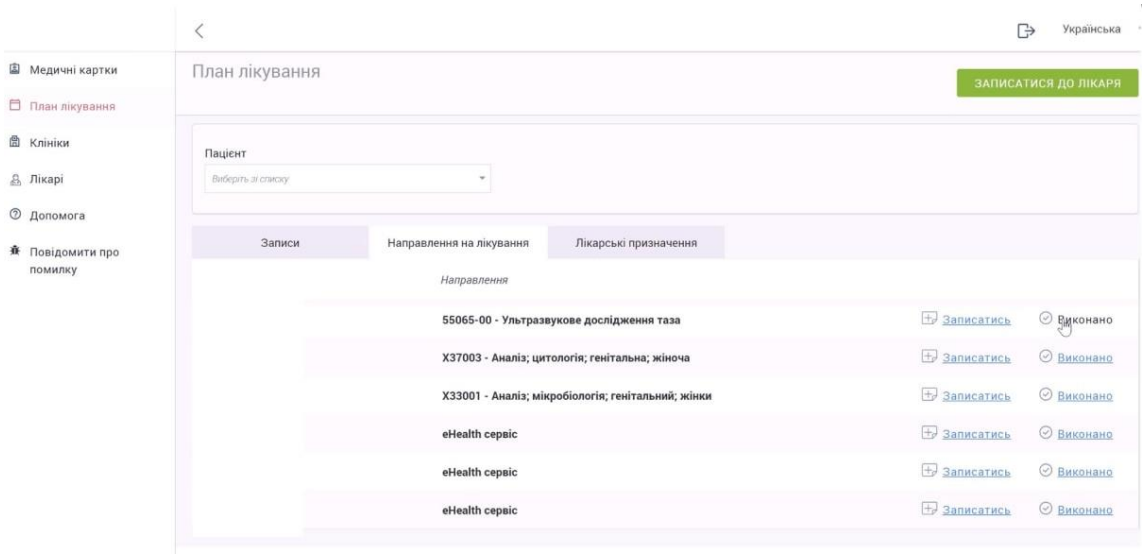
Citizens of Ukraine can create a **personal electronic cabinet of the patient**.



This can be done by using one of the medical informational systems used by the hospital where the patient has signed a medical declaration with his family doctor.

To use e-Health, it is necessary: (1) **to choose a suitable medical informational system**, (2) **to register in MIS**, (3) **to create a personal e-cabinet of the patient**.

As a result, data on medical declaration, vaccination, visits to the doctor and other personal medical information will automatically appear in the personal e-cabinet.



Now you can manage your treatment plan and receive various medical services remotely depending on the medical informational system!

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