MINISTRY OF HEALTH OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY
Department of Biophysics, Informatics and Medical Devices

APPROVE
Acting vice-Rector for Scientific and Pedagogical Work
Professor_____Svitlana Kotsuzhynska
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WORK PROGRAM ON THE CURRICULUM
"Medical Documentation in the E-health System"

Level of higher education: second (master)

Field of knowledge: 22 "Health care"

Specialty: 222 "Medicine"

Educational and professional program: Medicine

Odesa 2022 - 2023

The work program is compiled on the basis of the educational and professional program of the second level of higher education for the preparation of masters in the specialty 222 "Medicine" of ONMedU, approved by the Scientific Council of ONMedU from August 23, 2022 (protocol No. 9).

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The work program was approved at the meeting of the Department of Biophysics, Informatics and Medical Equipment.

Protocol No. 14 of June 27, 2022.

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Approved by the subject cycle methodical commission for medical and biological disciplines of ONMedU

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Protocol No. 6 dated June 30, 2022.

Reviewed and approved at the meeting of the Department of Biophysics, Informatics and Medical Equipment.

Protocol No. 1 dated August 30, 2022.

Head of the department_____Leonid GODLEVSKY

Description of the academic discipline

Name of indicators	Characteristics of the academic discipline	
	Full-time education	
The total number of: Credits – 3.0 Hours - 90 Content topics -8	Selective	
	A year of training	1,2
	Semester	I - II
	Lectures	16 hours
	Practical	36 hours
	Seminar classes	6 hours
	Independent work	23 hours
	Including individual tasks	0
	Final control form	test

2. The purpose and tasks of the educational discipline

Familiarization with the main characteristics and trends of the implementation of the electronic health care system, the formation of theoretical knowledge, practical skills and skills in working with medical information systems that provide automation of the work of a medical worker, the eHealth system, familiarization with the latest information technologies and the possibilities of their application in professional activities. Telemedicine, as an innovative information technology, is a modern and leading field of providing medical services, which is formed at the border of such sciences as medicine, telecommunications and information technologies. The main task of telemedicine is to provide high-quality medical services at a distance. It is intended for use in remote regions, mountains, outer space, military operations, disaster medicine.

Goal: Formation of students' knowledge system about the basic characteristics of electronic health (e-Health) and telemedicine, the circulation of medical information in the medical community and the health care system, the organization of various forms of communication between a patient and a doctor, between doctors when conducting teleconsiliums, about forms and standards transfer of medical data, organization of networks during video conferences, telemonitoring, biotelemetry, as well as studying the legal basis of telemedicine.

Task:

1. Formation and development of the base of knowledge, abilities and skills necessary for effective use of modern medical information systems in medical practice.
2. Acquiring practical skills and working skills with the e-Health system.
3. Formation of skills for processing medical and biological data using standard procedures of modern information technologies.
4. Acquisition of theoretical and practical knowledge on the organization of telemedical services.
5. To study the basics of medical data transfer, the organization and structure of e-Health and the telemedicine system of Ukraine,
4. To determine the classes and principles of application of telemedical registration and data transfer equipment.
5. Determine the legal basis of e-Health organization and telemedicine.

6. Interpret and analyze medical information, correctly assess new and complex phenomena and problems critically, independently and creatively.

7. Identify unsolved problems in the information medical space and determine ways to solve them with the help of e-Health and telemedicine technologies.

8. Formulate hypotheses, goals and tasks when providing informational medical services to the patient.

9. To implement and improve modern research methods in the chosen field of professional and educational activity using e-Health and telemedicine technologies.

10. Use ethical principles in working with patients in the medical information space.

12. Demonstrate academic integrity and act responsibly regarding medical information, its reliability and circulation.

The process of studying the discipline is aimed at forming elements of the following competencies:

Integral competence

IR.The ability to solve complex tasks and problems in the field of health care or in the process of learning, which involves conducting research and/or implementing innovations with the involvement of information about the possibilities of applying moderne-Health and telemedicine technologies in the provision of diagnostic and recommendation services to medical workers and patients using a complex of interdisciplinary knowledge, as well as under conditions of complexity and uncertainty of conditions and requirements.

General competencies

CG1. Ability to abstract thinking, analysis and synthesis.

CG2. Ability to know and understand the subject of e-Health, medical informatics and its role in professional activity.

CG3. Ability to communicate on topics related to e-Health and telemedicine issues in native language both orally and in writing.

CG4. Ability to learn and master modern knowledge of e-Health and telemedicine, use information and communication technologies; the ability to search, process and analyze information from various sources, to be aware of the possibility of lifelong learning.

CG5. Ability to adapt and make an informed decision in a new situation.

CG6. Ability to work both independently and in a team.

CG8. Ability to evaluate and ensure the quality of work performed using e-Health and telemedical information technologies.

CG9. The ability to act on the basis of ethical considerations, socially responsible and consciously, to have the skills to ensure the safety of life activities.

CG10. Ability to be aware of equal opportunities and gender issues; value and respect diversity and multiculturalism.

CG11. Strive to preserve the environment and ensure the sustainable development of society.

Special competencies

SC1 Ability to collect medical information about the patient and analyze clinical data
SC2 Ability to determine the necessary list of laboratory and instrumental studies and evaluate their results
SC8 Ability to determine tactics and provide emergency medical care.
SC11 Ability to solve medical problems in new or unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethical responsibility
SC15. Ability to conduct medical and statistical research; evaluate the biophysical impact of the environment on the health of an individual, family, and population.
SC16. The ability to use the methods of mathematical statistics in the planning and analysis of measures related to the organization and integration of providing medical care to the population.
SC16 Ability to maintain medical documentation, including electronic forms provided by e-Health.
SC20 Ability to conduct epidemiological and medical statistical studies of population health; processing of social, economic and medical information

Expected learning outcomes. As a result of studying the academic discipline, the student must:

Know:

- modern trends and prospects for the development of providing informational medical services to the population in the e-Health system;
- procedure for working with typical electronic documents in the e-Health system;
- procedure for working with typical modern telemedicine networks and telemedicine equipment;
- the main technical groups and classes of modern telemedicine equipment used in Ukraine and abroad:
- the principle of operation and arrangement of modern telemedicine equipment by areas of application;
- technical and functional safety rules when working with the main classes of telemedicine networks and telemedicine equipment;
- the basics of metrological control of measuring devices in the provision of information on medical services;

Be able:

- determine the mandatory components of the medical information model of the circulation of medical information at the workplace of a medical specialist, provided for by e-Health;
- choose equipment for organizing the workplace of a specialist who provides medical information services;
- organize and work with existing telemedicine servers to organize communication and transfer medical data;
- choose medical data transfer standards and the appropriate medical information system that ensure the efficient work of a specialist;

- work with computerized medical devices and determine the main diagnostic characteristics of the received information;
- observe safety rules when using medical devices;
- use the instructions and descriptions of self-learning the rules of operation of telemedicine devices and networks.

3. Contents of the work program

Topic No. 1. History of the development of e-Health technologies

The main stages of formation and development of e-Health in the world and in Ukraine. World knowledge of distance medical data transmission.

Topic No. 2. Basic concepts and definitions of e-Health and telemedicine.

What is e-Health, interdependence and technological interaction with telemedicine, the main areas of use.

Topic No. 3. Biotelemetry and telemonitoring in e-Health.

Tasks, areas of application, hardware and software, principles of building telemedicine systems. The main types of distance medical data transmission: teleconferences, bioradiotelemetry, home telemedicine, teleassistance, telelearning. Types of biotelemetry: space, aviation, military, clinical, disaster telemedicine.

Topic No. 4. Remote e-Health services. Teleconsultation. Teleassistance in the e-Health system.

Classification, areas of application, principles of building teleconsultation and teleassistance systems. Equipment used. Keeping documentation during teleconsultation.

Topic No. 5. e-Health and home telemedicine.

Telescreening. Distance education of doctors. Tasks, areas of use, features of building home telemedicine systems, necessary equipment.

Topic No. 6. Diagnostic equipment for the functioning of the e-Health network.

Means of visualization, registration and processing of electrograms, measurement of physiological indicators, broadcasting of test. Means of remote control of medical devices. Means of digital visualization. Elements of artificial intelligence and automation of diagnostic procedures.

Topic No. 7. Medical information compression protocols. Data transfer protocols in e-Health.

Information protection in telemedicine. Application of cloud technologies in**e-Health та**telemedicine Telemedicine software and servers in Ukraine and the world.

Topic No. 8. Organization of the national e-Health and telemedicine system of Ukraine. Its members are telemedicine software developers. Regulatory framework and state programs**e-Health.**

4. The structure of the academic discipline

Topic	Lectures	Practical	Seminars	IWS
The history of the development of e-Health technologies	2	2	0	2
Basic concepts and definitions of e-Health and telemedicine	2	2	2	2
Biotelemetry and telemonitoring in e-Health	2	4	2	4
Remote e-Health services. Teleconsultation. Teleassistance in the e-Health system	2	4	4	4
e-Health and home telemedicine	2	6	2	4
Diagnostic equipment for the functioning of the e-Health network	2	6	4	4
Medical information compression protocols. Data transfer protocols in e-Health	2	4	0	2
Organization of the national system of e-Health and telemedicine of Ukraine	2	2	0	2
Total	**16**	**36**	**14**	**24**

5. Thematic plan of lectures

№	Topic	Hours
1.	Electronic healthcare system e-Health. Basic concepts of development. Features of the exchange of digital medical documents. Information medical model of a doctor's work using the e-Health system.	2
2.	World experience in the field of implementation and operation of the electronic health care system. Medical and technical information standards in the implementation of the goal and tasks of e-Health.	2
3	Peculiarities of the legislative framework for ensuring the effective implementation of e-Health. Interaction of the e-Health system with the insurance model of the organization of the public health care system.	2
4	Features of the e-Health organization. List of registers of the central database. Rules for supporting administration processes. Types of digital medical documents, recommendations of CDA, Health Level 7 regarding the organization of digital document circulation	2
5	Medical information systems (MIS) - main types and capabilities. MIS, which are connected to the central database of the electronic health care system, their functional features.	2
6	Artificial intelligence technologies in the field of e-Health. Experience of the department in the development of a decision support system for the laparoscopist surgeon during diagnostic laparoscopic intervention	2

7	Electronic medical card. Working with the results of laboratory tests and diagnostic procedures. The latest information technologies in medicine and pharmacy. Features of making entries in electronic forms of documents.	2
8	The main stages of the formation and development of telemedicine in the world and in Ukraine. World knowledge of distance medical data transfer. International projects and programs using telemedical consulting technologies.	2
	Together	16

6. Thematic plan of practical classes

№	Topic	Hours
1	The main stages of formation and development of eHealth and telemedicine in the world and in Ukraine. World knowledge of distance medical data transmission. Providing access to international databases of telemedicine data	2
2	Medical information standards. Technical standards for the transmission of medical data in networks.	2
3	Tasks, areas of application, hardware and software, principles of eHealth construction. Telemedicine systems. Types of biotelemetry: space, aviation, military, clinical, disaster telemedicine.	4
4	Classification, areas of application, principles of building teleconsultation and teleassistance systems in eHealth. Equipment used. Keeping documentation during teleconsultation.	4
5	eHealth and home telemedicine. Telescreening. Distance education of doctors. Tasks, areas of use, features of building home telemedicine systems, equipment.	4
6	Means of remote acquisition of electrograms, measurement of physiological indicators, broadcasting of test. Means of remote control of medical devices. Means of digital visualization	6
7	Data transmission protocols in eHealth. Protection of information. Application of cloud technologies in eHealth and telemedicine. Telemedicine software and servers in Ukraine and the world.	6
8	Computer systems of signal and image processing. Telemedical imaging — informativeness and basic requirements. Virtual medical tools, application possibilities and familiarization with the LabView software environment.	4
9	Means of visualization, registration and processing of electrograms, measurement of physiological indicators, broadcasting of test. Means of remote control of medical devices. Means of digital visualization.	4
10	Organization of the national telemedicine system of Ukraine. Its members are telemedicine software developers. Regulatory eHealth of telemedicine. State eHealth programs.	2
	Together	36

6. Thematic plan of seminar classes

№	Topic	Hours
1	Medical information systems connected to the central database of the central database of the electronic health care system, their functional features. Technical standards for the transmission of medical data in networks.	4
2	Technologies of artificial intelligence and the Internet of things in the field of eHealth. Fields of application, hardware and software, principles of building telemedicine systems.	4
3	Electronic medical card. Peculiarities of adding digital records and images to sections of the medical information system.	2
5	The latest information technologies in medicine and pharmacy	4
	Together	14

7. Thematic plan of individual works

№	Topic	Hours
1	The history of the development of e-Health and telemedicine technologies. World knowledge of distance medical data transmission. Providing access to international databases of telemedicine data	2
2	Electronic healthcare system e-Health. Basic concepts of development. Features of the exchange of digital medical documents. Information medical model of a doctor's work using the e-Health system.	2
3	The main types of distance medical data transmission: teleconferences, bioradiotelemetry, home telemedicine, teleassistance, telelearning, place in the e-Health system.	4
4	eHealth and home telemedicine. Telescreening. Distance education of doctors. Tasks, areas of use, features of building home telemedicine systems, equipment.	2
5	Biotelemetry and telemonitoring**.** Tasks, areas of application, hardware and software, principles of building telemedicine systems. Types of biotelemetry: space, aviation, military, clinical, disaster telemedicine.	2
6	Diagnostic equipment for e-Health telemedicine. Means of visualization, registration and processing of electrograms, measurement of physiological indicators, broadcasting of test. Means of remote control of medical devices. Means of digital visualization.	6
7	Computer systems of signal and image processing. Telemedical imaging — informativeness and basic requirements. Virtual medical tools, application possibilities and familiarization with the LabView software environment.	2

8	**Organization of the national system**e-Health **of Ukraine.**Its members are telemedicine software developers. Regulatory and legal framework of e-Health. State programs	4
	Together	24

8. Individual tasks

Not provided for in the working curriculum.

9. Teaching methods

Practical lessons:

Studying the material from textbooks and manuals. A survey of students and a teacher's conversation with them, with the identification of fragments of the material that appear to them to be difficult and unclear. Explanation by the teacher of these parts of the material, with an illustration of their practical significance in medicine. Performing the tasks set by the teacher in the classroom, with their verification and clarification of errors.

The following teaching methods can be used in practical classes:

- methods that ensure perception and assimilation of knowledge by students (lectures, independent work, instruction, consultation);
- methods of applying knowledge and acquiring and consolidating abilities and skills (seminar and practical classes, control tasks, work in a clinic, practice);
- methods of checking and evaluating knowledge, abilities and skills;
- methods of encouragement and punishment.

Independent work:independent work with the textbook, independent solution of tasks.

10. Control methods and criteria for evaluating learning outcomes

Assessment of current educational activity, one practical lesson:

Evaluation of the success of studying each topic of the discipline is carried out according to a traditional 4-point scale.

At least 50% of students should be interviewed at a practical (laboratory) session, and at least 30% at a seminar. At the end of the semester (cycle), the number of grades of students in the group should be the same on average.

At the end of the discipline, the current academic performance is calculated as the average current score, i.e. the arithmetic average of all the grades received by the student on a traditional scale, rounded to 2 (two) decimal places, for example 4.75.

Current assessment criteria for practical training:

«5»	The student is fluent in the material, takes an active part in the discussion of the problems brought to the class, confidently demonstrates analytical skills during the class and interpretation of the provided model data of laboratory and instrumental research, expresses his opinion on the subject of the class, demonstrates scientific and analytical thinking.

«4»	The student has a good command of the material, participates in the discussion of the problems brought to the class, demonstrates analytical skills during the class and interpretation of the provided model data of laboratory and instrumental studies with some errors, expresses his opinion on the topic of the class, demonstrates scientific and analytical thinking.
«3»	The student does not have sufficient knowledge of the material, is unsure of participating in the discussion of the problems brought to the class, demonstrates analytical skills during the class and interpretation of the provided model data of laboratory and instrumental studies with significant errors.
«2»	The student does not master the material, does not take part in the discussion of the problems brought to the class, does not demonstrate analytical skills during the class and interpretation of the provided model data of laboratory and instrumental studies.

At the last practical lesson, the teacher is obliged to announce to the students the results of their current academic performance, academic debt (if any).

Only those students who have no academic debt and have an average score for the current educational activity of at least 3.00 are admitted to the final certification.

Final control of knowledge in the discipline

Criteria for evaluating the learning outcomes of students on credit:

«5»	It is presented to a student who has worked systematically during the semester, has shown versatile and deep knowledge of the program material during the exam, is able to successfully complete the tasks provided for by the program, has mastered the content of the main and additional literature, has realized the interrelationship of individual sections of the discipline, their importance for the future profession, showed creative abilities in understanding and using the educational program material, showed the ability to independently update and replenish knowledge; the level of competence is high (creative);
«4»	It is awarded to a student who has demonstrated complete knowledge of the curriculum material, successfully completes the tasks provided for by the program, has mastered the basic literature recommended by the program, has shown a sufficient level of knowledge in the discipline and is capable of their independent updating and renewal in the course of further education and professional activity; the level of competence is sufficient (constructive and variable)
«3»	It is issued to a student who has demonstrated knowledge of the main curriculum material in the amount necessary for further education and subsequent work in the profession, copes with the tasks provided for by the program, made some mistakes in the answers on the exam and when completing the exam tasks, but has the necessary knowledge for overcoming mistakes made under the guidance of a scientific and pedagogical worker; level of competence - average (reproductive)
«2»	It is issued to a student who has not demonstrated sufficient knowledge of the main curriculum material, has made fundamental mistakes in the performance of the tasks provided for by the program, cannot use the knowledge in further studies without the

	help of a teacher, has not managed to master the skills of independent work; the level of competence is low (receptive-productive)

11. Distribution of points received by students of higher education

The grade for the discipline consists of 50.0% of the grade for the current academic performance and 50.0% of the grade for the exam.

The average score for the discipline is translated into a national score and converted into points on a multi-point scale.

The conversion of a traditional grade for a discipline into a 200-point grade is carried out by the information and computing center of the university using the "Contingent" program.

Table of conversion of a traditional assessment into a multi-point assessment:

National assessment for discipline	The sum of points for the discipline
«5»	**185 – 200**
«4»	**151 – 184**
«3»	**120 – 150**

Points from the discipline are independently converted to both the ECTS scale and the four-point scale. Points from the ECTS scale are not converted into a four-point scale and vice versa. Further calculations are carried out by the information and computing center of the university.

Conversion of the traditional grade from the discipline and the sum of points on the ECTS scale

Evaluation on the ECTS scale	Statistical indicator
A	The best 10% of students
B	The next 25% of students
C	The next 30% of students
D	The next 25% of students
E	The next 10% of students

The grade on the ECTS scale is issued by the educational unit of ONMedU or the dean's office after ranking grades in the discipline among students studying in the same course and in the same specialty. According to the decision of the Academic Council, it is recommended to rank students who are citizens of foreign countries in one massif.

12. Recommended sources of information:

Basic

1.Godlevsky L.S., Kalinchuk S.V., Bayazitov N.R., Smirnov I.V., Adeyinka M., Samchenko I.A., Bayzakov U.A. First results of the implementation of telemedical service in the Odessa region. Polish Journal of Medical Physics and Engineering.- 2007; 13(2): 105-114.

2. Godlevsky L.S., Bayazitov M.R., Mandel O.V., Marchenko S.V., Bidnyuk K.A., Lyashenko A.V. Telemedicine technologies in the healthcare system. Educational and methodological manual 2021 ONMedU (electronic edition) 327 pages.

3.Bayazitov D.M., Liashenko A.V., Bayazitov M.R., Bidnyuk K.A., Godlevska T.L. Digital images classification in automatic laparoscopic diagnostics Wiad Lek. (Poland), May, 2022 (accepted for publication) *(Scopus)*

4.Bayazitov D.N., Kresyun N.V., Buzinovsky A.B., Bayazitov N.R., Lyashenko A.V., Godlevsky L.S., Prybolovets T.V., Bidnyuk K.A. (2017). The effectiveness of automatic laparoscopic diagnostics of liver pathology using different methods of digital images classification. Pathologia. Vol.,14. Issue 2. Pp182-187. URL: http://pat.zsmu.edu.ua *(Web of Science)*

5.Lyashenko A.V., Bayazitov N.R., Godlevsky L.S., Bayzitov D.N., Buzinovsky A.B. Informational -technical system for the automatized laparoscopic diagnostics. Radio Electronics, Computer Science, Control [Ukraine]. 2016/17; 4: 90-96 INFORMATIONAL-TECHNICAL SYSTEM FOR THE AUTOMATIZED LAPAROSCOPIC DIAGNOSTICS | Radio Electronics, Computer Science, Control (zntu.edu.ua) *(Web of Science).*

6. Bayazitov M.R., Bayazitov D.M., Buzynovskyi A.B., Lyashenko A.V., Novikov D.V., Godlevskyi L.S. Comparative efficiency of image classifiers during recognition of regions of interest during laparoscopic interventions. Medical informatics and engineering. 2020, No. 2 C.62-69.

7. Lyashenko A.V., Godlevskyi L.C., Bayazitov D.M., Buzynovskyi A.B. Application of the algorithm based on the texture descriptor in the recognition of video laparoscopic images. Bulletin of the Kherson National Technical University. - 2017. - No. 2. - P. 212-217.

8.Buzinovsky A.B., Kovalenko O.S., Bayazitov N.R., Godlevsky L.S. The effectiveness of surgeon decision on pain syndrome of pelvic origin treatment in women estimated with the model of decision tree. Cybernetics and Computer Science.- 2018.- №2(192).- P.60-72.

9. Bayazitov D.M., Buzynovskyi A.B., Godlevskyi L.S., Novikov D.V. Evaluation of the effectiveness of providing surgical care to patients with painful pelvic syndrome. Achievements of biology and medicine.- 2018.- No. 1.- P. 18-22.

10. Bidnyuk K.A., Lyashenko A.V., Bayazitov D.N., Buzinovskiy A.B., Nenova O.N. A method for assessing the color of digital images of a biological surface on the example of remote diagnostics of the state of tooth enamel. Actual problems of transport medicine. 2017.- № 3,(45).-. pp.117-123.

Additional:

11. Bayazitov D.M., Buzynovskyi A.B., Lyashenko A.V., Godlevskyi L.S. Retrospective comparative effectiveness of surgical and medical treatment of patients by the method of building a decision tree. Current issues of distance education and telemedicine 2018. Mat. All-Ukrainian scientific and methodical video conference. From international Participation (April 25-26, 2018, Zaporizhzhia). – Zaporizhzhia, 2018. P.97-98

12.Law of Ukraine "On increasing the availability and quality of medical care in rural areas» from14.11. 2017 No. 2206-VIII (Vedomosti Verkhovna Rada (VVR), 2018, No. 5, Article 32).

13.Order of the Ministry of Health of Ukraine dated October 19, 2015 No. 681 "On the approval of regulatory documents regarding the use of telemedicine in the field of health care" approved by the Ministry of Justice of Ukraine dated November 9, 2015 under No. 1400/27845.

14.Dubchak L. O. Telemedicine: modern state and development prospects / L. O. Dubchak // Information processing systems. - 2017. - Issue 1. - P. 144-146. - Access mode:http://nbuv.gov.ua/UJRN/soi_2017_1_28.

15.OrderMinistry of Health of Ukraine dated 25.05.2007 No. 269 "On the establishment of the State Clinical Scientific and Practical Center of Telemedicine of the Ministry of Health of

Ukraine».

16. Law of Ukraine "Basic Principles of Information Society Development in Ukraine for 2007 - 2015" dated January 9, 2007 No. 537-V.

17. Law of Ukraine "Basics of the legislation of Ukraine on health care" dated November 19, 1992, No. 2801-XI, as amended.

18. Order of the Ministry of Health of Ukraine dated 23.03. 2020 No. 698 "On the approval of Temporary measures in health care facilities to ensure their readiness to provide medical care to patients with acute respiratory disease COVID-19 caused by the SARS-CoV-2 coronavirus"

19. Remote consultations.Telemedicine platform "doctor-patient" Telemed24.

20. Order of the Ministry of Health of Ukraine No. 722 dated March 28, 2020. Organization of medical care for patients with coronavirus disease (COVID-19) // Collection of regulatory and directive documents on health care. - 2020. - No. 6. - P. 87-89.

21 Voronenko Y.V., Orabina T.M., Moiseyenko R.I. etc. "Methodical recommendations for the diagnosis and treatment of certain diseases in the provision of telemedicine services (for general practitioners - family medicine)" / NMAPO named after P.L. Shupyka, 2019. 104 p.

22. Franke M., Lipiński W. Electrocardiographic changes in infectious diseases // PolskaGazeta Lekarska.- 1936.- R.15, N9.-1-11 p.