Ministry of Healthcare of Ukraine
Poltava State Medical University

Department of Internal Medicine №2 with occupational diseases

# SYLLABUS

## INTERNAL MEDICINE, INCLUDING CLINICAL PHARMACOLOGY, CLINICAL IMMUNOLOGY AND ALLERGOLOGY, OCCUPATIONAL DISEASES

**Normative discipline**

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|---|---|
| academic and professional level | the second (master's) level of higher education |
| field of knowledge | 22 «Healthcare» |
| specialty | 222 «Medicine» |
| academic qualification | Master of Medicine |
| professional qualification | Medical Doctor |
| academic and professional program | 222 «Medicine» |
| mode of study | full-time |
| course(s) and semester(s) of study of the discipline | 5th year, IX-X semesters |

## Module 1. FUNDAMENTALS OF INTERNAL MEDICINE (CARDIOLOGY, RHEUMATOLOGY, NEPHROLOGY)

Poltava 2021

## INFORMATION ABOUT LECTURERS WHO DELIVER THE ACADEMIC DISCIPLINE

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|---|---|
| Surname, name, patronymic of the lecturer (lecturers), scientific degree, academic title | Kostrikova Iuliya Anatoliivna - Ph.D. of Medical Sciences, docent<br>Myakinkova Lyudmyla Oleksandrivna - Ph.D. of Medical Sciences, docent<br>Mohnachov Oleksandr Volodymyrovych - Ph.D. of Medical Sciences, Assistant<br>Toronchenko Olga Mykolayivna - Ph.D. of Medical Sciences, Assistant |
| Profile of the lecturer (lecturers) | https://int-med-two.umsa.edu.ua/team |
| Contact phone | +380505667005 |
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| Department page at the website of PSMU | https://int-med-two.umsa.edu.ua/ |

## MAIN CHARACTERISTICS OF THE ACADEMIC DISCIPLINE

**The scope of the academic discipline (module)и**

Number of credits / hours – 5,5/165 , of which:
Lectures (hours) – 10
Seminar classes (hours) – 100
Self-directed work (hours). – 55
Type of control – semester final certification (SFC)

**The policy of the academic discipline**

The policy of the academic discipline is regulated by a system of requirements that a lecturer imposes on a student in the study of the discipline and is based on the principles of academic integrity. Requirements may relate to attendance (prohibition of absences, delays, etc.); rules of conduct in the classroom (active participation, fulfillment of the required minimum of training activities, disconnection of mobile telephones, etc.); incentives and penalties (in what cases points can be accrued or deducted, etc.).

https://www.umsa.edu.ua/fakultets/nnipo/akademichna-dobrochesnist-ft-nnipo-elpy)

- Compliance with the academic righteousness of applicants education courses includes:
- self-execution of educational tasks, tasks of current and final control of learning outcomes;
- Reference to sources of information in case of use of ideas, developments, statements, information;
- Compliance with regulations of copyright and related rights;
- Providing reliable information on the results of its own educational or scientific activity, used methods of research and source of information.

Violation of academic righteousness is: Academic plagiarism, self-plagiarism, forgery, cheating, fraud.

For violation of academic righteousness of education, liability may be prosecuted in accordance with normative documents.

Applicants education, learning discipline "Internal medicine, including clinical pharmacology, Clinical Immunology and Allergology, occupational disease" Module 2 "Occupational diseases" shall:

- to comply with the schedule of the educational process and prevent the non-fulfillment of the curriculum and individual curriculum without valid for the reasons,
- come to classes in time, according to the schedule of classes
- (https://www.umsa.edu.ua/shedule)
- to comply with labor protection, safety techniques, industrial sanitation, fire safety provided by relevant rules and instructions;
- To comply with the appearance of the appearance (dress code) of persons approved by the decision of the rectorate of 29.08.2014
- Support the order in the training rooms, carefully and tenderly relate to the property of the department (furniture, computer technology, textbooks);
- not to move without permission of scientific and pedagogical workers of things and various equipment from training rooms and the department, and in the event of deliberate damage - to compensate their value in accordance with the procedure established by the current legislation;
- Compliance with the moral and ethical principles of staying on the territory of clinical bases.

Applicants, studying the discipline "Occupational Diseases", are prohibited from:

- leave the classroom during the lesson without the permission of the teacher;
- use a mobile phone and other means of communication and receive information without the teacher's permission;
- engage in extraneous activities, distract other students and interfere with the teacher;
- use drugs, psychotropic substances and their analogues, alcoholic beverages at the department, smoke on the territory of the department and be in the department in a state of alcohol, drugs or other intoxication;
- to commit illegal and immoral actions that may create dangerous conditions for the health and / or life of others, which degrade human dignity, to use profanity;

(Rules of procedure for students of Poltava State Medical University: (https://www.umsa.edu.ua/n-process/department-npr/normativni-dokumenti)

**Description of the academic discipline (summary)**

**Internal medicine** is a branch of medicine that deals with the problems of etiology, pathogenesis and clinical manifestations of diseases of internal organs, their diagnosis, non-surgical treatment, prevention and rehabilitation. Module 4. Fundamentals of Internal Medicine (cardiology, rheumatology, nephrology) "covers the study of the main etiological and pathogenetic factors of cardiovascular, musculoskeletal and urinary systems. The basics of clinical examination of the patient, the main symptoms and syndromes of diseases of internal organs and their evaluation, methodological foundations of physical examination of the patient and semiological evaluation of the results of examination of the patient, clinical and diagnostic interpretation of the most important laboratory and instrumental studies in norma and in case of these diseases; basic principles of treatment, prognosis and prevention.

***The subject of study of module 1 Fundamentals of internal medicine (cardiology, rheumatology, nephrology) is:*** study of etiology, risk factors, pathogenesis, clinical manifestations, differential diagnosis, basic principles of treatment, primary and secondary

prevention of diseases of the cardiovascular, musculoskeletal and urinary systems in the clinic of internal medicine.

**Pre-requisites and post-requisites of the academic discipline (interdisciplinary links)**

**Pre-requisites**

Module 1 Fundamentals of internal medicine (cardiology, rheumatology, nephrology), as a discipline:

- is based on the study of the second (master's) level of higher education propaedeutics of internal medicine, as well as other basic disciplines (medical biology, medical and biological physics, bioorganic and biological chemistry, histology, cytology and embryology, human anatomy, pathomorphology, physiology, pathophysiology , virology and immunology, radiology) and integrates with these disciplines;
- lays the foundation for learning higher education applicants with specialized knowledge and practical clinical professional disciplines;
- forms the ability to apply knowledge of pathology of internal organs in the process of further training and professional activity in accordance with the principles of evidence-based medicine.

**Post-requisites.** Module 1 Fundamentals of internal medicine (cardiology, rheumatology, nephrology) lays the foundations for the acquisition by students of knowledge in specialized clinical professional and practical disciplines; forms the ability to apply knowledge of pathology of internal organs in the process of further training and professional activity in accordance with the principles of evidence-based medicine.

## 1. The purpose and objectives of the discipline:

**1.1.** The purpose of teaching Module 1. Fundamentals of internal medicine (cardiology, rheumatology, nephrology) is to acquire and deepen the knowledge, skills, abilities and other competencies in internal medicine required in professional activities, which are established on the basis of educational and professional program.

**1.2.** *The main tasks of studying the discipline are***:**

- To do surveys and physical examinations of patients and analyze their results in the clinic of internal medicine.
- To determine the etiological and pathogenetic factors of the most common diseases in the clinic of internal medicine.
- No classify and analyze the typical clinical picture of the most common diseases in the clinic of internal medicine.
- To identify different clinical variants and complications of the most common diseases in the clinic of internal medicine.
- To identify the leading syndromes and symptoms in the clinic of internal medicine.
- To justify and formulate a preliminary diagnosis of the most common diseases in the clinic of internal medicine.
- To make the plan of inspection of the patient, to interpret results of laboratory and instrumental researches at the most widespread diseases in clinic of internal medicine and their complications.
- To carry out differential diagnosis, substantiate and formulate the clinical diagnosis of major diseases in the clinic of internal medicine.

- To determine the tactics of management (recommendations regarding the regime, diet, treatment, rehabilitation measures) of the patient with the most common diseases in the internal medicine clinic.
- To prescribe non-drug and drug treatment, including prognosis-modifying, the most common diseases in the clinic of internal medicine.
- To carry out non-drug and drug primary and secondary prevention of major diseases in the clinic of internal medicine.
- To determine the prognosis and efficiency of patients with major diseases in the clinic of internal medicine.
- To diagnose and provide medical care in emergencies in the internal medicine clinic.
- To apply the basic algorithms of intensive care in emergencies in the clinic of internal medicine.
- To perform medical manipulations.
- To maintain medical records in the internal medicine clinic.
- To demonstrate mastery of moral and deontological principles of a medical professional and the principles of professional subordination.

**1.3.** *Kcompetencies and learning outcomes, the formation of which is facilitated by the discipline (integral, general, special, program learning outcomes)*

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|---|---|
| **Integral competence**<br>Ability to solve complex specialized problems and practical problems in professional activities in the field of health care in the specialty "Medicine", or in the learning process, which involves research and / or innovation and is characterized by complexity and uncertainty of conditions and requirements. | |
| **General competencies** | |
| **GC1** | Ability to abstract thinking, analysis and synthesis, the ability to learn and master modern knowledge. |
| **GC2** | Ability to apply knowledge in practical situations. |
| **GC3** | Knowledge and understanding of the subject area and understanding of professional activity. |
| **GC4** | Ability to adapt and act in a new situation. |
| **GC5** | Ability to make informed decisions; work in a team; interpersonal skills. |
| **GC6** | Ability to communicate in the state language both orally and in writing; ability to communicate in a foreign language. Ability to use international Greco-Latin terms, abbreviations and clichés in professional oral and written speech. |
| **GC7** | Skills in the use of information and communication technologies. |
| **GC8** | Definiteness and perseverance in terms of tasks and responsibilities. |
| **GC9** | The ability to act socially responsibly and consciously. |
| **Special (professional, subject) competencies** | |
| **SC1** | Patient interviewing skills. |
| **SC2** | Ability to determine the required list of laboratory and instrumental studies and evaluate their results. |
| **SC3** | Ability to establish a preliminary and clinical diagnosis of the disease. |
| **SC4** | Ability to determine the required mode of work and rest in the treatment of diseases |
| **SC5** | Ability to determine the nature of nutrition in the treatment of diseases. |
| **SC6** | Ability to determine the principles and nature of disease treatment. |
| **SC7** | Ability to diagnose emergencies. |
| **SC8** | Ability to determine the tactics of emergency medical care. |
| **SC9** | Emergency care skills |
| **SC10** | Ability to carry out medical and evacuation measures |
| **SC11** | Skills to perform medical manipulations. |
| **SC15** | Ability to determine the tactics of management of persons subject to dispensary supervision. |
| **SC16** | Ability to conduct an examination of working capacity. |
| **SC17** | Ability to keep medical records. |

*Program learning outcomes, the formation of which contributes to a better study of the discipline as a whole, including Module 1:*

**PLO1** To know the structure and functions of individual organs and systems and the human body as a whole in the norm, with the development of pathological processes, diseases; to be able to use the acquired knowledge in further training and in the practice of the doctor.

**PLO2** To collect data on patient complaints, life history (professional history in particular) in a health care facility and / or at home with the patient, according to the standard survey scheme.

**PLO3** Assign and analyze additional (mandatory and optional) examination methods (laboratory, radiological, functional and / or instrumental). Evaluate information for the purpose of differential diagnosis of diseases (according to list 2), using knowledge about the person, his organs and systems, based on the results of laboratory and instrumental research (according to list 4).

**PLO4** Establish a preliminary and clinical diagnosis of the disease (according to list 2) on the basis of leading clinical symptoms or syndromes (according to list 1) by making an informed decision and logical analysis, using the most probable or syndromic diagnosis, laboratory and instrumental examination, conclusions of differential diagnosis, knowledge about a person, his organs and systems, adhering to the relevant ethical and legal norms.

**PLO5** To determine the necessary mode of work and rest in the treatment of the disease (according to list 2) in a health care facility, at home of the patient and at the stages of medical evacuation, including in the field, on the basis of a preliminary clinical diagnosis, using knowledge about the person, his organs and systems, adhering to the relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes.

**PLO6** To prescribe the necessary medical nutrition in the treatment of the disease (according to list 2), in a health care facility, at the patient's home and at the stages of medical evacuation, including in the field on the basis of a preliminary clinical diagnosis, using knowledge about the person, his organs and systems, adhering to the relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes.

**PLO7** To determine the nature of treatment of the disease (conservative, operative) and its principles (according to list 2) in a health care facility, at the patient's home and at the stages of medical evacuation, including in the field on the basis of a preliminary clinical diagnosis, using knowledge about the person, his organs and systems, adhering to the relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes.

**PLO8** To diagnose emergencies and establish a diagnosis (according to list 3) by making an informed decision and assessing the human condition under any circumstances (at home, on the street, in a health care facility), including in emergency situations, in field conditions, in conditions of lack of information and limited time, using standard methods of physical examination and possible anamnesis, knowledge about a person, his organs and systems, adhering to the relevant ethical and legal norms.

**PLO9** To determine the tactics of emergency medical care, under any circumstances, using knowledge about the person, his organs and systems, adhering to the relevant ethical and legal norms, by making an informed decision, based on the diagnosis (list 3) for a

limited time with standard schemes.
**PLO10** To provide emergency medical care under any circumstances, using knowledge of the person, his organs and systems, adhering to the relevant ethical and legal norms, by making an informed decision, based on a diagnosis of emergency (list 3) in a limited time according to certain tactics using standard schemes.
**PLO12** To perform medical manipulations (according to list 5) in a health care facility, at home or at work on the basis of a previous clinical diagnosis and / or indicators of the patient's condition, using knowledge about the person, his organs and systems, adhering to relevant ethical and legal norms, making an informed decision and using standard techniques.
**PLO16** To determine the tactics of management of persons subject to dispensary supervision in a health care institution or at the patient's home on the basis of the obtained data on the patient's health, using standard schemes, using knowledge about the person, his organs and systems, adhering to relevant ethical and legal norms by making an informed decision.
**ПРН17** To carry out an examination of working capacity by determining the presence and degree of disability, type, degree and duration of disability with the execution of relevant documents in a health care facility on the basis of data on the disease and its course, features of professional activity.
**PLO18** Maintain medical records of the patient and the population on the basis of regulatory documents, using standard technology. Prepare reports on personal production activities, using official accounting documents in the standard form.
**PLO23** Forming goals and determine the structure of personal activities based on analysis of certain social and personal needs.
**PLO24** To adhere to a healthy lifestyle, use the techniques of self-regulation and self-control.
**PLO25** To be aware of and guided in their activities by civil rights, freedoms and responsibilities, constantly improving professional and cultural levels.
**PLO26** Adhere to the requirements of ethics, bioethics and deontology in their professional activities.
**PLO27** To provide the necessary level of personal security (their own and the persons concerned) in the case of typical dangerous situations in the individual field activity.

Upon completion of the study of Module 1, applicants for higher education must
**to know:** etiology, pathogenesis, clinic, diagnosis, treatment and prevention of major and most common diseases of internal organs
**to be able to**: Conduct surveys and physical examinations of patients with major diseases of the cardiovascular, musculoskeletal systems, connective tissue and urinary system and analyze their results
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- To determine the etiological and pathogenetic factors of the most common diseases of the cardiovascular, musculoskeletal system, connective tissue and urinary system.
- To analyze the typical clinical picture of the most common diseases of the cardiovascular, musculoskeletal system, connective tissue and urinary system.
- To identify different clinical variants and complications of the most common diseases of the cardiovascular, musculoskeletal, connective tissue and urinary systems.

•To formulate a preliminary diagnosis of the most common diseases of the cardiovascular, musculoskeletal, connective tissue and urinary systems.

•To make a plan for examination of the patient and analyze the data of laboratory and instrumental examinations in the typical course of the most common diseases of the cardiovascular, musculoskeletal systems, connective tissue, urinary system and their complications.

•To make a differential diagnosis, substantiate and formulate a preliminary diagnosis of the most common diseases of the cardiovascular, musculoskeletal system, connective tissue and urinary system.

•To determine the tactics of management (recommendations for diet, diet, medication, rehabilitation measures) of the patient and prescribe non-drug and drug treatment, including prognostic-modifying, the most common diseases of the cardiovascular, musculoskeletal system, connective tissue, urinary system and their complications.

- To assess the prognosis and performance of the patient with the most common diseases of the cardiovascular, musculoskeletal, connective tissue and urinary system.
- To diagnose and provide medical care in emergencies.
- To carry out primary and secondary prevention of the most common diseases of the cardiovascular, musculoskeletal systems, connective tissue and urinary system.
- To carry out medical manipulations.
- To demonstrate mastery of moral and deontological principles of a medical specialist and the principles of professional subordination.
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## Thematic plan of lectures Module 1. Fundamentals of internal medicine (cardiology, rheumatology, nephrology) on the content modules with the indication of the main issues considered at the lecture

| № | Topic | Number of hours |
|---|---|---|
| | ***Content module 1.*** *Basics of diagnosis, treatment and prevention of diseases of the cardiovascular system* | 6 |
| 1. | **Hypertension**<br>The relevance of this nosology. Definition. The role of disorders of central and renal mechanisms of regulation of blood pressure, endothelial function and other factors. Classification. Clinical manifestations and data of additional research methods. Defeat of target organs. Differential diagnosis. Risk stratification. Complication. Non-drug and drug treatment. Complicated and uncomplicated hypertensive crises, features of treatment tactics. Primary and secondary prevention. Forecast and efficiency. | 2 |
| 2. | **Coronary heart disease**<br>**Stable coronary heart disease (CHD).** Definition of coronary heart disease. Etiology. Classification of coronary heart disease. Features of the clinical course and diagnosis of different variants of stable angina. Painless coronary heart disease, postinfarction and diffuse cardiosclerosis. Features of clinical manifestations. Criteria for diagnosis. Differentiated therapy of different forms of coronary heart disease. Prognosis-modifying therapy. Primary and secondary prevention. Forecast and efficiency.<br>**Acute coronary syndrome (unstable angina and acute myocardial infarction).** Definition. Classification. Features of the clinical course and diagnosis of acute myocardial infarction. Criteria for diagnosis. Complications of acute myocardial infarction (acute left ventricular failure, cardiac arrhythmia and conduction, | 2 |

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| | myocardial rupture, acute cardiac aneurysm, post-infarction Dressler's syndrome, etc.). Diagnosis. Therapeutic tactics in different periods of acute myocardial infarction. Prognosis-modifying therapy. Indications for surgical treatment. Rehabilitation. Primary and secondary prevention. Forecast and efficiency. | |
| 3. | **Acquired heart defects**<br>Definition. Defects of mitral, aortic, tricuspid valves. Etiology, mechanisms of hemodynamic disorders. Classification. Combined mitral and aortic defects. Clinical manifestations. The value of non-invasive and invasive research methods. Differential diagnosis. Complication. Treatment. Indications for surgical treatment. Primary and secondary prevention. Forecast and efficiency. | 2 |
| | ***Content module 2.*** *Basics of diagnosis, treatment and prevention of diseases of the musculoskeletal system and connective tissue* | 2 |
| 4. | **Systemic connective tissue diseases**<br>**Systemic lupus erythematosus. Systemic scleroderma. Dematopolymyositis.** Definition. Etiological factors and pathogenesis. Classification. Clinical manifestations depending on the damage to organs and systems and disease activity. The value of laboratory, including immunological, research methods. Diagnostic criteria. Differential diagnosis. Complication. Principles of treatment taking into account the degree of activity. Pulse therapy. Prevention. Forecast and efficiency. | 2 |
| | ***Content module 3.*** *Basics of diagnosis, treatment and prevention of diseases of the urinary system* | 2 |
| 5. | **Chronic kidney disease**<br>Definition. Etiological factors. Pathogenesis of lesions of organs and systems, their clinical manifestations. Classification. Clinical manifestations and changes in laboratory parameters depending on the stage. Diagnostic criteria. Differential diagnosis. Complication. Stage-dependent treatment and renoprotection. Renal replacement therapy: hemodialysis, kidney transplantation. Indications and contraindications to renal replacement therapy, complications. Primary and secondary prevention. Forecast and efficiency. | 2 |
| | **total** | **10** |

## Thematic plan of practical classes of module 1 Fundamentals of internal medicine (cardiology, rheumatology, nephrology) and content modules indicating the main issues addressed in the practical lesson

| № | Topic | Number of hours |
|---|---|---|
| ***Content module 1.*** *Basics of diagnosis, treatment and prevention of diseases of the cardiovascular system* | | |
| **1.** | **Essential hypertension. Neurocirculatory dystonia.** Definition. The role of disorders of central and renal mechanisms of regulation of blood pressure, endothelial function and other factors. Classification. Clinical manifestations and data of additional research methods. Defeat of target organs. Differential diagnosis. Risk stratification. Complication. Non-drug and drug treatment. Complicated and uncomplicated hypertensive crises, features of treatment tactics. Primary and secondary prevention. Forecast and efficiency.<br>**Neurocirculatory dystonia.** Definition. Etiology and pathogenesis. Classification. Features of clinical syndromes. Criteria for diagnosis. Differential diagnosis. Differentiated therapy. Primary and secondary prevention. Forecast and working capacity. | 4 |
| 2 | **Secondary (symptomatic) arterial hypertension.** Definition. The main causes. Features of the clinic, diagnosis of renal (renovascular, renoparenchymal), endocrine (Itsenko-Cushing's syndrome and disease, pheochromocytoma, Conn's syndrome, diffuse toxic goiter) and hemodynamic (isolated systolic hypertension, aortic coarctation). Hypertension during pregnancy. The value of laboratory and | 4 |

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| | instrumental methods for differential diagnosis and diagnosis verification. Treatment, including surgical treatment. Primary and secondary prevention. Forecast and working capacity. | |
| 3 | **Atherosclerosis.** Definition. The role of hyperlipidemia, general and local inflammation, vascular wall damage and platelets in the development of atherosclerosis. Risk factors. Features of clinical manifestations depending on the predominant localization of atherosclerosis (aorta, coronary, mesenteric and renal arteries, arteries of the lower extremities). The value of laboratory, radiological and other instrumental research methods. Differential diagnosis. Complication. Stratification of cardiovascular risk. Principles of treatment. Therapeutic tactics for different variants of the course. Primary and secondary prevention. Forecast and working capacity.<br>**Stable coronary heart disease (CHD). Definition of coronary heart disease.** Etiology. Classification of coronary heart disease. Features of the clinical course and diagnosis of different variants of stable angina. Painless coronary heart disease, postinfarction and diffuse cardiosclerosis. Features of clinical manifestations. Criteria for diagnosis. Differentiated therapy of different forms of coronary heart disease. Prognosis-modifying therapy. Primary and secondary prevention. Forecast and working capacity. | 4 |
| 4 | **Acute coronary syndrome (unstable angina and acute myocardial infarction).** Definition. Classification. Features of the clinical course and diagnosis of acute myocardial infarction. Criteria for diagnosis. Complications of acute myocardial infarction (acute left ventricular failure, cardiac arrhythmia, myocardial rupture, acute cardiac aneurysm, post-infarction Dressler's syndrome, etc.). Diagnosis. Therapeutic tactics in different periods of acute myocardial infarction. Prognosis-modifying therapy. Indications for surgical treatment. Rehabilitation. Primary and secondary prevention. Forecast and working capacity. | 4 |
| 5 | **Pulmonary heart. Pulmonary artery thromboembolism (PE).** Definition of the pulmonary heart. Etiology, pathogenesis. Classification. Clinical manifestations, changes in the data of additional research methods depending on the etiological factor. Differential diagnosis. Principles of differentiated treatment. Primary and secondary prevention. Forecast and working capacity.<br>Definition of PE. Risk factors. Classification. Pathogenesis of hemodynamic disorders. Clinical course. Diagnosis criteria, differential diagnosis. Diagnostic value of changes in the data of laboratory and instrumental research methods. Therapeutic tactics. Indications for surgical treatment. Primary and secondary prevention. Forecast and working capacity. | 4 |
| 6 | **Congenital heart disease in adults.** Definition. Atrial and interventricular septal defect, open ductus arteriosus, aortic coarctation. Mechanisms of hemodynamic disorders, significance of pulmonary hypertension. The value of non-invasive and invasive methods for diagnosis and differential diagnosis. Complication. Eisenmenger syndrome. Treatment. Indications for surgical treatment. Prevention of complications. Forecast and working capacity. | 4 |
| 7 | **Infectious endocarditis.** Definition. Etiology, pathogenesis. Clinical picture. Features of the course depending on the pathogen. Diagnostic criteria. The value of laboratory methods and echocardiographic examination in diagnosis. Differential diagnosis. Complications (heart failure, emboli, abscesses, etc.). Treatment. Modes of antibacterial therapy. Indications for surgical treatment. Primary and secondary prevention. Forecast and working capacity. | 4 |
| 8 | **Acquired heart defects.** Definition. Defects of mitral, aortic, tricuspid valves. Etiology, mechanisms of hemodynamic disorders. Classification. Combined mitral and aortic defects. Clinical manifestations. The value of non-invasive and invasive research methods. Differential diagnosis. Complication. Treatment. Indications for | 4 |

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| | surgical treatment. Primary and secondary prevention. Forecast and working capacity. | |
| 9 | **Myocarditis and cardiomyopathy.** Definition. Classification. Etiology and pathogenesis of the main types of cardiomyopathies (dilatation, hypertrophic, etc.). Clinical manifestations. The value of laboratory and instrumental research methods in diagnosis. Diagnosis criteria and differential diagnosis. Complication. Features of treatment of different types of cardiomyopathies. Primary and secondary prevention. Forecast and working capacity. | 4 |
| 10 | **Pericarditis.** Definition. Etiology and pathogenesis. Classification. Features of the clinic, course and diagnosis of various forms of pericarditis. Methods of diagnosis verification. Differential diagnosis. Cardiac tamponade. Indications for pericardial puncture, its diagnostic and therapeutic value. Differentiated therapy of different forms taking into account etiological factors. Primary and secondary prevention. Forecast and working capacity. | 4 |
| 11 | **Heart rhythm disorders. Definition.** Etiology. Classification. Electrophysiological mechanisms of arrhythmias (extrasystole, atrial fibrillation and flutter, supraventricular and ventricular tachycardia, ventricular fibrillation). Clinic, ECG diagnostics and differential diagnosis. Complication. Drug and non-drug methods of treatment. The role of electropulse therapy. Immediate therapy for paroxysmal arrhythmias and sudden cardiac death. Primary and secondary prevention. Forecast and working capacity. | 4 |
| 12 | **Impaired conduction of the heart.** Definition. Etiology. Classification. Clinic and ECG diagnosis of sinoatrial, atrioventricular block and blockade of the legs of the His bundle. Tactics for acute and chronic conduction disorders. First aid for the Morgan-Edams-Stokes attack. Indications and principles of pacing (temporary, permanent). Primary and secondary prevention. Forecast and working capacity. | 4 |
| 13 | **Acute heart failure.** Definition. The main reasons. Pathogenesis of disorders of central and peripheral hemodynamics in different forms (insufficiency of the left and right heart). Classification. Clinical manifestations. Diagnosis. Emergency care for cardiogenic pulmonary edema and cardiogenic shock.<br>**Chronic heart failure.** Definition. The main reasons. Pathogenesis of disorders of central and peripheral hemodynamics in different forms (insufficiency of the left and right heart). The role of neurohumoral activation and remodeling of the heart. Classification. Clinical manifestations and their features depending on the variant (heart failure with reduced and preserved left ventricular ejection fraction), stage and functional class. Diagnosis. The value of laboratory and instrumental research methods. Prognosis-modifying therapy. Primary and secondary prevention. Forecast and working capacity. | 4 |
| ***Content module 2.*** *Basics of diagnosis, treatment and prevention of diseases of the musculoskeletal system and connective tissue* | | |
| 14 | **Acute rheumatic fever.** Definition. The role of streptococcal infection and immunological reactivity in the development of acute rheumatic fever. Classification. Clinical picture (carditis, polyarthritis, chorea, skin lesions). The value of laboratory and instrumental research methods. Criteria for diagnosis. Differential diagnosis Complications. Treatment taking into account the degree of activity. Primary and secondary prevention. Forecast and working capacity. | 4 |
| 15 | **Systemic connective tissue diseases (systemic lupus erythematosus).** Definition. Etiological factors and pathogenesis. Classification. Clinical manifestations depending on the damage to organs and systems and disease activity. The value of laboratory, including immunological, research methods. Diagnostic criteria. Differential diagnosis. Complication. Principles of treatment taking into account the degree of activity. Pulse therapy. Prevention. Forecast and working capacity. | 4 |
| 16 | **Systemic connective tissue diseases (systemic scleroderma, dermatomyositis).** Definition. Etiological factors, pathogenesis. Classification. Clinical picture | 4 |

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| | depending on the damage to organs and systems. Diagnostic criteria, Differential diagnosis. Complication. Principles of treatment. Prevention. Forecast and working capacity. | |
| 17 | **Systemic vasculitis.** Hemorrhagic vasculitis (Shenlein-Genoch vasculitis), hypersensitive vasculitis, nodular polyarteritis. Definition. Etiology, pathogenesis. Clinical manifestations, diagnostic criteria. Differential diagnosis. Treatment. Prevention. Forecast and working capacity. | 4 |
| 18 | **Rheumatoid arthritis. Definition.** Etiology, pathogenesis. The role of immune status disorders in the development of the disease. Classification. Clinical picture taking into account the activity of the pathological process, the stage of the disease, systemic manifestations. The value of laboratory and instrumental methods for the diagnosis of the disease, its stage and activity. Criteria for diagnosis, the importance of the study of synovial fluid. Differential diagnosis. Complication. Treatment strategy. Basic therapy. Tactics of treatment with glucocorticoids and nonsteroidal anti-inflammatory drugs. Prevention. Forecast and working capacity. | 4 |
| 19 | **Osteoarthritis.** Definition. Etiology, pathogenesis. Classification. Clinical picture depending on the predominant location of the lesions. Diagnosis. Differential diagnosis. Drug and non-drug treatment. Primary and secondary prevention. Forecast and working capacity. | 4 |
| 20 | **Gout.** Definition. Etiology, pathogenesis. Classification. Features of the joint syndrome and lesions of internal organs. Criteria for diagnosis. Differential diagnosis. Complication. Drug and non-drug treatment. Prevention. Forecast and working capacity. | 4 |
| 21 | **Seronegative spondyloarthritis (ankylosing spondylitis, reactive arthritis)**. Ankylosing spondylitis. Definition. Etiology, pathogenesis. Classification. Clinical picture. The value of instrumental and laboratory methods. Criteria for diagnosis. Differential diagnosis. Drug and non-drug treatment. Prevention. Forecast and working capacity.<br>**Reactive arthritis.** Definition. Etiology, pathogenesis. Classification. Clinical manifestations of reactive arthritis of various etiologies. Reuters syndrome, the importance of laboratory and instrumental methods of diagnosis. Diagnostic criteria, Differential diagnosis. Treatment, the role of antibacterial therapy. Primary and secondary prevention. Forecast and working capacity**.** | 4 |
| ***Content module 3.*** *Basics of diagnosis, treatment and prevention of diseases of the urinary system* | | |
| 22 | **Chronic kidney disease. Glomerulonephritis. Renal amyloidosis.**<br>**Glomerulonephritis.** Definition. Etiology and pathogenesis. Pathological anatomy. Classification. Clinical manifestations and features of some morphological forms. Diagnosis. Differential diagnosis. Complication. Treatment taking into account the morphological form and clinical course. Primary and secondary prevention. Forecast and working capacity.<br>**Amyloidosis.** Definition. Etiology. Pathogenesis. Classification. Clinical manifestations of renal amyloidosis. Diagnosis. Differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and working capacity. | 4 |
| 23 | **Pyelonephritis. Tubulointerstitial nephritis**<br>**Pyelonephritis.** Definition. The role of infection in inflammatory diseases of the kidneys and urinary tract. Classification. Clinical manifestations. Instrumental and laboratory diagnostic methods. Differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and working capacity.<br>**Tubulointerstitial nephritis.** Definition. Etiology. Pathogenesis. Clinical manifestations. Diagnostic criteria and differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and working capacity. | 4 |
| 24 | **Acute kidney damage. Chronic renal failure.** | 4 |

| | | |
|---|---|---|
| | Definition. Etiological factors. Pathogenesis of lesions of organs and systems, their clinical manifestations. Classification. Clinical manifestations and changes in laboratory parameters depending on the stage. Diagnostic criteria. Differential diagnosis. Complication. Stage-dependent treatment and renoprotection. Renal replacement therapy: hemodialysis, kidney transplantation. Indications and contraindications to renal replacement therapy, complications. Primary and secondary prevention. Forecast and working capacity. | |
| 25 | ***Curation to write a medical history***<br>***Protection of medical history*** | 4 |
| | **Total** | 100 |

## Individual work

| № | Topic | Number of hours |
|---|---|---|
| 1. | Preparation for practical classes on topics - theoretical training and development of practical skills | 47 |
| 2. | Elaboration of additional topics that are not included in the list of topics of practical classes is not provided by the program | - |
| 3. | Writing and preparing to defend a medical history. Preparation for the semester final certification | 8 |
| **Total** | | **55** |

## Individual tasks:

- Report at clinical conferences of departments
- Report an essay on practical class
- Report of the patient's medical history in a practical lesson
- Writing abstracts, articles

**The list of theoretical questions for preparation of students for semester final attestation (SFA)**

- Essential hypertension. Neurocirculatory dystonia. Definition. The role of disorders of central and renal mechanisms of regulation of blood pressure, endothelial function and other factors. Classification. Clinical manifestations and data of additional research methods. Defeat of target organs. Differential diagnosis. Risk stratification. Complication. Non-drug and drug treatment. Complicated and uncomplicated hypertensive crises, features of treatment tactics. Primary and secondary prevention. Forecast and working capacity.
- Neurocirculatory dystonia. Definition. Etiology and pathogenesis. Classification. Features of clinical syndromes. Criteria for diagnosis. Differential diagnosis. Differentiated therapy. Primary and secondary prevention. Forecast and working capacity.
- Secondary (symptomatic) arterial hypertension. Definition. The main reasons. Features of the clinic, diagnosis of renal (renovascular, renoparenchymal), endocrine (Itsenko-Cushing's syndrome and disease, pheochromocytoma, Conn's syndrome, diffuse toxic goiter) and hemodynamic (isolated systolic hypertension, aortic coarctation). Hypertension during pregnancy. The value of laboratory and instrumental methods for differential diagnosis and diagnosis verification. Treatment, including surgical treatment. Primary and secondary prevention. Forecast and working capacity.
- Atherosclerosis. Definition. The role of hyperlipidemia, general and local inflammation, vascular wall damage and platelets in the development of atherosclerosis. Risk factors. Features of clinical manifestations depending on the predominant localization (aorta, coronary, mesenteric and renal arteries, arteries of the lower extremities). The value of laboratory, radiological and other instrumental research methods. Differential diagnosis. Complication. Principles of treatment. Therapeutic tactics for different variants of the course. Primary and secondary prevention. Forecast and working capacity.
- Stable coronary heart disease (CHD). Definition of coronary heart disease. Etiology. Classification of coronary heart disease. Features of the clinical course and diagnosis of different variants of stable angina. Painless coronary heart disease, postinfarction and diffuse cardiosclerosis. Features of clinical manifestations. Criteria for diagnosis. Differentiated therapy of different forms of coronary heart disease. Prognosis-modifying therapy. Primary and secondary prevention. Forecast and working capacity.
- Acute coronary syndrome (unstable angina and acute myocardial infarction). Definition. Classification. Features of the clinical course and diagnosis of acute myocardial infarction. Criteria for diagnosis. Complications of acute myocardial infarction (acute left ventricular failure, cardiac arrhythmia and conduction, myocardial rupture, acute cardiac aneurysm, post-infarction Dressler's syndrome, etc.). Diagnosis. Therapeutic tactics in different periods of acute myocardial infarction. Prognosis-modifying therapy. Indications for surgical treatment. Rehabilitation. Primary and secondary prevention. Forecast and working capacity.
- Heart rhythm disorders. Definition. Etiology. Classification.

Electrophysiological mechanisms of arrhythmias (extrasystole, atrial fibrillation and flutter, supraventricular and ventricular tachycardia, ventricular fibrillation). Clinic, ECG diagnostics and differential diagnosis. Complication. Drug and non-drug methods of treatment. The role of electropulse therapy. Immediate therapy for paroxysmal arrhythmias and sudden cardiac death. Primary and secondary prevention. Forecast and working capacity.

- Impaired conduction of the heart. Definition. Etiology. Classification. Clinic and ECG diagnosis of sinoatrial, atrioventricular block and blockade of the legs of the His bundle. Tactics for acute and chronic conduction disorders. First aid for the Morgan-Edams-Stokes attack. Indications and principles of pacing (temporary, permanent). Primary and secondary prevention. Forecast and working capacity.
- Pulmonary artery thromboembolism (PE). Definition of PE. Risk factors. Classification. Pathogenesis of hemodynamic disorders. Clinical course. Diagnosis criteria, differential diagnosis. Diagnostic value of changes in the data of laboratory and instrumental research methods. Therapeutic tactics. Indications for surgical treatment. Primary and secondary prevention. Forecast and working capacity.
- Pulmonary heart. Definition of the pulmonary heart. Etiology, pathogenesis. Classification. Clinical manifestations, changes in the data of additional research methods depending on the etiological factor. Differential diagnosis. Principles of differentiated treatment. Primary and secondary prevention. Forecast and working capacity.
- Congenital heart disease in adults. Definition. Atrial and interventricular septal defect, open ductus arteriosus, aortic coarctation. Mechanisms of hemodynamic disorders, significance of pulmonary hypertension. The value of non-invasive and invasive methods for diagnosis and differential diagnosis. Complication. Eisenmenger syndrome. Treatment. Indications for surgical treatment. Prevention of complications. Forecast and working capacity.
- Infectious endocarditis. Definition. Etiology, pathogenesis. Clinical picture. Features of the course depending on the pathogen. Diagnostic criteria. The value of laboratory methods and echocardiographic examination in diagnosis. Differential diagnosis. Complications (heart failure, emboli, abscesses, etc.). Treatment. Modes of antibacterial therapy. Indications for surgical treatment. Primary and secondary prevention. Forecast and working capacity.
- Acquired heart defects. Definition. Defects of mitral, aortic, tricuspid valves. Etiology, mechanisms of hemodynamic disorders. Classification. Combined mitral and aortic defects. Clinical manifestations. The value of non-invasive and invasive research methods. Differential diagnosis. Complication. Treatment. Indications for surgical treatment. Primary and secondary prevention. Forecast and working capacity.
- Myocarditis and cardiomyopathy. Definition. Classification. Etiology and pathogenesis of the main types of cardiomyopathies (hypertrophic, dilated, etc.). Clinical manifestations. The value of laboratory and instrumental research methods in diagnosis. Diagnosis criteria and differential diagnosis. Complication. Features of treatment of different types of cardiomyopathies.

Primary and secondary prevention. Forecast and working capacity.

- Pericarditis. Definition. Etiology and pathogenesis. Classification. Features of the clinic, course and diagnosis of various forms of pericarditis. Methods of diagnosis verification. Differential diagnosis. Cardiac tamponade. Indications for pericardial puncture, its diagnostic and therapeutic value. Differentiated therapy of different forms taking into account etiological factors. Primary and secondary prevention. Forecast and working capacity.
- Acute heart failure. Definition. The main reasons. Pathogenesis of disorders of central and peripheral hemodynamics in different forms (insufficiency of the left and right heart). Classification. Clinical manifestations. Diagnosis. Emergency care for cardiogenic pulmonary edema and cardiogenic shock....
- Chronic heart failure. Definition. The main reasons. Pathogenesis of disorders of central and peripheral hemodynamics in different forms (insufficiency of the left and right heart). The role of neurohumoral activation and remodeling of the heart. Classification. Clinical manifestations and their features depending on the variant (with preserved and reduced left ventricular ejection fraction), stage and functional class. Diagnosis. The value of laboratory and instrumental research methods. Prognosis-modifying therapy. Primary and secondary prevention. Forecast and working capacity.
- Acute rheumatic fever. Definition. The role of streptococcal infection and immunological reactivity in the development of acute rheumatic fever. Classification. Clinical picture (carditis, polyarthritis, chorea, skin lesions). The value of laboratory and instrumental research methods. Criteria for diagnosis. Differential diagnosis Complications. Treatment taking into account the degree of activity. Primary and secondary prevention. Forecast and working capacity.
- Systemic lupus erythematosus. Definition. Etiological factors and pathogenesis. Classification. Clinical manifestations depending on the damage to organs and systems and disease activity. The value of laboratory, including immunological, research methods. Diagnostic criteria. Differential diagnosis. Complication. Principles of treatment taking into account the degree of activity. Pulse therapy. Prevention. Forecast and working capacity.
- Systemic connective tissue diseases (systemic scleroderma, dermatomyositis). Definition. Etiological factors, pathogenesis. Classification. Clinical picture depending on the damage to organs and systems. Diagnostic criteria, Differential diagnosis. Complication. Principles of treatment. Prevention. Forecast and working capacity.
- Systemic vasculitis. Hemorrhagic vasculitis (Shenlein-Genoch vasculitis), hypersensitive vasculitis, nodular polyarteritis. Definition. Etiology, pathogenesis. Clinical manifestations, diagnostic criteria. Differential diagnosis. Treatment. Prevention. Forecast and working capacity.
- Rheumatoid arthritis. Definition. Etiology, pathogenesis. The role of immune status disorders in the development of the disease. Classification. Clinical picture taking into account the activity of the pathological process, the stage of the disease, systemic manifestations. The value of laboratory and instrumental methods for the diagnosis of the disease, its stage and activity. Criteria for diagnosis, the importance of the study of synovial fluid.

Differential diagnosis. Complication. Treatment strategy. Basic therapy. Tactics of treatment with glucocorticoids and nonsteroidal anti-inflammatory drugs. Prevention. Forecast and working capacity.

- Osteoarthritis. Definition. Etiology, pathogenesis. Classification. Clinical picture depending on the predominant location of the lesions. Diagnosis. Differential diagnosis. Drug and non-drug treatment. Primary and secondary prevention. Forecast and working capacity.
- Gout. Definition. Etiology, pathogenesis. Classification. Features of the joint syndrome and lesions of internal organs. Criteria for diagnosis. Differential diagnosis. Complication. Drug and non-drug treatment. Prevention. Forecast and working capacity.
- Seronegative spondyloarthritis (ankylosing spondylitis, reactive arthritis). Ankylosing spondylitis. Definition. Etiology, pathogenesis. Classification. Clinical picture. The value of instrumental and laboratory methods. Criteria for diagnosis. Differential diagnosis. Drug and non-drug treatment. Prevention. Forecast and working capacity.
- Reactive arthritis. Definition. Etiology, pathogenesis. Classification. Clinical manifestations of reactive arthritis of various etiologies. Reuters syndrome, the importance of laboratory and instrumental methods of diagnosis. Diagnostic criteria, Differential diagnosis. Treatment, the role of antibacterial therapy. Primary and secondary prevention. Forecast and working capacity.
- Chronic kidney disease. Definition. Classification. Glomerulonephritis. Definition. Etiology and pathogenesis. Pathological anatomy. Classification. Clinical manifestations and features of some morphological forms. Diagnosis. Differential diagnosis. Complication. Treatment taking into account the morphological form and clinical course. Primary and secondary prevention. Forecast and working capacity.
- Amyloidosis. Definition. Etiology. Pathogenesis. Classification. Clinical manifestations of renal amyloidosis. Diagnostic criteria. Differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and working capacity.
- Pyelonephritis. Definition. The role of infection in inflammatory diseases of the kidneys and urinary tract. Classification. Clinical manifestations. Instrumental and laboratory diagnostic methods. Differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and working capacity.
- Tubulointerstitial nephritis. Definition. Etiology. Pathogenesis. Clinical manifestations. Diagnostic criteria and differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and working capacity.
- Acute kidney damage. Chronic renal failure. Definition. Etiological factors. Pathogenesis of lesions of organs and systems, their clinical manifestations. Classification. Clinical manifestations and changes in laboratory parameters depending on the stage. Diagnostic criteria. Differential diagnosis. Complication. Stage-dependent treatment and renoprotection. Renal replacement therapy: hemodialysis, kidney transplantation. Indications and contraindications to renal replacement therapy, complications. Primary and

secondary prevention. Forecast and working capacity.

## LIST OF PRACTICAL WORKS AND TASKS FOR SFA

**Work with the patient**

- To collect complaints, history of disease, history of life.
- To collect information on the general condition of the patient (consciousness constitution) and to evaluate the appearance (examination of the skin, subcutaneous fat layer, palpation of lymph nodes, thyroid and mammary glands), to examine the state of the musculoskeletal system, joints.
- To examine the respiratory organs (chest examination, chest palpation, percussion and lung auscultation)).
- To examine the cardiovascular system (examination and palpation of the heart and blood vessels, percussion of the heart and auscultation of the heart and blood vessels).
- To examine the digestive organs (examination, percussion, superficial and deep palpation).
- To examine the urinary system (examination of the lumbar region, palpation of the kidneys).

- To make a probable (preliminary) diagnosis of the disease (List 1).
- To prescribe and justify laboratory and / or instrumental examination of a patient with diseases (List 1).
- To interpret the results of laboratory and instrumental research (List 2)
  To carry out differential diagnosis of diseases (List 1).
- To make a clinical diagnosis of the disease (List 1).
- To determine the necessary regime and diet of a patient with diseases (List 1).
- To determine the principles and nature of treatment (conservative, operative) of diseases (List1).
- To diagnose and to provide assistance in emergencies (List 3)
- To perform medical manipulations (List 4)
- To determine the tactics of secondary prevention of patients subject to dispensary supervision.
- To keep medical records of the patient.

### List 1 (diseases)

### Diseases of the cardiovascular system

1. Essential hypertension (hypertension)
2. Secondary (symptomatic) hypertension:
   - renal (renovascular, renoparenchymatous);
   - endocrine (Itsenko-Cushing's syndrome and disease, pheochromocytoma, primary hyperaldosteronism, thyrotoxicosis);
   - coarctation of the aorta;
   - isolated systolic arterial hypertension;
   - hypertension during pregnancy;
3. Neurocirculatory dystonia
4. Atherosclerosis
5. Stable coronary heart disease
6. Unstable angina. Acute myocardial infarction

7. Pericarditis
8. Pulmonary heart
9. Acquired heart defects: mitral, aortic and tricuspid valves, combined mitral and aortic defects
10. Congenital heart defects: atrial, interventricular septal defect, open ductus arteriosus, aortic coarctation
11. Infectious endocarditis
12. Myocarditis and cardiomyopathy
13. Pulmonary artery thromboembolism
14. Cardiac arrhythmia
15. Impaired conduction of the heart
16. Heart failure

**Diseases of the musculoskeletal system and connective tissue**

1. Osteoarthritis
2. Systemic lupus erythematosus
3. Systemic scleroderma
4. Gout
5. Reactive arthritis
6. Acute rheumatic fever
7. Rheumatoid arthritis
8. Dermatomyositis / poliomyositis
9. Ankylosing spondylitis
10. Systemic vasculitis (hypersensitive and hemorrhagic vasculitis, nodular polyarteritis)

**Diseases of the urinary system**

1. Pyelonephritis
2. Tubulointerstitial nephritis
3. Acute and chronic glomerulonephritis
4. Amyloidosis of the kidneys
5. Acute renal dysfunction
6. Chronic renal failure

**List 2 (laboratory and instrumental research methods)**

1. Analysis of ascitic fluid
2. Analysis of synovial fluid
3. Analysis of urine by Nechiporenko
4. Analysis of urine according to Zymnytsky
5. Biochemical markers of myocardial necrosis, D-dimer
6. Acute phase indicators of blood, total blood protein and its fractions, ASL-O
7. General blood test
8. General urinalysis, microalbuminuria test, urinary albumin / creatinine level
9. Blood electrolytes
10. Enzyme-linked immunosorbent assay, immunochemical, molecular biological study of blood
11. Coagulogram
12. Creatinine and blood urea, glomerular filtration rate
13. Lipid spectrum of blood
14. Analysis of sternal punctate in radiation injury
15. Metanephrines in urine

16.Microbiological study of biological fluids and secretions
17. Indicators of acid-base status of blood
18. Rheumatoid factor, anti-CCP, ANA, dsDNA, Sm-antigen, SCL-70, Jo-1, pANCA, cANCA, HbsAg, IgG and IgM chlamydia trachomatis, shigella, salmonella, yersinia
19. Levels of ACTH, cortisol, aldosterone and renin in the blood
20. Uric acid in the blood
21. Blood transaminases, total bilirubin and its fractions
22. Electrocardiographic examination
23. Echocardiography
24. Samples with dosed exercise
25. Sonography, scanning, computed tomography and magnetic resonance imaging of the adrenal glands
26. X-ray contrast angiography
27. Radiation examination of the abdominal cavity
28. Radiation examination of the thoracic cavity
29. Radiation study of the urinary system
30. Radiation examination of the skull, bones and joints

**List 3 (EMERGENCY STATES)**

- Hypertensive crisis
- Acute heart failure
- Acute kidney damage
- Acute coronary syndrome
- Circulatory and respiratory arrest
- Paroxysmal cardiac arrhythmias (paroxysmal tachycardia and atrial fibrillation / flutter) and cardiac conduction disorders (high-grade atrioventricular block, Morgan-Edems-Stokes syndrome)
- Pulmonary artery thromboembolism

**List 4 (MEDICAL MANIPULATIONS)**

- To measure blood pressure
- To record an ECG in 12 leads
- To perform artificial ventilation and perform indirect heart massage
- To catheterize the bladder with a soft catheter

**TO KNOW THE CLINICAL PHARMACOLOGY OF THE MAIN GROUPS OF MEDICINES**

1. α and β-adrenostimimetics
2. Antianginal
3. Antiarrhythmic
4. Antibacterial
5. Antihypertensive
6. Anticoagulants
7. Hemostatics
8. Glucocorticoids and cytostatic immunosuppressants
9. Diuretics
10. Nonsteroidal anti-inflammatory drugs

**TO BE ABLE TO MAKE MEDICAL DOCUMENTATION**

1. Medical card of an inpatient

2. Extract from the medical card of an inpatient
3. Procedural sheet (form B №28)
4. Referral to MSEC
5. Medical death certificate
6. Leaflet of incapacity for work
7. Sanatorium-resort map
8. Emergency report of an infectious disease, food, acute occupational poisoning, unusual reaction to vaccination (form №058 / o)
9. Recipes for all sections of the discipline.

**Form of final control of academic success semester final certification (SFA). Current and final control system**

Control measures for assessing the educational activities of higher education students include current and final control of knowledge, skills and abilities.

Control measures are based on the principles of: compliance with higher education standards; use of a standardized and unified diagnostic system aimed at the application of knowledge; definition of evaluation criteria; objectivity and transparency of control technology.

The researcher must evaluate the success of the higher education applicant in each lesson on a four-point (traditional) scale. Evaluation criteria are defined by the working curriculum of the discipline "Internal Medicine, including clinical pharmacology, clinical immunology and allergology, occupational diseases" Module 1 Fundamentals of internal medicine (cardiology, rheumatology, nephrology), which is approved by the Academic Council of the Medical Faculty №1 UMS Table 1).

Assessment of success is integrated (all types of work of higher education students are evaluated both in preparation for the lesson and during the lesson) according to the criteria that are communicated to them at the beginning of the discipline. Conversion of the current grade, set on the traditional 4-point scale, to multi-point in each lesson is not carried out.

*Table 1. Criteria for assessing the knowledge of students:*

| **On a 4-point scale** | **Assessment in ECTS** | **Evaluation criteria** |
|---|---|---|
| 5 perfectly | A | The student shows special creative abilities, is able to acquire knowledge independently, without the help of the teacher finds and processes the necessary information, is able to use the acquired knowledge and skills for decision-making in unusual situations, convincingly argues answers, independently reveals own talents and inclinations, possesses not less than 90 % of knowledge on the topic both during the survey and all types of control. |
| 4 good | B | The student is fluent in the studied amount of material, applies it in practice, freely solves exercises and problems in standardized situations, independently corrects errors, the number of which is insignificant, has at least 85% knowledge of the topic both during the survey and all types of control. |
| | C | The student is able to compare, summarize, systematize information under the guidance of a scientific and pedagogical worker, in general, independently apply it in practice, control their own activities; to correct |

| | | |
|---|---|---|
| | | mistakes, among which there are significant, to choose arguments for confirmation of opinions, possesses not less than 75% of knowledge on a subject both during interrogation, and all types of control. |
| 3 satisfactorily | D | The student reproduces a significant part of the theoretical material, shows knowledge and understanding of the basic provisions, with the help of a scientific and pedagogical worker can analyze the educational material, correct mistakes, among which there are a significant number of significant ones. Has at least 65% knowledge of the topic both during the survey and all types of control. |
| | E | The student has the educational material at a level higher than the initial, a significant part of it reproduces at the reproductive level. Has at least 60% knowledge of the topic both during the survey and all types of control. |
| 2 unsatisfactorily | FX | The student has the material at the level of individual fragments that make up a small part of the material. Has less than 60% knowledge of the topic both during the survey and all types of control. |
| | F | The student has the material at the level of elementary recognition and reproduction of individual facts, elements, has less than 60% knowledge of the topic both during the survey and all types of control. |

The final attestation of the discipline is conducted exclusively during the examination sessions according to the schedule developed and brought to the notice of scientific and pedagogical staff of the department and applicants for higher education not later than one month before its beginning..

To the exam admitted applicants of higher education who:

- do not have unfinished missed classes and lectures,
- scored a minimum score of at least 72 (which corresponds to an average score of 3.0 for current performance),
- mastered practical skills (completed and signed by the teacher workbook),
- wrote and defended the academic history of the disease,
- fulfilled financial obligations according to the concluded agreements (for study, living in a dormitory, etc.), about which they received a mark in the individual curriculum on admission to the session from the dean (deputy dean).

The exam is taken by examiners approved by the order of the rector.

The exam is conducted in the form of an oral examination (by ticket). The questions submitted for the exam are brought to the notice of higher education students within a month.

*Regulations for the semester exam*

1. The exam is held in one day.
2. The examination ticket for the discipline contains three specific basic theoretical (practice-oriented) questions:

1) questions from the first content module (Fundamentals of diagnosis, treatment and prevention of major diseases of the cardiovascular system)
2) questions from the second content module (Fundamentals of diagnosis, treatment and prevention of major diseases of the musculoskeletal system and connective tissue)
3) questions from the third content module (Fundamentals of diagnosis, treatment and prevention of major diseases of the urinary system) and
4) Clinical task with 3 practical questions.

4. The standard answer to each question involves a time of 3-5 minutes.

5. Exam questions cover the most important sections of the working curriculum, and are sufficiently covered in the literature, which are recommended as the main (basic) in the study of the discipline.
6. Examination tickets are approved by the board of the medical faculty №1, signed by the dean or his deputy.
7. Each question of the examination ticket is evaluated within 0-20 points. As a result of the computer control and the theoretical part of the exam, the student is given a total score from 0 to 80 points, the conversion of points into the traditional score is not carried out.

*Criteria for evaluating the oral examination (for each question):*

*18-20 points* - for a theoretical question receives a student of higher education, who fully possesses the theoretical educational material on the topic, can use the acquired knowledge to answer questions, justify the answer; mastered practical skills.

*14–17 points* - for a theoretical question receives a student of higher education, who fully possesses the theoretical educational material on the topic, can use the acquired knowledge to answer the question, but with some difficulty justifies the answer; mastered practical skills

*10-13 points* - for a theoretical question receives an applicant who does not have enough theoretical educational material on the topic, has difficulty using the acquired knowledge, can not justify their answer; insufficiently mastered practical skills.

*0 points* - receives a higher education applicant who does not have knowledge of the material, can not use the acquired knowledge to answer questions, justify the answer; did not learn all the practical skills.

8. In case of violation by the applicant of higher education of the rules of academic integrity (p.2.2.5. Rules of Procedure) during the examination, the results are canceled, the answer is graded "unsatisfactory".
9. In case of disagreement of the higher education applicant with the grade obtained for the exam, he has the right to file an appeal (in accordance with the "Regulations on the appeal of the results of the final control of knowledge of higher education applicants").
10. Applicants for higher education who during the study of the discipline in which the exam is conducted, had an average score of the current grade from 4.50 to 5.0 are exempt from its compilation and automatically (with consent) receive a final grade according to the scheme of calculation and distribution points (see below), and the presence of the student at the exam is mandatory. In case of disagreement with the assessment, the specified category of applicants for higher education takes the exam according to the general rules.

11. The applicant of higher education has the right to retake the exam no more than 2 times and only during the examination session. Permission to retake the exam is issued by the dean, director of the institute (or his deputy) in the form of "Personal statement of retaking the final control", which the student receives in the dean's office under a personal signature upon presentation of an individual curriculum. When organizing the re-examination of a group of applicants for higher education, a general statement is used.

When assessing the exam, the higher education applicant is graded according to the traditional 4-point system: "excellent", "good", "satisfactory" and "unsatisfactory". The results of the examination by the applicant for higher education are recorded in the "Statement of student achievement in the discipline" and sealed with the signature of the examiner.

The grade in the discipline is set by the department on the traditional (national) 4-point scale based on the average number of points for all modules provided by the program of the discipline.

Transfer of the average number of points for all modules provided by the program in the discipline, in the traditional assessment on a 4-point scale (Table 2).

Table 2

| The average number of points for all modules of the discipline | Traditional score on a 4-point scale |
|---|---|
| 122 – 139,99 | 3 |
| 140 – 169,99 | 4 |
| 170 – 200 | 5 |

Table 3. Scheme of accrual and distribution of points received by applicants for higher education for the current performance of points for FMC, exam and traditional four-point assessment

| Middle ball for current progress (A) | Ball for current progress from the module (A*24) | Ball for FMC with module. (A*16) | Points for the module and / or exam (A*24 + A*16) | Category ECTS | By 4-point scale |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 2 | 48 | 32 | 80 | F FX | 2 unsatisfactorily |
| 2,1 | 50 | 34 | 84 | | |
| 2,15 | 52 | 34 | 86 | | |
| 2,2 | 53 | 35 | 88 | | |
| 2,25 | 54 | 36 | 90 | | |
| 2,3 | 55 | 37 | 92 | | |
| 2,35 | 56 | 38 | 94 | | |
| 2,4 | 58 | 38 | 96 | | |
| 2,45 | 59 | 39 | 98 | | |
| 2,5 | 60 | 40 | 100 | | |
| 2,55 | 61 | 41 | 102 | | |
| 2,6 | 62 | 42 | 104 | | |
| 2,65 | 64 | 42 | 106 | | |
| 2,7 | 65 | 43 | 108 | | |
| 2,75 | 66 | 44 | 110 | | |
| 2,8 | 67 | 45 | 112 | | |
| 2,85 | 68 | 46 | 114 | | |
| 2,9 | 70 | 46 | 116 | | |
| 2,95 | 71 | 47 | 118 | | |
| 3 | 72 | 50 | 122 | E | 3 satisfactorily |
| 3,05 | 73 | 50 | 123 | | |
| 3,1 | 74 | 50 | 124 | | |
| 3,15 | 76 | 50 | 126 | | |
| 3,2 | 77 | 51 | 128 | | |
| 3,25 | 78 | 52 | 130 | D | |
| 3,3 | 79 | 53 | 132 | | |
| 3,35 | 80 | 54 | 134 | | |
| 3,4 | 82 | 54 | 136 | | |
| 3,45 | 83 | 55 | 138 | | |

| | | | | | |
|---|---|---|---|---|---|
| 3,5 | 84 | 56 | 140 | C | 4 good |
| 3,55 | 85 | 57 | 142 | | |
| 3,6 | 86 | 58 | 144 | | |
| 3,65 | 88 | 58 | 146 | | |
| 3,7 | 89 | 59 | 148 | | |
| 3,75 | 90 | 60 | 150 | C | 4 good |
| 3,8 | 91 | 61 | 152 | | |
| 3,85 | 92 | 62 | 154 | | |
| 3,9 | 94 | 62 | 156 | | |
| 3,95 | 95 | 63 | 158 | | |
| 4 | 96 | 64 | 160 | B | |
| 4,05 | 97 | 65 | 162 | | |
| 4,1 | 98 | 66 | 164 | | |
| 4,15 | 100 | 66 | 166 | | |
| 4,2 | 101 | 67 | 168 | | |
| 4,25 | 102 | 68 | 170 | | |
| 4,3 | 103 | 69 | 172 | | |
| 4,35 | 104 | 70 | 174 | | |
| 4,4 | 106 | 70 | 176 | | |
| 4,45 | 107 | 71 | 178 | | |
| 4,5 | 108 | 72 | 180 | A | 5 perfectly |
| 4,55 | 109 | 73 | 182 | | |
| 4,6 | 110 | 74 | 184 | | |
| 4,65 | 112 | 74 | 186 | | |
| 4,7 | 113 | 75 | 188 | | |
| 4,75 | 114 | 76 | 190 | | |
| 4,8 | 115 | 77 | 192 | | |
| 4,85 | 116 | 78 | 194 | | |
| 4,9 | 118 | 78 | 196 | | |
| 4,95 | 119 | 79 | 198 | | |
| 5 | 120 | 80 | 200 | | |

**Teaching methods**

- verbal (explanation, story, conversation, instruction)
- visual (observation, illustration, presentation)
- practical (by clinical examination of the patient to interpret and describe changes in organs and systems in various pathological conditions)
- explanatory-illustrative or information-receptive (coverage of ready-made information by a research and pedagogical worker and its assimilation by students)
- thematic discussions, clinical trials
- analysis of specific clinical situations
- partial search, research methods.

Teaching the basics of internal medicine in the 5th year (Module 1) is carried out in the form of rotations of content modules. Approximate duration of practical classes - 4 hours. The main purpose of this course is to study the basics of internal medicine by higher education students. Emphasis is placed on the skills of history taking and physical examination and differential diagnosis. Applicants for higher education participate in the diagnostic and treatment process of inpatients under the guidance of teachers of the department. It is also possible to get acquainted with the procedures that are most often

used in the practice of internal medicine. Practical classes, clinical tours with associate professors and professors of the department are the most important part of this course. Each graduate receives daily records and reports clinical data on the examined patients to the assistant, writes a medical history. Depending on the clinical conditions and capabilities, the rotation of content modules is allowed.

Types of classes according to the curriculum are: a) lectures, b) practical classes, c) independent work of the applicant, d) consultations.

Thematic plans of lectures, practical classes and SR reveal the problematic issues of the relevant sections of internal medicine. In the lecture course didactic means (multimedia presentations, slides, demonstration of thematic patients) are used as much as possible.

Practical classes are held on the clinical bases of the department. The method of organizing clinical practice classes in internal medicine requires:

- to make the applicant of higher education a participant in the process of providing medical care to patients from the moment of their hospitalization, examination, diagnosis, treatment to discharge from the hospital;
- to master professional practical skills; skills of work in a team of higher education seekers, doctors, other participants in the process of providing medical care;
- to form in the applicant of higher education, as in the future specialist, an understanding of responsibility for the level of their training, its improvement during training and professional activity.

To implement this, it is necessary at the first lesson of the relevant module to provide the applicant with a detailed plan of work in the clinic and provide conditions for its implementation. This plan should include:

- research that must be mastered by the applicant (or get acquainted);
- algorithms (protocols) of examinations, diagnosis, treatment, prevention in accordance with the standards of evidence-based medicine;
- patient care to be provided by the higher education seeker during the cycle;
- reports of the patient's medical history in the study group, at clinical rounds, practical conferences

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Curation of the patient involves:

1) clarification of the patient's complaints, medical history and life, conducting surveys of organs and systems;
2) physical examination of the patient and determining the main symptoms of the disease;
3) analysis of laboratory and instrumental examination data;
4) formulation of the diagnosis;
5) appointment of treatment;
6) determination of primary and secondary prevention measures;
7) report on the results of examination of the patient by a team of higher education students in the study group, analysis under the guidance of the teacher of the correctness of diagnosis, differential diagnosis, scheduled examination, treatment tactics, assessment of prognosis and performance, prevention.

It is recommended to do practical classes with the inclusion of:

1) control of the initial level of knowledge by means of the tests made in a format of a question with 5 variants of the answer, from which 1 - correct;

2) management of 1-2 patients with diseases and conditions corresponding to the subject of the lesson, followed by discussion of the correctness of diagnosis, differential diagnosis and treatment with the use of evidence-based medicine and in accordance with National and European guidelines and protocols;

3) consideration of the results of additional research methods (laboratory and instrumental) used in the diagnosis and differential diagnosis, consideration of which is provided by the topic of practical training;

4) control of the final level of knowledge on the test tasks made in the format of Krok-2.

In practical classes, students of higher education are recommended to keep diaries, which should include brief information about the patients examined during the practical lesson, diagnosis, examination plan and prescribed treatment.

Independent work and individual work of higher education seekers is 30-56% in the curriculum. It includes:

a. classroom and extracurricular training on the subject of the discipline;

b. work in departments of clinical bases of departments, including departments (offices) of functional diagnostics, interpretation of data of laboratory and instrumental methods of research at internal pathology in extracurricular time;

c. mastering practical skills with the help of phantoms and working with patients;

d. individual independent work (speech at the scientific-practical conference of the clinic, writing articles, report of the abstract in a practical lesson, participation in the work of the circle, competitions in the discipline, etc.);

e. work in a computer class;

Assimilation of the topic (current control) is controlled in a practical lesson in accordance with specific goals, assimilation of content modules (intermediate control) - in the last practical lesson in the content module. It is recommended to use the following tools to assess the level of training: computer tests, solving situational problems, interpretation and evaluation of laboratory tests, analysis and evaluation of instrumental studies and parameters that characterize the functions of the human body, control of practical skills.

The final control of mastering the content modules is carried out upon their completion by compiling the SPA. The assessment of the success of the applicant for higher education in the discipline is a rating and is set on a multi-point scale, taking into account the assessments of the mastery of individual modules.

**Control methods**

*Entrance control* is carried out at the first practical lesson in order to determine the readiness of higher education students to master the discipline by using test control of their basic training.

*Current control* is carried out during practical classes, which assess the knowledge of theoretical and practical material in the form of:

- individual oral examination on theoretical issues;
- test tasks;
- solving situational problems;
- drawing up a plan of examination of the patient and the ability to interpret the data obtained;
- ability to apply practical skills;

- registration of the plan of treatment of patients.

*Final control* is to assess the assimilation of higher education students of educational material in the discipline (or part thereof) on the basis of current control.

**Methodical support**

1. Working curriculum for the discipline.
2. Plans for lectures, practical classes and independent work of higher education students.
3. Syllabus on discipline.
4. Methodical development of lectures on the discipline.
5. Methodical recommendations for the teacher.
6. Methodical instructions for independent work of applicants for higher education in preparation for practical training.
7. Methodical instructions for independent extracurricular work of higher education seekers.
8. Test and control tasks for practical classes.
9. Questions and tasks to control the assimilation of the section.
10. List of questions for the exam.
11. List of recommended reading.
12. Multimedia presentations on the topic.
13. Questions and tasks to control the assimilation of content modules.
14. List of questions for the SPA, tasks to test practical skills.
15. Selections in accordance with the topics of practical training: electrocardiograms, radiographs, general clinical tests of blood, urine and other data of laboratory and instrumental research methods.

## Recommended Books

### I. Basic

1. Internal medicine: Part 1: textbook for English-speaking students of higher medical schools/ edited by Professor M.A. Stanislavchuk. and Professor V.K. Siercjva.- Vinnytsy: Nova Knyha, 2019.-408 p.

2. Internal medicine: Part 2: textbook for English-speaking students of higher medical schools/ edited by Professor M.A. Stanislavchuk. and Professor V.K. Siercjva.- Vinnytsy: Nova Knyha, 2019.-360 p.

## II. Additional:

**1**. Harrison's Principles of Internal Medicine, 20 ed. By J. Larry Jameson, Anthony S. Fauci, Dennis L. Kasper, Stephen L. Hauser, Dan L. Longo, Joseph Loscalzo, Eds. The McGraw-Hill Education, Inc. -2018.- Vol. 1 and 2.

**2**. Current Medical Diagnosis and Treatment, 60 th Anniversary Edition by Maxine A. Papadakis, Stephen J. McPhee, Michael W. Rabow. Eds. McGraw-Hill Education, Inc, 2021

**3**. Davidson's Principles and Practice of Medicine. 23rd Edition. By Stuart Ralston Ian Penman Mark Strachan Richard Hobson, 2nd February 2018 , Imprint: Elsevier, 1440 pp

**4**. Current Diagnosis & Treatment: Cardiology, Fifth Edition. By Michael H. Crawford. Eds. McGraw-Hill Education, Inc. -2017

**5**. CURRENT Diagnosis & Treatment: Emergency Medicine, 8e. By C. Keith Stone, Roger L. Humphries. Eds. McGraw-Hill Education, Inc. 2017

**6.** Current Diagnosis & Treatment: Rheumatology, 4e. By John H. Stone. Eds. McGraw-Hill Education, Inc. 2021

**7.** CURRENT Diagnosis & Treatment: Gastroenterology, Hepatology, & Endoscopy, 3e Norton J. Greenberger, Richard S. Blumberg, Robert Burakoff. McGraw-Hill Education, Inc. 2016

**8**. Critical Care. By John M. Oropello, Stephen M. Pastores, Vladimir Kvetan. Eds. The McGraw-Hill Education, Inc. -2018

**9**. Cardiology: An Integrated Approach. Adel Elmoselhi. Eds. The McGraw-Hill Education, Inc. -2018

**10**. CURRENT Diagnosis & Treatment: Nephrology & Hypertension, 2e Edgar V. Lerma, Mitchell H. Rosner, Mark A. Perazella. The McGraw-Hill Education, Inc. -2018

**11**. Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 13e
Laurence L. Brunton, Randa Hilal-Dandan, Björn C. Knollmann. The McGraw-Hill Education, Inc. -2018

**12.** Harrison's Manual of Medicine, 20e J. Larry Jameson, Anthony S. Fauci, Dennis L. Kasper, Stephen L. Hauser, Dan L. Longo, Joseph Loscalzo. The McGraw-Hill Education, Inc. -2020

**13**. Lichtman's Atlas of Hematology 2016 Lichtman MA, Shafer MS, Felgar RE, Wang N. The McGraw-Hill Education, Inc. -2017

**14**. Pathophysiology of Blood Disorders, 2e Jon C. Aster, H. Franklin Bunn. The McGraw-Hill Education, Inc. -2017

**15**. Pathophysiology of Disease: An Introduction to Clinical Medicine, 8e
Gary D. Hammer, Stephen J. McPhee. The McGraw-Hill Education, Inc. -2019

**16**. Principles and Practice of Hospital Medicine, 2e Sylvia C. McKean, John J. Ross, Daniel D. Dressler, Danielle B. Scheurer. The McGraw-Hill Education, Inc. -2017

**17**. Quick Medical Diagnosis & Treatment 2021 Maxine A. Papadakis, Stephen J. McPhee, Jennifer Bernstein. The McGraw-Hill Education, Inc. -2021

**18**. Symptom to Diagnosis: An Evidence-Based Guide, 4e Scott D.C. Stern, Adam S. Cifu, Diane Altkorn. The McGraw-Hill Education, Inc. -2020
**19**. Williams Hematology, 10e Kenneth Kaushansky, Josef T. Prchal, Linda J. Burns, Marshall A. Lichtman, Marcel Levi, David C. Linch. The McGraw-Hill Education, Inc. -2021

**Electronic resources**

https://www.eular.org/eular_imaging_library_portal.cfm#
http://www.rheumatologyclinic.ca/imagebank/#close
https://images.rheumatology.org/bp/#/
http://www.oxfordmedicaleducation.com/ecgs/ecg-examples/
https://litfl.com/top-100/ecg/
http://learn.escardio.org/lp/eacvi_echo_elearningcourse/knowledge/078833a3-cafb-4506-b264-11e4e3d968f7/0/curriculumSubTopics
https://www.123sonography.com/ultrasound-courses
https://www.asecho.org/rising-star-hub/echo-images/
http://inephrology.kiev.ua/
http://phc.org.ua/
http://mtd.dec.gov.ua/images/dodatki/2014_455_GKS/2014_455%20YKPMD_GKS.pdf www.WebCardio.org

**Developers:**

**Katerenchuk I.P. - Head of the Department, Doctor of Science in Medical Sciences, Professor**

**Yarmola T.I. - docent, Ph.D. of Medical Sciences**

**Kostrikova Iu.A. - docent, Ph.D of Medical Sciences**