

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY

Department of INTERNAL MEDICINE No.2

APPROVED
Vice-rector for scientific and pedagogical work
Eduard BURLACHKIVSKYI
September, 01, 2024



WORK PROGRAM
“INTERNAL MEDICINE”

Speciality 222 «Medicine»

Branch of knowledge 22«Health Care»

Educational qualification «Master of Medicine»

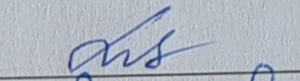
Professional qualification «Doctor»

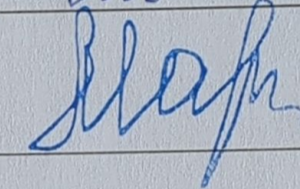
The work program is based on the educational and professional program "Medicine" for the training of specialists of the second (master's) level of higher education in the specialty 222 "Medicine" of the field of knowledge 22 "Health Care", approved by the Academic Council of ONMedU (Minutes No. 10 of June 27, 2024).

Developed by:

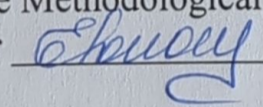
- Karpenko Y.I. - Head of the department of Internal Medicine No.1, Doctor of Medicine, Professor;
- Shtanko V.A. - Head of the Department of Internal Medicine No.2; PhD in Medicine, Associate Professor;
- Savelieva Olga - Head teacher of the department of Internal Medicine No.1, PhD in Medicine, Associate Professor of the Department of Internal Medicine No. 2;
- Khyzhnyak O.V. - Head teacher of the department of Internal Medicine No.2, PhD in Medicine, Associate Professor of the Department of Internal Medicine No. 2.

Work program approved at the meeting of the Department of Internal Medicine No. 2
Minutes №1 dated August 27, 2024.

A.i. Head of the Department  Olena KHYZHNYAK

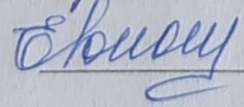
Agreed with the guarantor of the EPP  Valeria MARICHEREDA

Approved by the Subject-Cycle Methodological Commission for Therapeutic Disciplines of ONMedU
Minutes № 1 dated August 30, 2024.

Chairman of the Subject-Cycle Methodological Commission for Therapeutic Disciplines,
Doctor of Medicine, Professor  Olena VOLOSHYNA

Revised and approved at the meeting of the Department of Internal Medicine #2
with postgraduate training

Minutes № 1 dated "02" September 2024 p.

Head of the Department  OLENA VOLOSHYNA

Revised and approved at the meeting of the _____

Minutes № ____ dated " ____ " _____ 20__ p.

Head of the Department _____

1. Description of the discipline:

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristics of the discipline
Total number:	Field of knowledge 22 «Health care»	<i>Full-time (day) education</i> <i>Compulsory discipline</i>
Credits of ECTS: 4	Specialty 222 «Medicine»	<i>Course: 4</i>
Hours: 120	Level of higher education second (master's degree)	<i>Semester: VII - VIII</i>
Content modules: 3		<i>Lectures (8 hours)</i>
		<i>Seminars (0 hours)</i>
		<i>Practical classes (72 hours)</i>
		<i>Laboratories (0 hours)</i>
		<i>Independent work (40 hours)</i>
		<i>including individual tasks (0 hours)</i>
		<i>Form of final control – Differential Test</i>

2. The purpose and tasks of the educational discipline, competences, program learning outcomes.

Purpose: Acquisition by the applicant of higher education of knowledge and formation of elements of professional competences in the field of therapy and improvement of skills and competences acquired during the study of previous disciplines.

Task:

1. Formation of skills and abilities in the clinical examination of patients with the main diseases of the cardiovascular system, blood and hematopoietic organs and to analyze their results;
2. Formation of abilities and skills for substantiating clinical diagnosis, making up a plan for laboratory and instrumental research of patients with the most common diseases of the cardiovascular system, blood and hematopoietic organs and their complications;
3. Mastering the ability to determine the tactics of treatment and prevention of the most common diseases of the cardiovascular system, blood and hematopoietic organs and their complications.

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

General competencies(GC):

GC 1. Ability to abstract thinking, analysis and synthesis.

GC 3. Ability to apply knowledge in practical situations.

GC 4. Knowledge and understanding of the subject area and understanding of professional activity.

GC 5. Ability to adapt and act in a new situation.

GC 6. Ability to make informed decisions.

GC 7. Ability to work in a team.

GC 8. Ability to interpersonal interaction.

GC 10. Ability to use information and communication technologies

GC 11. Ability to search, process and analyze information from various sources.

Special (SC):

SC 1. Ability to collect medical information about the patient and analyze clinical data

SC 2. Ability to determine the necessary list of laboratory and instrumental studies and evaluate their results

SC 3. Ability to establish a preliminary and clinical diagnosis of the disease

- SC 4. The ability to determine the necessary regime of work and rest in the treatment and prevention of diseases
- SC 5. The ability to determine the nature of nutrition in the treatment and prevention of diseases
- SC 6. Ability to determine the principles and nature of treatment and prevention of diseases
- SC 7. Ability to diagnose emergency conditions
- SC 8. Ability to determine tactics and provide emergency medical care
- SC 9. Ability to carry out medical evacuation measures
- SC 10. Ability to perform medical manipulations
- SC 11. Ability to solve medical problems in new or unfamiliar environments with incomplete or limited information, taking into account aspects of social and ethical responsibility, including early intervention
- SC 13. Ability to carry out sanitary and hygienic and preventive measures
- SC 14. Ability to plan and carry out preventive and anti-epidemic measures for infectious diseases
- SC 15. The ability to conduct an examination of working capacity
- SC 16. Ability to maintain medical documentation, including electronic forms
- SC 18. The ability to analyze the activity of a doctor, unit, health care institution, ensure the quality of medical care and increase the efficiency of the use of medical resources
- SC 21. The ability to clearly and unambiguously convey one's own knowledge, conclusions and arguments on health care problems and related issues to specialists and non-specialists, in particular to people who are studying
- SC 24. Adherence to ethical principles when working with patients and laboratory animals
- SC 25. Adherence to professional and academic integrity, to be responsible for the reliability of the obtained scientific results
- SC 26. The ability to determine the management tactics of persons subject to dispensary supervision

Program learning outcomes (PLO):

- PLO 1** - Have thorough knowledge of the structure of professional activity. To be able to carry out professional activities that require updating and integration of knowledge. To be responsible for professional development, the ability for further professional training with a high level of autonomy.
- PLO 2** - Understanding and knowledge of fundamental and clinical biomedical sciences, at a level sufficient for solving professional tasks in the field of health care.
- PLO 3** - Specialized conceptual knowledge that includes scientific achievements in the field of health care and is the basis for research, critical thinking in the field of medicine and related interdisciplinary problems, including the system of early intervention.
- PLO 4** - Identify and identify leading clinical symptoms and syndromes (according to list 1); according to standard methods, using preliminary data of the patient's history, data of the patient's examination, knowledge about the person, his organs and systems, establish a preliminary clinical diagnosis of the disease (according to list 2).
- PLO 5** - Collect complaints, life anamnesis and diseases, assess the psychomotor and physical development of the patient, the state of organs and systems of the body, based on the results of laboratory and instrumental studies, evaluate information about the diagnosis (according to list 4), taking into account the age of the patient.
- PLO 6** - To establish a final clinical diagnosis by making a reasoned decision and analyzing the received subjective and objective data of clinical, additional examination, carrying out differential diagnosis, observing the relevant ethical and legal norms, under the control of the managing physician in the conditions of a health care institution (according to list 2).
- PLO 7** - Prescribe and analyze additional (mandatory and optional) examination methods (laboratory, functional and/or instrumental) (according to list 4) of patients with diseases of organs and body systems for differential diagnosis of diseases (according to list 2).
- PLO 8** - Determine the main clinical syndrome or symptom that determines the severity of the victim's/victim's condition (according to list 3) by making a reasoned decision about the

person's condition under any circumstances (in the conditions of a health care facility, outside its boundaries), including in conditions of emergency and hostilities, in field conditions, in conditions of lack of information and limited time.

PLO 9 - Determine the nature and principles of treatment (conservative, operative) of patients with diseases (according to list 2), taking into account the age of the patient, in the conditions of a health care institution, outside its borders and at the stages of medical evacuation, including in field conditions, on the basis of a preliminary clinical diagnosis, observing the relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes, in case of the need to expand the standard scheme, be able to justify personalized recommendations under the control of the head physician in the conditions of a medical institution.

PLO 10 - Determine the necessary regime of work, rest and nutrition on the basis of the final clinical diagnosis, observing the relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes

PLO 14 - Determine tactics and provide emergency medical care in emergency situations (according to list 3) in limited time conditions according to existing clinical protocols and standards of treatment.

PLO 17 - Perform medical manipulations (according to list 5) in the conditions of a medical institution, at home or at work based on a previous clinical diagnosis and/or indicators of the patient's condition by making a reasoned decision, observing the relevant ethical and legal norms.

PLO 18. To determine the state of functioning and limitations of a person's vital activities and the duration of incapacity for work with the preparation of relevant documents, in the conditions of a health care institution, based on data about the disease and its course, peculiarities of a person's professional activity, etc. Maintain medical documentation regarding the patient and the contingent of the population on the basis of regulatory documents.

PLO 21 - Search for the necessary information in the professional literature and databases of other sources, analyze, evaluate and apply this information.

PLO 23. Assess the impact of the environment on human health in order to assess the morbidity of the population.

As a result of studying the academic discipline, the applicant of higher education must:

Know: General questions of internal medicine, etiology, pathogenesis, clinic, diagnosis, treatment, prevention of common diseases of the cardiovascular system and diseases of the blood and hematopoietic organs in the clinic of internal diseases.

Be able:

- Collect data on patient complaints, medical history, life history of patients with diseases of the cardiovascular system, blood and hematopoietic organs and their complications;
- Evaluate information about the diagnosis using a standard procedure, based on the results of laboratory and instrumental studies. Determine the list of necessary clinical laboratory and instrumental studies and evaluate their results (according to list 4).
- Highlight the leading clinical symptom or syndrome (according to list 1). Establish a preliminary diagnosis, carry out differential diagnosis and determine the clinical diagnosis of the disease (according to list 3).
- Determine the principles of treatment of diseases, the necessary regime of work and rest, the nature of nutrition (according to list 2).
- Diagnose emergency conditions (according to list 3).
- Determine tactics and provide emergency medical assistance (according to list 3).

Master the skills:

- Communication and clinical examination of the patient
- Perform medical manipulations (according to list 5) for diseases of the cardiovascular system, blood and hematopoietic organs.
- Keep medical documentation.

3. CONTENT OF THE EDUCATIONAL DISCIPLINE

Content module 1.

Basics of diagnosis, treatment and prevention of the main diseases of the cardiovascular system.

Topic 1. Essential arterial hypertension

Definition. The role of disturbances in the central and renal mechanisms of pressure regulation, endothelial function and other factors. Classification. Clinical manifestations and data of additional research methods. Damage to target organs. Differential diagnosis. Risk stratification. Complication. Isolated systolic arterial hypertension. Treatment. Hypertensive crises, peculiarities of treatment tactics.

Topic 2. Secondary (symptomatic) arterial hypertension. Neurocirculatory dystonia. Atherosclerosis

Definition. The main reasons. Clinical features, diagnosis of renal (renovascular, renoparenchymal), endocrine (Itsenko-Cushing syndrome and disease, pheochromocytoma, Conn's syndrome, Graves' disease) and hemodynamic arterial hypertension. Arterial hypertension during pregnancy, metabolic disorders (metabolic syndrome). Value of laboratory and instrumental methods for differential diagnosis and diagnosis verification. Therapeutic and surgical treatment.

Neurocirculatory dystonia. Definition. Etiology and pathogenesis. Classification. Features of clinical syndromes. Diagnosis criteria. Differential diagnosis. Differentiated therapy.

Atherosclerosis. Definition. The role of hyperlipidemia, general and local inflammation, damage to the vascular wall and platelets in the development of atherosclerosis. Risk factors. Peculiarities of clinical manifestations depending on the predominant localization (aorta, coronary, mesenteric and renal arteries, arteries of the lower extremities). The importance of laboratory, x-ray and other instrumental research methods. Differential diagnosis. Complication. General principles of treatment. Treatment tactics for different variants of the course.

Topic 3. Chronic forms of coronary artery disease (CAD).

Definition of CAD. Etiology. Classification. Features of the clinical course and diagnosis of various variants of stable angina pectoris. Painless form of CAD, post-infarction and diffuse cardiosclerosis. Features of clinical manifestations. Diagnosis criteria. Differentiated therapy of various forms of CAD. Complication. Prognosis-modifying therapy.

Topic 4. Acute coronary syndrome (unstable angina and acute myocardial infarction).

Definition. Classification of acute coronary syndrome and myocardial infarction. Definition of unstable angina pectoris. Classification. Features of the clinical course and diagnosis of unstable angina pectoris and acute myocardial infarction. Diagnosis criteria. Complications of acute myocardial infarction (acute left ventricular failure, heart rhythm and conduction disturbances, myocardial rupture, acute heart aneurysm, Dressler's post-infarction syndrome, etc.). Diagnostics. Treatment tactics for unstable angina and in different periods of acute myocardial infarction. Prognosis-modifying therapy. Indications for surgical treatment. Rehabilitation.

Topic 5. Acute pulmonary embolism - pulmonary embolism (PE). Chronic pulmonary heart. Congenital heart defects in adults (CHD).

Definition of acute pulmonary heart disease. Risk factors. Classification. Pathogenesis of hemodynamic disorders. Clinical course. Diagnostic criteria, differential diagnosis. The diagnostic value of changes in the data of laboratory and instrumental research methods. Treatment tactics. Indications for surgical treatment.

Definition of the concept of chronic pulmonary heart disease. Etiology, pathogenesis. Classification. Clinical manifestations, changes in the data of additional research methods depending on the etiological factor. Differential diagnosis. Principles of differentiated treatment.

Definition of congenital heart disease (CHD). CHD with increased and normal pulmonary blood flow. CHD with reduced pulmonary blood flow. Interatrial and interventricular membrane defect, open ductus arteriosus, coarctation of the aorta. Mechanisms of hemodynamic disorders, significance of pulmonary hypertension. Ebstein's anomaly with shunting of blood from the right

atrium to the left. Stenosis or atresia of the pulmonary trunk with a defect of the interventricular septum (tetrad of Fallot). Stenosis of the pulmonary trunk with shunting of blood from the right atrium to the left. Value of non-invasive and invasive methods for diagnosis and differential diagnosis. Complication. Eisenmenger's syndrome. Indications for surgical treatment. Prevention of complications. Prognosis and working capacity.

Topic 6. Infective endocarditis. Acquired heart defects (mitral and aortic).

Definition. Etiology, pathogenesis. Clinical picture. Features of the course depending on the causative agent. Diagnostic criteria. The value of laboratory methods and echocardiographic research in diagnostics. Differential diagnosis. Complications (heart failure, embolism, abscesses, etc.). Treatment. Modes of antibacterial therapy. Indications for surgical treatment. Primary and secondary prevention. Prognosis and working capacity.

Definition of acquired heart defects. Insufficiency and stenosis of mitral, aortic, tricuspid valves. Etiology, mechanisms of hemodynamic disorders. Classification. Combined mitral and aortic defects. Clinical manifestations. Value of non-invasive and invasive research methods. Differential diagnosis. Complication. Treatment. Indications for surgical treatment. Primary and secondary prevention. Prognosis and working capacity.

Topic 7. Myocarditis. Cardiomyopathies.

Definition of the concept of myocarditis. Classification. Etiology and pathogenesis of the main types of myocarditis. Clinical manifestations. The importance of laboratory and instrumental research methods in diagnostics. Diagnostic criteria and differential diagnosis. Complication. Features of treatment of myocarditis. Prevention. Prognosis and working capacity.

Definition of dilated, hypertrophic, restrictive and arrhythmogenic cardiomyopathy. Classification. Etiology and pathogenesis. Clinical manifestations. The importance of laboratory and instrumental research methods in diagnostics. Diagnostic criteria and differential diagnosis. Complication. Features of treatment.

Topic 8. Pericarditis.

Definition of pericarditis. Etiology and pathogenesis. Classification. Features of the clinic, course and diagnosis of various variants of pericarditis. Diagnosis verification methods. Differential diagnosis with myocardial lesions. Cardiac tamponade. Indications for pericardial puncture, its diagnostic and therapeutic value. Differentiated therapy of various forms taking into account etiological factors.

Topic 9. Heart rhythm disorders. Heart conduction disorders.

Definition of the concept of heart rhythm disturbance. Etiology. Classification. Electrophysiological mechanisms of arrhythmias (extrasystole, atrial fibrillation and flutter, supraventricular and ventricular tachycardia, ventricular fibrillation). Clinic, ECG diagnosis and differential diagnosis. Complication. Pharmacological and non-pharmacological methods of treatment. The role of electroimpulse therapy. Emergency therapy for paroxysmal rhythm disturbances and sudden cardiac death.

Definition of the concept of conduction disturbance. Etiology. Classification. Clinic and ECG diagnosis of atrioventricular blocks and blocks of the bundle of His branches.

Tactics for acute and chronic conduction disorders. Emergency care for a Morganhi-Adams-Stokes attack. Indications and principles of electrocardiostimulation (temporary, permanent). Primary and secondary prevention. Prognosis and working capacity.

Topic 10. Acute heart failure (AHF). Chronic heart failure (CHF).

Definition of the concept of AHF. The main reasons. Pathogenesis of central and peripheral hemodynamic disorders in various forms (left and right heart failure). Classification. Clinical manifestations. Diagnostics. Emergency care for cardiogenic pulmonary edema and cardiogenic shock

Definition of CHF. The main reasons. Pathogenesis of central and peripheral hemodynamic disorders in various forms (left and right heart failure). The role of neurohumoral activation and cardiac remodeling. Classification. Clinical manifestations and their features depending on the variant (systolic, diastolic), stage and functional class. Diagnostics. The importance of laboratory and instrumental research methods. Prognosis-modifying therapy. Primary and secondary prevention. Prognosis and working capacity.

Content module 2

General issues of internal medicine

Topic 11. Principles of evidence-based medicine. Modern clinical research. Features of diagnosis and treatment of diseases of internal organs in elderly people. Emergency conditions in the context of an incurable disease. Obesity and its consequences

Definition of the concept. The role of evidence-based medicine in modern clinical practice. Components of evidence-based medicine. Medical and ethical aspects of evidence-based medicine. Basic concepts of clinical research. Clinical trials in Ukraine (problems and prospects). Basic clinical trial documents. Clinical stages of drug development. Implementation of clinical research results in guidelines for doctors of the world.

Peculiarities of metabolism in old age. The frequency of comorbid pathology in the elderly. Peculiarities of the action of drugs on the body of an elderly person. Features of diagnosis and treatment of diseases of internal organs in old age.

Emergency conditions in the context of an incurable disease.

The relevance of the problem of obesity. Methods of calculating excess weight (body mass index) and determining obesity. Classification of obesity. The main medical consequences of obesity are metabolic syndrome, diabetes, cardiovascular and gastrointestinal diseases. Modern approaches to drug and non-drug treatment.

Content module 3

Basics of diagnosis, treatment and prevention of the main diseases of the blood and hematopoietic organs

Topic 12. Anemia. Acute and chronic leukemias.

Definition of anemia. Classification of anemias (iron-deficient, B12-deficient, folate-deficient, hemolytic, hypoplastic, posthemorrhagic). Etiological factors and pathogenesis. Mechanisms of intravascular and intracellular hemolysis. Features of clinic and laboratory diagnostics of various forms. Differential diagnosis. Complication. Treatment of various forms. Transfusion of blood components and blood substitutes.

Definition of the acute leukemia. Modern views on etiology and pathogenesis. Classification. Main clinical and hematological syndromes. Clinical manifestations. Diagnosis criteria. Differential diagnosis. Complication. Principles of treatment. Supportive therapy.

Definition of chronic myeloid leukemia, chronic lymphoid leukemia, true polycythemia. Modern views on etiology and pathogenesis. Classification. Main clinical manifestations and clinical and hematological syndromes. Diagnosis criteria. Differential diagnosis. Complication. Principles of treatment. Bone marrow transplantation.

Topic 13. Hemophilia. Thrombocytopenic purpura.

Definition of hemophilia. Etiology and pathogenesis, main clinical syndromes. Diagnosis criteria. Differential diagnosis. Treatment. Therapy of various types of hemophilia. Prevention of bleeding.

The main etiological factors and pathogenetic mechanisms of the development of thrombocytopenic purpura. Main clinical syndromes. Diagnostic value of clinical blood analysis and study of hemostasis system. Complication. Peculiarities of management of patients with idiopathic thrombocytopenic purpura and treatment.

Topic 14. Hodgkin's lymphoma. Non-Hodgkin's lymphomas. Myeloma disease.

Definition and classification. Hodgkin's lymphomas. Clinical manifestations and their features in different variants of the course. Diagnosis criteria. Differential diagnosis. Complication. Principles of treatment. Prevention. Prognosis and working capacity.

Definition and classification of Non-Hodgkin's lymphomas. Clinical manifestations and their features in different variants of the course. Lymphomas as manifestations of HIV infection. Diagnosis criteria. Differential diagnosis. Complication. Principles of treatment. Prevention. Forecast and performance.

Definition and classification of multiple myeloma. Clinical manifestations. Diagnosis criteria. Differential diagnosis. Complication. Principles of treatment. Prognosis and working capacity.

4. The structure of the educational discipline

Name of the Theme	Number of hours					
	total	Including				
		lectures	seminars	practical classes	laboratories	Independent work
Content module 1.						
Basics of diagnosis, treatment and prevention of the main diseases of the cardiovascular system.						
Topic 1: Essential arterial hypertension	8	2	0	4	0	2
Topic 2: Secondary (symptomatic) hypertension. Neurocirculatory dystonia. Atherosclerosis.	8	0	0	6	0	2
Topic 3: Chronic forms of coronary artery disease	8	2	0	4	0	2
Topic 4: Acute coronary syndrome (unstable angina, acute myocardial infarction).	8	2	0	4	0	2
Topic 5: Acute pulmonary heart - pulmonary embolism (PE). Chronic pulmonary heart. Congenital heart defects in adults.	10	0	0	6	0	4
Topic 6: Infective endocarditis. Acquired heart defects (mitral and aortic).	10	0	0	6	0	4
Topic 7: Myocarditis. Cardiomyopathies.	8	0	0	6	0	2
Topic 8: Pericarditis.	8	0	0	4	0	4
Topic 9: Heart rhythm disorders. Heart conduction disorders.	12	2	0	8	0	2
Topic 10: Acute heart failure. Chronic heart failure.	10	0	0	6	0	4
<i>Total by content module 1</i>	90	8	0	54	0	28
Content module 2						
General issues of internal medicine						
Topic 11. Principles of evidence-based medicine. Modern clinical research. Features of diagnosis	8	0	0	6	0	2

and treatment of diseases of internal organs in elderly people. Emergency conditions in the context of an incurable disease. Obesity and its consequences						
<i>Total by content module 2</i>	8	0	0	6	0	2
Content module 3						
Basics of diagnosis, treatment and prevention of the main diseases of the blood and hematopoietic organs						
Topic 12. Anemia. Acute and chronic leukemias.	8	0	0	4	0	4
Topic 13. Hemophilia. Thrombocytopenic purpura.	6	0	0	4	0	2
Topic 14. Lymphomas. Myeloma disease.	8	0	0	4	0	4
<i>Total by content module 3</i>	22	0	0	12	0	10
Individual task	0	0	0	0	0	0
Total hours	120	8	0	72	0	40

5. Themes of lectures / seminars / practical classes / laboratories

5.1. Themes of lectures

№	Name	hours
1.	Arterial hypertension	2
2.	Chronic forms of coronary artery disease	2
3.	Acute coronary syndrome (unstable angina, acute myocardial infarction)	2
4.	Disturbances of rhythm and conduction	2
Total hours		8

5.2. Themes of seminars

Seminars are not provided.

5.3. Themes of practical classes

№	Theme	Hours
1.	Topic 1. Practical lesson 1. Essential arterial hypertension. Definition. The role of disturbances in the central and renal mechanisms of pressure regulation, endothelial function and other factors. Classification. Clinical manifestations and data of additional research methods. Damage to target organs. Differential diagnosis. Risk stratification. Complication. Isolated systolic arterial hypertension. Treatment.	2
2.	Topic 1. Practical class 2. Hypertensive crises. Complicated and uncomplicated hypertensive crises. Peculiarities of treatment tactics.	2

3.	<p>Topic 2. Practical class 3. Secondary (symptomatic) hypertension. Neurocirculatory dystonia.</p> <p>Definition. The main reasons. Clinical features, diagnosis of renal (renovascular, renoparenchymal), endocrine (Itsenko-Cushing syndrome and disease, pheochromocytoma, Conn's syndrome, Graves' disease) and hemodynamic arterial hypertension. Arterial hypertension during pregnancy, metabolic disorders (metabolic syndrome). Value of laboratory and instrumental methods for differential diagnosis and diagnosis verification. Therapeutic and surgical treatment.</p> <p>Neurocirculatory dystonia Definition. Etiology and pathogenesis. Classification. Features of clinical syndromes. Diagnosis criteria. Differential diagnosis. Differentiated therapy.</p>	2
4.	<p>Topic 2. Practical class 4. Atherosclerosis: etiology, pathogenesis, clinic.</p> <p>Definition. The role of hyperlipidemia, general and local inflammation, damage to the vascular wall and platelets in the development of atherosclerosis. Risk factors. Peculiarities of clinical manifestations depending on the predominant localization (aorta, coronary, mesenteric and renal arteries, arteries of the lower extremities).</p>	2
5.	<p>Topic 2. Practical class 5. Atherosclerosis: diagnosis, complications, treatment.</p> <p>The importance of laboratory, radiation and other instrumental research methods. Differential diagnosis. Complication. General principles of treatment. Treatment tactics for different variants of the course.</p>	2
6.	<p>Topic 3. Practical class 6. Chronic forms of coronary artery disease (CAD).</p> <p>Definition of CAD. Etiology. Classification. Features of the clinical course and diagnosis of various variants of stable angina pectoris. Painless form of coronary heart disease, post-infarction and diffuse cardiosclerosis. Features of clinical manifestations.</p>	2
7.	<p>Topic 3. Practical class 6. Chronic forms of coronary artery disease (CAD).</p> <p>Diagnosis criteria. Differentiated therapy of various forms of CAD. Complication. Prognosis - modifying therapy.</p>	2
8.	<p>Topic 4. Practical class 8. Acute coronary syndrome. Unstable angina, myocardial infarction.</p> <p>Definition. Classification of acute coronary syndrome and myocardial infarction. Definition of unstable angina pectoris. Classification. Features of the clinical course and diagnosis of unstable angina and acute myocardial infarction.</p>	2
9.	<p>Topic 4. Practical class 8. Acute coronary syndrome. Unstable angina, myocardial infarction.</p> <p>Diagnosis criteria. Complications of acute myocardial infarction (acute left ventricular failure, heart rhythm and conduction disturbances, myocardial rupture, acute heart aneurysm, Dressler's post-infarction syndrome, etc.). Diagnostics. Treatment tactics for unstable angina and in different periods of acute myocardial infarction. Prognosis-modifying therapy. Indications for surgical treatment. Rehabilitation.</p>	2
10.	<p>Topic 5. Practical class 10. Acute pulmonary heart: pulmonary embolism</p> <p>Definition of acute pulmonary heart. Risk factors. Classification. Pathogenesis of hemodynamic disorders. Clinical course. Diagnostic criteria, differential diagnosis. The diagnostic value of changes in the data of laboratory and instrumental research methods. Treatment tactics. Indications for surgical treatment.</p>	2
11.	<p>Topic 5. Practical class 11. Chronic pulmonary heart.</p> <p>Definition of chronic pulmonary heart. Etiology, pathogenesis. Classification. Clinical manifestations, changes in the data of additional research methods</p>	2

	depending on the etiological factor. Differential diagnosis. Principles of differentiated treatment.	
12.	<p>Topic 5. Practical class 12. Congenital heart defects in adults.</p> <p>Definition of congenital heart disease (CHD). CHD with increased and normal pulmonary blood flow. Interatrial and interventricular membrane defect, open ductus arteriosus, coarctation of the aorta. Mechanisms of hemodynamic disorders, significance of pulmonary hypertension.</p> <p>Value of non-invasive and invasive methods for diagnosis and differential diagnosis. Complication. Eisenmenger syndrome.</p> <p>Congenital heart defects in adults with reduced pulmonary blood flow.</p> <p>Ebstein's anomaly with shunting of blood from the right atrium to the left.</p> <p>Stenosis or atresia of the pulmonary trunk with a defect of the interventricular septum (tetrad of Fallot). Stenosis of the pulmonary trunk with shunting of blood from the right atrium to the left. Mechanisms of hemodynamic disorders, significance of pulmonary hypertension.</p> <p>Value of non-invasive and invasive methods for diagnosis and differential diagnosis. Complication. Indications for surgical treatment. Prevention of complications. Prognosis and working capacity.</p>	2
13.	<p>Topic 6. Practical class 13. Infective endocarditis.</p> <p>Definition. Etiology, pathogenesis. Clinical picture. Features of the course depending on the causative agent. Diagnostic criteria. The value of laboratory methods and echocardiographic research in diagnostics. Differential diagnosis. Complications (heart failure, embolism, abscesses, etc.). Treatment. Modes of antibacterial therapy. Indications for surgical treatment. Primary and secondary prevention. Prognosis and working capacity.</p>	2
14.	<p>Topic 6. Practical class 14. Acquired heart defects: Mitral heart defects.</p> <p>Definition. Mitral valve insufficiency and stenosis. Etiology, mechanisms of hemodynamic disorders. Classification. Clinical manifestations. Value of non-invasive and invasive research methods. Differential diagnosis. Complication. Treatment. Indications for surgical treatment. Primary and secondary prevention. Prognosis and working capacity.</p>	2
15.	<p>Topic 6. Practical class 15. Aortic heart defects.</p> <p>Definition. Insufficiency and stenosis of the aortic and tricuspid valves.</p> <p>Etiology, mechanisms of hemodynamic disorders. Classification. Combined mitral and aortic defects. Clinical manifestations. Value of non-invasive and invasive research methods. Differential diagnosis. Complication. Treatment. Indications for surgical treatment. Primary and secondary prevention. Prognosis and working capacity.</p>	2
16.	<p>Topic 7. Practical class 16. Myocarditis.</p> <p>Definition. Classification. Etiology and pathogenesis of the main types of myocarditis. Clinical manifestations. The importance of laboratory and instrumental research methods in diagnostics. Diagnostic criteria and differential diagnosis. Complication. Features of treatment of myocarditis. Prevention. Prognosis and working capacity.</p>	2
17.	<p>Topic 7. Practical class 17. Cardiomyopathies.</p> <p>Definition. Classification. Etiology and pathogenesis. Clinical manifestations.</p>	2
18.	<p>Topic 7. Practical class 18. Cardiomyopathies.</p> <p>The importance of laboratory and instrumental research methods in diagnostics. Diagnostic criteria and differential diagnosis. Complication. Features of treatment.</p>	2
19.	<p>Topic 8. Practical session 19. Pericarditis: acute forms. Cardiac tamponade.</p> <p>Definition of pericarditis. Etiology and pathogenesis of acute pericarditis. Features of the clinic, course and diagnosis. Diagnosis verification methods.</p>	2

	Cardiac tamponade. Indications for pericardial puncture, its diagnostic and therapeutic significance.	
20	Topic 8. Practical class 20. Pericarditis: chronic forms. Definition. Classification. Clinical manifestations. The importance of laboratory and instrumental research methods in diagnostics. Diagnostic criteria and differential diagnosis. Complication. Features of treatment.	2
21	Topic 9. Practical class 21. Heart rhythm disorders: classification, etiopathogenesis, clinical diagnosis. Definition of the concept of heart rhythm disturbance. Etiology. Classification. Electrophysiological mechanisms of arrhythmias (extrasystole, atrial fibrillation and flutter, supraventricular and ventricular tachycardia, ventricular fibrillation). Clinic, ECG diagnosis and differential diagnosis. Complication.	2
22	Topic 9. Practical class 22. Heart rhythm disorders: antiarrhythmic drugs, invasive methods of treatment. Treatment. The role of electroimpulse therapy. Emergency therapy for paroxysmal rhythm disturbances and sudden cardiac death.	2
23	Topic 9. Practical class 23. Conduction disorders of the heart: classification, etiopathogenesis, clinic. Definition of the concept of conduction disorders. Etiology. Classification. Clinic and ECG diagnosis of atrioventricular blocks and blocks of the branches of the bundle of His.	2
24	Topic 9. Practical class 24. Heart conduction disorders: diagnosis, treatment. Electrocardiostimulation. Tactics for acute and chronic conduction disorders. Emergency care for a Morganhi-Adams-Stokes attack. Indications and principles of electrocardiostimulation (temporary, permanent). Primary and secondary prevention. Prognosis and working capacity.	2
25.	Topic 10. Practical class 25. Acute heart failure (AHF). Definition of the concept of AHF. The main reasons. Pathogenesis of central and peripheral hemodynamic disorders in various forms (left and right heart failure). Classification. Clinical manifestations. Diagnostics. Emergency care for cardiogenic pulmonary edema and cardiogenic shock.	2
26.	Topic 10. Practical class 26. Chronic heart failure (CHF). Definition. The main reasons. Pathogenesis of central and peripheral hemodynamic disorders in various forms (left and right heart failure). The role of neurohumoral activation and cardiac remodeling. Classification. Clinical manifestations and their features depending on the variant (systolic, diastolic), stage and functional class. The importance of laboratory and instrumental research methods. Prognosis-modifying therapy. Primary and secondary prevention. Prognosis and working capacity.	2
27	Topic 10. Practical class 26. Chronic heart failure (CHF). Prognosis-modifying therapy. Primary and secondary prevention. Prognosis and working capacity.	2
28	Topic 11. Practical class 28. Principles of evidence-based medicine. Modern clinical research. The role of evidence-based medicine in modern clinical practice. Components of evidence-based medicine. Medical and ethical aspects of evidence-based medicine. Basic concepts of clinical research. Clinical trials in Ukraine (problems and prospects). Basic clinical trial documents. Clinical stages of drug development. Implementation of clinical research results in guidelines for doctors of the world.	2
29	Topic 11. Practical class 29. Features of diagnosis and treatment of elderly	2

	patients. Emergency conditions in the context of an incurable disease. Peculiarities of metabolism in old age. The frequency of comorbid pathology in the elderly. Peculiarities of the action of drugs on the body of an elderly person. Features of diagnosis and treatment of diseases of internal organs in old age.	
30	Topic 11. Practical class 30. Obesity. The main medical consequences of obesity: metabolic syndrome, diabetes, cardiovascular and gastrointestinal diseases. The relevance of the problem of obesity. Methods of calculating excess weight (body mass index) and determining obesity. Classification of obesity. Modern approaches to drug and non-drug treatment.	2
31.	Topic 12. Practical class 31. Anemias. Definition. Classification of anemias (iron-deficient, B12-deficient, folate-deficient, hemolytic, hypoplastic, posthemorrhagic). Etiological factors and pathogenesis. Mechanisms of intravascular and intracellular hemolysis. Features of clinic and laboratory diagnostics of various forms. Differential diagnosis. Complication. Treatment of various forms. Transfusion of blood components and blood substitutes.	2
32	Topic 12. Practical class 32. Acute and chronic leukemias. Definition. Modern views on etiology and pathogenesis. Classification. Main clinical and hematological syndromes. Clinical manifestations. Diagnosis criteria. Differential diagnosis. Complication. Principles of treatment. Bone marrow transplantation.	2
33	Topic 13. Practical class 33. Hemophilia. Definition of hemophilia. Etiology and pathogenesis, main clinical syndromes. Diagnosis criteria. Differential diagnosis. Therapy of various types of hemophilia. Prevention of bleeding.	2
34.	Topic 13. Practical class 34. Thrombocytopenic purpura. The main etiological factors and pathogenetic mechanisms of the development of thrombocytopenic purpura. Main clinical syndromes. Diagnostic value of clinical blood analysis and study of hemostasis system. Complication. Peculiarities of management of patients with idiopathic thrombocytopenic purpura and treatment.	2
35	Topic 14. Practical class 35. Lymphomas. Definition and classification. Clinical manifestations and their features in different variants. Lymphomas as manifestations of HIV infection. Diagnosis criteria. Differential diagnosis. Complication. Principles of treatment. Prevention. Prognosis and working capacity.	2
36	Topic 14. Practical class 36. Myeloma disease. Definition and classification of multiple myeloma. Clinical manifestations. Diagnosis criteria. Differential diagnosis. Complication. Principles of treatment. Prognosis and working capacity Differential test.	2
Total		72

5.4. Themes of laboratories

Laboratories are not provided.

6. Independent work of the applicant

№	Theme	Hours
1	Topic 1. Preparation for practical classes 1 – 2	2
2	Topic 2. Preparation for practical classes 3 – 4 - 5	2
3	Topic 3. Preparation for practical classes 6 - 7	2
4	Topic 4. Preparation for practical classes 8– 9	2

5	Topic 5. Preparation for practical classes 10 – 11 - 12	4
6	Topic 6. Preparation for practical classes 13 – 14 - 15	4
7	Topic 7. Preparation for practical classes 16 – 17 - 18	2
8	Topic 8. Preparation for practical classes 19 - 20	4
9	Topic 9. Preparation for practical classes 21 – 22 - 23 - 24	2
10	Topic 10. Preparation for practical classes 25 – 26 - 27	4
11	Topic 11. Preparation for practical classes 28 – 29 - 30	2
12	Topic 12. Preparation for practical classes 31 –32	4
13	Topic 13. Preparation for practical classes 33 - 34	2
14	Topic 14. Preparation for practical classes 35 - 36	4
TOTAL		40

7. Teaching methods

Lecture.

Practical classes: conversation, role-playing games, solving clinical situational tasks, practicing patient examination skills, demonstrating and practicing manipulation skills according to list 5.

Independent work: independent work with the recommended basic and additional literature, with electronic information resources, independent work with the bank of test tasks Step-2, independent mastering of the algorithms of the clinical examination of the patient, mastering of practical skills using a cardiorespiratory simulator of the patient (Harvey) under the supervision of the teacher.

8. Forms of control and evaluation methods (including criteria for evaluating learning outcomes)

Current control: oral survey, testing, evaluation of practical skills, evaluation of activity during practical lessons.

Final control: differentiated credit.

Current control assessment during practical lessons:

- Assessment of theoretical knowledge on the topic of the lesson:
 - methods: survey, solving a clinical case
 - maximal mark - 5, minimal mark - 3, unsatisfactory mark - 2.
- Assessment of practical skills and manipulations on the topic of the lesson:
 - methods: assessment of the correctness of practical skills
 - maximal mark - 5, minimal mark - 3, unsatisfactory mark - 2.
- Evaluation of work with a thematic patient:
 - methods: assessment of: a) communication skills with the patient and his relatives, b) completeness and correctness of the appointment and interpretation of laboratory and instrumental studies, c) compliance with the algorithm of differential diagnosis, d) justification of the clinical diagnosis, e) composing a treatment plan in accordance with modern standards;
 - maximal mark - 5, minimal mark - 3, unsatisfactory mark - 2.

The mark for one practical lesson is the arithmetic mean of all components and can only have an integer value (5, 4, 3, 2), which is rounded by the statistical method.

Criteria for the current assessment during the practical lesson

Grade	Assessment criteria
«5»	The applicant is fluent in the material, actively participates in the discussion and solution of the situational clinical case, confidently demonstrates practical skills during the examination of the patient and the interpretation of clinical, laboratory and

	instrumental studies, expresses his opinion on the topic of the lesson, demonstrates clinical thinking.
«4»	The applicant is good in the material, participates in the discussion and solution of the situational clinical case, demonstrates practical skills during the examination of the patient and the interpretation of clinical, laboratory and instrumental research data with some errors, expresses his opinion on the topic of the lesson, demonstrates clinical thinking.
«3»	The applicant has insufficient knowledge of the material, hesitantly participates in the discussion and solution of the situational clinical case, demonstrates practical skills during the examination of the patient and the interpretation of clinical, laboratory and instrumental research data with significant errors.
«2»	The applicant does not know the material, does not participate in the discussion and solution of the situational clinical case, does not demonstrate practical skills during the examination of the patient and the interpretation of clinical, laboratory and instrumental studies.

Only those applicants who have fulfilled the requirements of the curriculum in the discipline, have no academic debt and their average score for current academic activities in the discipline is at least 3.00 are allowed to take the final control in the form of a differentiated test.

Assessment of learning outcomes during differential credit

Content of assessed activity	Points
Answer to theoretical questions.	2
A practical task based on the OSCE type.	3

Criteria for the learning outcomes assessment during final control (differential credit)

Grade	Assessment criteria
Excellent	The applicant correctly, accurately and fully completed all the tasks of the final control, clearly and logically answered the questions. Thoroughly and comprehensively knows the content of theoretical material, fluent in professional and scientific terminology. Logically thinks and formulates an answer, freely uses the acquired theoretical knowledge in the analysis of practical tasks. When solving a clinical problem, correctly interpreted the anamnesis data, the results of clinical, laboratory and instrumental studies, correctly answered all the questions posed and convincingly justified his/her point of view, could offer and justify an alternative solution to certain issues. When solving a practical task of the OSCE type, correctly demonstrated the implementation of practical skills, accurately followed the algorithm for their implementation.
Good	The applicant has completed all the tasks of the final control, clearly and logically answered the questions. Sufficiently deeply and comprehensively knows the content of theoretical issues, knows professional and scientific terminology. Thinks logically and formulates an answer, uses the acquired theoretical knowledge in the analysis of practical tasks. But when teaching some questions, there is not enough depth and argumentation, makes minor mistakes that are eliminated by the applicant himself when the examiner points them out. When solving the clinical task, he/she made minor mistakes or inaccuracies in the interpretation of anamnesis data, the results of clinical,

	laboratory and instrumental studies, answered all the questions without significant errors, fully justified his/her point of view, but the proposal of an alternative option caused difficulties. When solving a practical task of the OSCE type, he made minor mistakes in the algorithm and technique of performing the skill, corrected at the direction of the teacher.
Satisfactory	The applicant has not fully completed all the tasks of the final control, the answers to additional and leading questions are unclear, vague. Has the basic amount of theoretical knowledge, inaccurately uses professional and scientific terminology. Experiences significant difficulties in building an independent logical answer, in applying theoretical knowledge in the analysis of practical tasks. There are significant errors in the answers. When solving a clinical task, he/she interpreted the anamnesis data, the results of clinical, laboratory and instrumental studies with errors, did not know some details, made inaccuracies in answering questions, did not correctly substantiate his/her answers and interpreted the wording, had difficulties in performing tasks and suggesting alternatives. When solving a practical task of the OSCE type, he made significant errors in the algorithm and technique of performing the skill.
Unsatisfactory	The applicant did not complete the tasks of the final control, in most cases did not answer additional and leading questions. He did not master the main volume of theoretical knowledge, showed a low level of proficiency in professional and scientific terminology. Answers to questions are fragmentary, inconsistent, illogical, unable to apply theoretical knowledge in the analysis of practical tasks. There are a significant number of gross errors in the answers. When solving a clinical case, he/she could not interpret the obtained anamnesis data, the results of clinical, laboratory and instrumental studies, answer the questions, or made significant mistakes in the answers; could not justify his/her decisions or did it unconvincingly. He did not offer alternative options. When solving a practical task of the OSCE type, he/she did not demonstrate or made gross mistakes and errors in the algorithm and technique of performing the skill.

9. Distribution of points received by applicants for higher education

The obtained grade point average for the discipline for students who have successfully completed the work program of the discipline is converted from the traditional four-point scale to points on a 200-point scale, as shown in the table:

Conversion of traditional assessment to multi-point scale

National scale	Point for discipline
«5»	185 – 200
«4»	151 – 184
«3»	120 – 150
«2»	< 120

A multi-point scale (200-point scale) characterizes the actual performance of each student in mastering the educational component. The conversion of the traditional grade (grade point average for a discipline) into a 200-point scale is performed by the University's Information Technology

Department.

According to the points obtained on a 200-point scale, the achievements of applicants are evaluated according to the ECTS rating scale. Further ranking on the ECTS rating scale allows to evaluate the achievements of applicants in the educational component who study in one course of one specialty, according to the points they received.

The ECTS scale is a relative and comparative rating system that establishes the applicant's belonging to the group of the best or worst among the reference group of fellow students (faculty, specialty). Grade A on the ECTS scale cannot be equal to grade A, and grade B cannot be equal to grade B, etc. When converting from a multi-point scale, the limits of grades "A", "B", "C", "D", "E" on the ECTS scale do not coincide with the limits of grades "5", "4", "3" on the traditional scale. Applicants who have received grades "FX" and "F" ("2") are not included in the list of ranked applicants. The grade "FX" is assigned to applicants who have scored the minimum number of points for current academic activities, but who have not been credited with the final control. The grade "F" is assigned to applicants who have attended all classes in the discipline, but have not gained an average score (3.00) for current academic activities and are not allowed to take the final control.

Applicants enrolled in the same course (one specialty), based on the number of points gained in the discipline, are ranked on the ECTS scale as follows:

Conversion of traditional grade in the discipline and the sum of points to the ECTS scale

ECTS scale	Statistical indicator
"A"	The best 10% of applicants
"B"	The next 25% of applicants
"C"	The next 30% of applicants
«D»	The next 25% of applicants
"E"	The last 10% of applicants

10. Methodological support

- Work program of the discipline
- Syllabus
- Methodical guides of lectures
- Methodical guides for practical lessons
- Multimedia presentations
- Situational clinical tasks
- Methodical guides for Independent Work
- Electronic bank of test tasks

11. Questions for preparation for differential credit

1. Essential arterial hypertension (hypertensive disease). Definition. Classification. Clinical manifestations and data of additional research methods. Damage to target organs. Differential diagnosis. Complication. Treatment.
2. Complicated and uncomplicated hypertensive crises, peculiarities of treatment tactics.
3. Secondary (symptomatic) hypertension. Definition. The main reasons.
4. Features of the clinic, diagnosis of renal (renovascular, renoparenchymal), endocrine (Itsenko-Cushing syndrome and disease, pheochromocytoma, Kohn syndrome, Graves' disease) and hemodynamic (isolated systolic arterial hypertension, coarctation of the aorta) arterial hypertension. Arterial hypertension during pregnancy. Value of laboratory and instrumental methods for differential diagnosis and diagnosis verification. Treatment, including surgical treatment.

5. Atherosclerosis. Definition. The role of hyperlipidemia, general and local inflammation, damage to the vascular wall and platelets in the development of atherosclerosis. Risk factors. Peculiarities of clinical manifestations depending on the predominant localization (aorta, coronary, mesenteric and renal arteries, arteries of the lower extremities). The importance of laboratory, radiation and other instrumental research methods. Complication. General principles of treatment. Treatment tactics for different variants of the course. Primary and secondary prevention. Prognosis and working capacity.
6. Chronic forms of coronary heart disease (CHD). Definition of CHD. Etiology. Classification of CHD. Features of the clinical course and diagnosis of various variants of stable angina pectoris. Painless form of coronary heart disease, post-infarction and diffuse cardiosclerosis. Features of clinical manifestations. Criteria for making a diagnosis. Differentiated therapy of various forms of CHD. Prognosis-modifying therapy.
7. Acute coronary syndrome (unstable angina and acute myocardial infarction). Definition. Classification. Features of the clinical course and diagnosis of acute myocardial infarction. Diagnostic criteria. Complications of acute myocardial infarction (acute left ventricular failure, heart rhythm and conduction disturbances, myocardial rupture, acute heart aneurysm, Dressler's post-infarction syndrome, etc.). Diagnostics. Treatment tactics in different periods of acute myocardial infarction. Prognosis-modifying therapy. Indications for surgical treatment. Rehabilitation.
8. Thromboembolism of the pulmonary artery (PE). Definition of PE. Risk factors. Classification. Pathogenesis of hemodynamic disorders. Clinical course. Diagnostic criteria, differential diagnosis. The diagnostic value of changes in the data of laboratory and instrumental research methods. Treatment tactics. Indications for surgical treatment.
9. Pulmonary heart. Definition of 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.
10. Congenital heart defects in adults. Definition. Atrial and interventricular septal defect, open ductus arteriosus, coarctation of the aorta. Mechanisms of hemodynamic disorders, significance of pulmonary hypertension. Value of non-invasive and invasive methods for diagnosis and differential diagnosis. Complication. Eisenmenger syndrome. Treatment. Indications for surgical treatment. Prevention of complications. Prognosis and working capacity.
11. Infective endocarditis. Definition. Etiology, pathogenesis. Diagnostic criteria. The value of laboratory methods and echocardiographic research in diagnostics. Differential diagnosis. Complications (heart failure, embolism, abscesses). Treatment. Modes of antibacterial therapy. Indications for surgical treatment.
12. Acquired heart defects. Definition. Defects of mitral, aortic, tricuspid valves. Etiology, mechanisms of hemodynamic disorders. Classification. Combined mitral and aortic defects. Clinical manifestations. Value of non-invasive and invasive research methods. Differential diagnosis. Complication. Treatment. Indications for surgical treatment. Primary and secondary prevention. Forecast and performance.
13. Myocarditis and cardiomyopathies. Definition. Classification. Etiology and pathogenesis of the main types of cardiomyopathies (inflammatory, metabolic, idiopathic). Clinical manifestations, changes in ECG, echocardiography and other radiological research methods depending on the etiology and variant of the course. Diagnostic criteria and differential diagnosis. Complication. Features of treatment of various cardiomyopathies.
14. Pericarditis. Definition. Etiology and pathogenesis. Classification. Features of the clinic, course and diagnosis of various variants of pericarditis. Diagnosis verification methods. Heart tamponade. Indications for pericardial puncture, its diagnostic and therapeutic significance. Differentiated therapy of various forms taking into account etiological factors. Primary and secondary prevention. Prognosis and working capacity.
15. Disturbance of the heart rhythm. Definition. Etiology. Classification. Electrophysiological mechanisms of arrhythmias (extrasystole, atrial fibrillation and flutter, ventricular tachycardia and ventricular fibrillation). Clinic, ECG diagnosis and differential diagnosis. Complication. Medicinal and non-medicinal methods of treatment. The role of electroimpulse therapy.

16. Emergency therapy for paroxysmal rhythm disturbances and sudden cardiac arrest. Primary and secondary prevention. Prognosis and working capacity.
17. Heart conduction disorders. Definition. Etiology. Classification. Clinic and ECG diagnosis of atrioventricular blocks and bundle branch blocks. Tactics for acute and chronic conduction disorders. Emergency care for attacks of Morganhi-Adams-Stokes. Indications and principles of electrocardiostimulation (temporary, permanent). Primary and secondary prevention. Prognosis and working capacity.
18. Acute heart failure. Definition. The main reasons. Pathogenesis of central and peripheral hemodynamic disorders in various forms (left and right heart failure). Classification. Clinical manifestations. Diagnostics. Emergency care for cardiogenic pulmonary edema and cardiogenic shock.
19. Chronic heart failure. Definition. The main reasons. Pathogenesis of central and peripheral hemodynamic disorders in various forms (left and right heart failure). The role of neurohumoral activation and cardiac remodeling. Classification. Clinical manifestations and their features depending on the variant (systolic, diastolic), stage and functional class. Diagnostics. The importance of laboratory and instrumental research methods. Prognosis-modifying therapy. Primary and secondary prevention. Prognosis and working capacity.
20. Neurocirculatory dystonia. Definition. Etiology and pathogenesis. Classification. Features of clinical syndromes. Diagnosis criteria. Differential diagnosis. Differentiated therapy. Primary and secondary prevention. Prognosis and working capacity.
21. Principles of evidence-based medicine. Definition of the concept. The role of evidence-based medicine in modern clinical practice. Components of evidence-based medicine. Basic concepts of clinical research. Medical and ethical aspects of evidence-based medicine.
22. Diagnosis and treatment of elderly people. Peculiarities of metabolism in old age. The frequency of comorbid pathology in the elderly. Peculiarities of the effect of drugs on the body of an elderly person. Features of diagnosis and treatment in old age.
23. Obesity and its consequences. The urgency of the problem. Methods of calculating excess weight (body mass index) and determining obesity. Classification of obesity. The main medical consequences of obesity are metabolic syndrome, diabetes, cardiovascular and gastrointestinal diseases. Modern approaches to drug and non-drug treatment.
24. Anemias (iron-deficient, B12-deficient, folate-deficient, hemolytic, hypoplastic, posthemorrhagic). Etiological factors and pathogenesis. Features of clinic and laboratory diagnostics of various forms. Differential diagnosis. Complication. Treatment of various forms.
25. Acute and chronic leukemias. Definition. Definition of chronic myeloid leukemia, chronic lymphocytic leukemia, true polycythemia. Modern views on etiology and pathogenesis. Classification. Main clinical manifestations and clinical and hematological syndromes. Diagnosis criteria. Differential diagnosis. Complication. Principles of treatment
26. Bone marrow transplantation.
27. Lymphomas and myeloma disease: definition, classification, clinic, diagnosis, treatment.
28. Hodgkin's and non-Hodgkin's lymphomas. Clinical manifestations and their features in different variants of the course. Diagnosis criteria. Complication. Principles of treatment.
29. Thrombocytopenic purpura, clinical manifestations, principles of treatment.
30. Hemophilia. Definition. Etiology and pathogenesis, main clinical syndromes. Diagnosis criteria. Therapy of various hemophilias.
31. Myeloma disease. Definition, etiopathogenesis, clinic, features of laboratory and instrumental diagnostics, treatment.

12. LIST OF RECOMMENDED LITERATURE

Basic

1. Davidson's Principles and Practice of Medicine, 23rd Edition, 2020.
2. USMLE Step 2 CK Lecture Notes 2017: Internal Medicine (Kaplan Test Prep). - 2016. - Published by Kaplan Medical. - 474 pages.
3. Harrison's Principles of Internal Medicine, 20th edition, 2020

Additional

1. Thygesen K, Alpert JS, Jaffe AS, et al. Fourth universal definition of myocardial infarction (2018). *J Am Coll Cardiol*. 2018 Oct 30;72(18):2231-64.
2. Collet JP, Thiele H, Barbato E, et al. 2020 ESC guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation. *Eur Heart J*. 2021 Apr 7;42(14):1289-1367.
3. McDonagh TA, Metra M, Adamo M, et al. 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. *Eur Heart J*. 2021 Sep 21;42(36):3599-726.
4. Heidenreich PA, Bozkurt B, Aguilar D, et al. 2022 AHA/ACC/HFSA guideline for the management of heart failure: a report of the American College of Cardiology/American Heart Association joint committee on clinical practice guidelines. *Circulation*. 2022 May 3;145(18):e895-1032.
5. Brignole M, Moya A, de Lange FJ, et al. 2018 ESC guidelines for the diagnosis and management of syncope. *Eur Heart J*. 2018 Jun 1;39(21):1883-948.
6. Zeppenfeld K, Tfelt-Hansen J, de Riva M, et al. 2022 ESC Guidelines for the management of patients with ventricular arrhythmias and the prevention of sudden cardiac death. *Eur Heart J*. 2022 Oct 21;43(40):3997-4126.
7. Panchal AR, Bartos JA, Cabañas JG, et al. Part 3: adult basic and advanced life support: 2020 American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. *Circulation*. 2020 Oct 20;142(16_suppl_2):S366-S468.
8. Williams B, Mancia G, Spiering W, et al. 2018 ESC/ESH guidelines for the management of arterial hypertension. *Eur Heart J*. 2018 Sep 1;39(33):3021-104.
9. Konstantinides SV, Meyer G, Becattini C, et al. 2019 ESC guidelines for the diagnosis and management of acute pulmonary embolism developed in collaboration with the European Respiratory Society (ERS). *Eur Heart J*. 2020 Jan 21;41(4):543-603.
10. ЕКГ у практиці = The ECG in Practice = ЭКГ в практике: навчальний посібник / Джон Р. Хемптон; переклад 6-го англ. видання. – Київ: Медицина, 2018. – 560 с.

13. Electronic information resources

1. American College of Cardiology <http://www.acc.org/>
2. American Heart Association <http://news.heart.org/>
3. BMJ Clinical Evidence <http://clinicalevidence.bmj.com>
4. European Society of Cardiology <http://www.escardio.org/>
5. Medscape from WebMD <http://www.medscape.com>
6. National Institute for Health and Clinical Excellence (NICE) <https://www.nice.org.uk/>

List 1 (syndromes and symptoms)

anemic syndrome
 anuria and oliguria
 arterial hypertension
 arterial hypotension
 pain in the chest
 stomach ache
 pain in the limbs and back
 vomit
 fever
 hemorrhagic syndrome
 hepatomegaly and hepatolienal syndrome
 headache
 jaundice
 dyspnea
 dizziness
 cardiomegaly
 cough
 hemoptysis
 lymphadenopathy
 edematous syndrome
 polyuria
 portal hypertension
 heart rhythm and conduction disturbances
 urinary syndrome
 joint syndrome
 cyanosis

List 2 (Diseases)**Diseases of the blood and hematopoietic organs, disorders with the involvement of the immune mechanism**

anemia
 hemophilia
 leukemia
 lymphogranulomatosis
 lymphomas
 myeloma

thrombocytopenic purpura

Diseases of the circulatory system:

aortic aneurysms
 atherosclerosis
 atherosclerosis of the arteries of the extremities
 varicose veins of the lower extremities
 congenital heart disease
 Secondary arterial hypertension
 acute occlusion of the main and peripheral arteries;
 endocarditis
 essential and secondary arterial hypertension
 coronary heart disease
 cardiomyopathy
 pulmonary heart
 acquired heart defects
 obliterating endarteritis

pericardium
 disturbance of cardiac rhythm and conduction
 heart failure
 heart and blood vessel injuries
 thromboembolism of the pulmonary artery

List 3 (urgent states):

hypertensive crisis
 acute respiratory failure
 acute heart failure
 acute bleeding
 heart stop
 collapse
 acute heart rhythm disturbances
 shocks

List 4 (laboratory and instrumental research)

urine analysis according to Zimnytsky
 urine analysis according to Nechyporenko
 Blood proteins and fractions thereof, Adipose protein
 blood glucose, glycated hemoglobin,
 oral glucose tolerance test
 lipid profile of the blood
 blood hormones
 iron and copper of blood
 creatinine, urea blood
 electrolytes of blood
 transaminases of blood
 total bilirubin of blood and its fractions
 coagulogram
 uric acid in blood
 alkaline phosphatase of blood
 histomorphological study of the biopsy of the lymph nodes
 standard ECG (12 leads)
 echocardiography and dopplerography
 general blood test
 general urine analysis
 general immunological profile of the blood
 X-ray contrast angiography
 Methods of instrumental visualization of the abdominal cavity organs
 methods of instrumental visualization of the chest cavity
 methods of instrumental visualization of the genitourinary system

List 5 (medical manipulations):

to register the standard ECG in 12 leads
 measure arterial pressure