BOGOMOLETS NATIONAL MEDICAL UNIVERSITY
Educational and Research Institute of Medicine
Department of Internal Medicine with a Course in Cardiology and Rheumatology, Department of Internal Medicine with a Course in Gastroenterology, Department of Endocrinology, Department of Neurology, Department of Phthisiology and Pulmonology, Department of Clinical and Laboratory Immunology, Allergology and Medical Genetics

APPROVED
Vice-Rector for Research,
Academic and Education Affairs
Doctor of Medical Sciences, Professor
OLEH VLASENKO
"08" 2026

WORKING PROGRAM OF THE ACADEMIC DISCIPLINE

Internal Medicine (Gastroenterology, Hematology, Pulmonology, Cardiology, Rheumatology, and Nephrology), Including Endocrinology, Phthisiology, Clinical Immunology and Allergology, Emergency Conditions in Neurology, and Clinical Medical Practice (Professional Training) in Internal Medicine

Level of higher education: Second (master's degree)

Area of knowledge: 22 Health care

Specialty 222: Medicine

Educational program: EPP Medicine

2026-2027 academic year

Working program of the academic discipline "Internal Medicine (Gastroenterology, Hematology, Pulmonology, Cardiology, Rheumatology, and Nephrology), including Endocrinology, Phthisiology, Clinical Immunology and Allergology, Emergency Conditions in Neurology, and Clinical Medical Practice (Professional Training) in Internal Medicine" for students of level of higher education the second (master's degree), specialty 222 Medicine, 4th-6th years at the Educational and Research Institute of Medicine, Faculty of Medical Training for the Armed Forces of Ukraine.

Developers:

Iaremenko O.B., Doctor of Medical Sciences, Professor, Head of the Department of Internal Medicine with a Course in Cardiology and Rheumatology;

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Petrenko V.I., Doctor of Medical Sciences, Professor of the Department of Phthisiology and Pulmonology;

Noreiko S.B., Doctor of Medical Sciences, Professor of the Department of Phthisiology and Pulmonology;

Prokopiv M.M., Doctor of Medical Sciences, Professor, Head of the Department of Neurology;

Heletiuk Y.L., Candidate of Medical Sciences, Associate Professor of the Department of Neurology.

Discussed and approved at the meeting of the Cycle Methodological Commission for Therapeutic Disciplines

Protocol № 1 of "27" august 2026

Head of the Cycle Methodological Commission for Therapeutic Disciplines

Doctor of Medical Sciences, Professor _____ O.B. Iaremenko

Reapproved:

for 20__/20__ _____ _____«___ » ___20__ protocol №__
(signature) (name, surname)

for 20__/20__ _____ _____«___ » ___20__ protocol №__
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(signature) (name, surname)

1. Description of the academic discipline. MC 24. Internal Medicine (Gastroenterology, Hematology, Pulmonology, Cardiology, Rheumatology, and Nephrology), including Endocrinology, Phthisiology, Clinical Immunology and Allergology, Emergency Conditions in Neurology, and Clinical Medical Practice (Professional Training) in Internal Medicine

<table>
<tr><td rowspan="2">Name of indicators</td><td rowspan="2">Area of knowledge, specialty, level of higher education</td><td>Characteristics of academic discipline</td></tr>
<tr><td>Full-time education</td></tr>
<tr><td>The number of credits is 31,5</td><td>Area of knowledge
22 Health care</td><td>Compulsory</td></tr>
<tr><td>Modules – 3</td><td rowspan="5">Specialty
222 Medicine</td><td>Years of study</td></tr>
<tr><td>Content modules – 21</td><td>Years 4-6</td></tr>
<tr><td>Individual scientific and experimental task
_____
(name)</td><td>Semester</td></tr>
<tr><td rowspan="2">Total number of credits/hours – 31,5/945</td><td>7-12</td></tr>
<tr><td>Lectures</td></tr>
<tr><td rowspan="10">Weekly hours for full-time education:
classroom studies – 25
self-study work – 18</td><td rowspan="10">Educational level
Second (master's degree)</td><td>27 hours</td></tr>
<tr><td>Practical lessons</td></tr>
<tr><td>653 hours</td></tr>
<tr><td>Laboratory lessons</td></tr>
<tr><td>0 Hours</td></tr>
<tr><td>Self-study work</td></tr>
<tr><td>265 hours</td></tr>
<tr><td>Individual tasks</td></tr>
<tr><td></td></tr>
<tr><td>Type of control:</td></tr>
<tr><td>Final control</td></tr>
</table>

2. Purpose, expected learning results, and evaluation criteria of learning results

The purpose of the course. To develop the ability to apply the acquired knowledge, skills, practical competencies, and understanding in solving the typical professional tasks of a physician in the healthcare sector, as defined by the established lists of disease syndromes and symptoms, emergency conditions, diseases requiring special patient management, laboratory and instrumental investigations, medical procedures, and work capacity assessment and rehabilitation.

The discipline contributes to the formation of next competences and learning outcomes.

List of competencies:

Integral:

Ability to solve complex problems, including those of a research and innovation nature in the field of medicine. Ability to continue learning with a high degree of autonomy.Ability to continue education with a high degree of autonomy.

General Competences (GC):

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

GC 2. Ability to learn and master modern knowledge.

GC 3. Ability to apply knowledge in practical situations.

GC 4. Knowledge and understanding of the content of professional activities and responsibility for their performance.

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 interact with others.

CG 10. Ability to use information and communication technologies.

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

GC 12. Determination and perseverance in accomplishing assigned tasks and fulfilling responsibilities.

GC 13. Awareness of equal opportunities for all members of society and gender issues.

GC 14. Ability to exercise one's rights and responsibilities as a member of society, to understand the values of a civil (free democratic) society and the need for its sustainable development, the rule of law, and the rights and freedoms of individuals and citizens in Ukraine.

GC 15. Ability to preserve and multiply moral, cultural, scientific values and achievements of society on the basis of understanding the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, technology and technology, to use various types and forms of physical activity for active recreation and leading a healthy lifestyle.

Special (Professional, Subject-Related) Competences (PC):

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

PC 2. Ability to determine the necessary list of laboratory and instrumental investigations and evaluate their results.

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

PC 4. Ability to determine the required work and rest regimen in the treatment and prevention of diseases.

PC 5. Ability to determine dietary patterns for the treatment and prevention of diseases.

PC 6. Ability to determine the principles and nature of treatment and prevention of diseases.

PC 7. Ability to diagnose emergency conditions.

PC 8. Ability to determine tactics and provide emergency medical care.

PC 10. Ability to perform medical procedures.

PC 11. Ability to solve medical problems in new or unfamiliar environments with incomplete or limited information, considering aspects of social and ethical responsibility.

PC 15. Ability to conduct an assessment of work capacity.

PC 16. Ability to maintain medical documentation, including electronic forms.

PC 21. Communicate clearly and unambiguously their knowledge, conclusions, and arguments on healthcare issues and related matters to both specialist and non-specialist audiences, including learners.

PC 23. Ability to develop and implement scientific and applied projects in the field of healthcare.

PC 24. Adherence to ethical principles when working with patients.

PC 25. Adherence to professional and academic integrity, and taking responsibility for the credibility of the obtained scientific results.

Programme Learning Outcomes (PLO)

PLO 1. Have thorough knowledge of the structure of professional activity. Be able to carry out professional activities that require updating and integration of knowledge. Be responsible for professional development, with the ability for further professional learning with a high level of autonomy.

PLO 2. Understanding and knowledge of fundamental and clinical biomedical sciences at a level sufficient to solve professional problems in the field of healthcare.

PLO 3. Specialized conceptual knowledge that incorporates scientific achievements in healthcare and is the basis for conducting research, as well as a critical reflection on problems in the field of medicine and related interdisciplinary issues, including the early intervention system.

PLO 4. Isolate and identify the leading clinical symptoms and syndromes (according to List 1); using standard methods, based on the patient’s medical history, physical examination findings, and knowledge of the human body and its organs and systems, establish a preliminary clinical diagnosis of the disease (according to List 2).

PLO 5. Collect complaints, medical history, and history of present illness; assess the patient’s psychomotor and physical development and the condition of the body’s organs and systems, and based on the results of laboratory and instrumental investigations, evaluate information regarding the diagnosis (according to List 4), taking into account the patient's age.

PLO 6. Establish a definitive clinical diagnosis by making an informed decision and analyzing the obtained subjective and objective data from clinical and additional investigations, and performing differential diagnosis, adhering to relevant ethical and legal norms, under the guidance of a supervising physician in a healthcare facility setting (according to List 2).

PLO 7. Prescribe and analyze additional (mandatory and optional) investigations (laboratory, functional, and/or instrumental) (according to List 4) for patients with diseases of organs and systems to perform differential diagnosis (according to List 2).

PLO 9. Determine the nature and principles of treatment (conservative, surgical) for patients with diseases (according to List 2), considering the patient's age, within a healthcare facility, outside of it, and during stages of medical evacuation, including field conditions; base this on a preliminary clinical diagnosis, while adhering to relevant ethical and legal norms, by making an informed decision following established algorithms and standard regimens, and, if necessary to modify a standard regimen, demonstrate the ability to justify personalized recommendations under the guidance of a supervising physician in a clinical setting.

PLO 10. Determine the required work, rest, and dietary regimen based on the definitive clinical diagnosis, while adhering to relevant ethical and legal norms, by making an informed decision following established algorithms and standard protocols.

PLO 14. Determine management tactics and provide emergency medical care for medical emergencies (List 3) within limited timeframes according to current clinical protocols and standards of care.

PLO 17. Perform medical procedures (according to List 5) in a healthcare facility, at home, or in the workplace, based on a preliminary clinical diagnosis and/or the patient's condition, by making an informed decision while adhering to relevant ethical and legal norms.

PLO 18. Determine the state of functioning and functional limitations of a person, and the duration of incapacity for work, along with issuing the relevant documentation, within a healthcare institution based on data regarding the disease and its course, and the characteristics of the person's professional activity, etc. Maintain medical documentation for patients and the population in compliance with regulatory documents.

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

PLO 22. Apply modern digital technologies, specialized software, and statistical methods of data analysis to solve complex healthcare problems.

PLO 25. Clearly and unambiguously convey one's own knowledge, conclusions, and arguments on healthcare problems and related issues to both specialists and non-specialists.

PLO 27. Communicate fluently in the state language and English, both orally and in writing, to discuss professional activities, research, and projects.

Learning Outcomes

Know:

- Standard approaches to history taking and the clinical examination of patients with diseases in internal medicine.
- Principal clinical symptoms and syndromes of diseases in internal medicine.
- Criteria for preliminary diagnosis of diseases in internal medicine.
- Diagnosis of diseases in internal medicine.
- Mandatory and additional laboratory and instrumental investigations, the indications for their use, and their diagnostic significance.

- 9Differential diagnosis of diseases in internal medicine.
- Criteria for clinical diagnosis of diseases in internal medicine.
- Appropriate work, rest, and dietary regimens for patients with diseases in internal medicine.
- The principles and approaches to the treatment of diseases in internal medicine.
- Current treatment algorithms and standards for diseases in internal medicine.
- Diagnostic criteria for emergency conditions in internal medicine.
- The management of emergency conditions, including the provision of emergency medical care in internal medicine.
- Algorithms for performing medical procedures.
- Primary and secondary prevention, prognosis, and capacity for work of patients with diseases in internal medicine.
- Primary and secondary prevention, prognosis, and assessment of work capacity in patients with diseases in internal medicine.
- Medical documentation, including electronic forms.
- The official documentation system used in medical practice, including modern information technologies.
- Ethical principles when working with patients.
- Principles of professional and academic integrity.

To be able to:

- Elicit complaints, obtain the history of the present illness and the patient's medical history, and evaluate clinical data.
- Identify the leading clinical symptom or syndrome.
- Establish a preliminary diagnosis of disease in internal medicine.

- Prescribe laboratory and instrumental (mandatory and additional) investigations for patients with diseases in internal medicine and analyse their results.
- Perform differential diagnosis of diseases in internal medicine.
- Establish a clinical diagnosis of a disease in internal medicine based on the analysis of data from clinical and additional investigations, and differential diagnosis.
- Determine the required work, rest, and dietary regimen for patients with diseases in internal medicine.
- Determine the principles of treatment and prescribe conservative or surgical treatment for patients with diseases in internal medicine, considering the patient's age, based on the clinical diagnosis in accordance with current treatment algorithms and standards.
- Implement primary and secondary prevention measures of diseases in internal medicine.
- Assess work capacity and evaluate the prognosis of patients with diseases in internal medicine.
- Diagnose emergency conditions.
- Determine the appropriate management and provide emergency medical care for emergency conditions in internal medicine.
- Perform medical procedures.
- Maintain medical documentation, including electronic forms.
- Retrieve relevant information from the professional literature, databases, and other sources, and analyse, evaluate, and apply it.
- Apply modern digital technologies, specialised software, and statistical data analysis methods to solve complex healthcare problems.
- Adhere to ethical principles when working with patients.
- Adhere to professional and academic integrity, and accept responsibility for the reliability of the obtained scientific results.

Competency Matrix

Matrix of Correspondence between the Competencies Defined by the Standard and the National Qualifications Framework (NQF) Descriptors

Classification of Competencies According to the NQF	**Knowledge** **Kn 1** Specialized conceptual knowledge, including current scientific achievements in the field of professional activity or the field of study, which serves as the basis for original thinking and conducting research. **Kn 2** Critical understanding of problems within the field and at the interface between different fields of knowledge.	**Skills** **Sk 1** Specialized problem-solving skills required for conducting research and/or carrying out innovative activities aimed at developing new knowledge and procedures. **Sk 2** Ability to integrate knowledge and solve complex problems in broad or multidisciplinary contexts. **Sk 3** Ability to solve problems in new or unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethical responsibility.	**Communication** **C 1** Clear and unambiguous communication of one's knowledge, conclusions, and reasoning to specialists and non-specialists, including learners. **C 2** Use of foreign languages in professional activities.	**Responsibility and Autonomy** **RA 1** Management of work or learning processes that are complex, unpredictable, and require new strategic approaches. **RA 2** Responsibility for contributing to professional knowledge and practice and/or evaluating the performance of teams and groups. **RA 3** Ability to continue learning with a high degree of autonomy.
1	*2*	*3*	*4*	*5*
General competences (GC)				
GC 1. Ability for abstract thinking, analysis, and synthesis.	**Kn 1**	**Sk 1**	**C 1**	**RA 1**
GC 2. Ability to learn and master modern knowledge.	**Kn 1**	**Sk 3**	**C 2**	**RA 3**
GC 3. Ability to apply knowledge in practical situations.	**Kn 1**	**Sk 2**	**C 1**	**RA 1**
GC 4. Knowledge and understanding of the content of professional activities and responsibility for their performance.	**Kn 2**	**Sk 2**	**C 2**	**RA 2**
1	*2*	*3*	*4*	*5*

GC 5. Ability to adapt and act in new situations.	-	Sk 3	-	RA 2
GC 6. Ability to make informed decisions	Kn 1	Sk 3	C 1	RA 1
GC 7. Ability to work in a team.	Kn 2	Sk 3	C 1	RA 2
GC 8. Ability to interact with others.	Kn 1	Sk 3	C 1	RA 2
GC 10. Ability to use information and communication technologies.	Kn 2	Sk 3	C 2	RA 3
GC 11. Ability to search for, process, and analyze information from various sources.	Kn 2	Sk 2	C 2	RA 2
GC 12. Determination and perseverance in accomplishing assigned tasks and fulfilling responsibilities.	Kn 2	Sk 3	-	RA 3
GC 13. Awareness of equal opportunities for all members of society and gender issues.	Kn 2	Sk 1	C 1	RA 1
GC 14. Ability to exercise one's rights and responsibilities as a member of society, to understand the values of a civil (free democratic) society and the need for its sustainable development, the rule of law, and the rights and freedoms of individuals and citizens in Ukraine.	Kn 1	Sk 2	C 1	RA 3
GC 15. Ability to preserve and multiply moral, cultural, scientific values and achievements of society on the basis of understanding the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, technology and technology, to use various types and forms of physical activity for active recreation and leading a healthy lifestyle.	Kn 2	Sk 3	-	RA 3
Special (professional, subject-related) competences (PC)				
PC 1. Ability to collect medical information about the patient and analyze the clinical data.	Kn 2	Sk 3	C 2	RA 2
1	*2*	*3*	*4*	*5*

PC 2. Ability to determine the necessary list of laboratory and instrumental investigations and evaluate their results.	**Kn 2**	**Sk 3**	**-**	**RA 1**
PC 3. Ability to establish a preliminary and clinical diagnosis of a disease.	**Kn 2**	**Sk 3**	**-**	**RA 2**
PC 4. Ability to determine the required work and rest regimen in the treatment and prevention of diseases.	**Kn 2**	**Sk 2**	**C 1**	**RA 1**
PC 5. Ability to determine dietary patterns for the treatment and prevention of diseases.	**Kn 2**	**Sk 1**	**C 1**	**RA 1**
PC 6. Ability to determine the principles and nature of treatment and prevention of diseases.	**Kn 2**	**Sk 3**	**C 1**	**RA 1**
PC 7. Ability to diagnose emergency conditions.	**Kn 2**	**Sk 3**	**C 1**	**RA 2**
PC 8. Ability to determine tactics and provide emergency medical care.	**Kn 2**	**Sk 3**	**C 1**	**RA 2**
PC 10. Ability to perform medical procedures.	**Kn 1**	**Sk 3**	**C 1**	**RA 1**
PC 11. Ability to solve medical problems in new or unfamiliar environments with incomplete or limited information, considering aspects of social and ethical responsibility.	**Kn 2**	**Sk 3**	**C 1**	**RA 2**
PC 15. Ability to conduct an assessment of work capacity	**Kn 2**	**Sk 1**	**C 1**	**RA 1**
PC 16. Ability to maintain medical documentation, including electronic forms.	**Kn 2**	**Sk 1**	**C 1**	**RA 1**
PC 21. Communicate clearly and unambiguously their knowledge, conclusions, and arguments on healthcare issues and related matters to both specialist and non-specialist audiences, including learners.	**Kn 2**	**Sk 3**	**C 2**	**RA 2**
PC 23. Ability to develop and implement scientific and applied projects in the field of healthcare.	**Kn 2**	**Sk 3**	**C 2**	**RA 3**
PC 24. Adherence to ethical principles when working with patients.	**Kn 1**	**Sk 2**	**C 1**	**RA 1**
PC 25. Adherence to professional and academic integrity, and taking responsibility for the credibility of the obtained scientific results.	**Kn 2**	**Sk 2**	**C 2**	**RA 3**

Matrix of Correspondence between the Learning Outcomes and Competencies Defined by the Standard

PLO	General competences (GC)														Professional (PC)																
	GC 1	GC 2	GC 3	GC 4	GC 5	GC 6	GC 7	GC 8	GC 10	GC 11	GC 12	GC 13	GC 14	GC 15	PC 1	PC 2	PC 3	PC 4	PC 5	PC 6	PC 7	PC 8	PC 10	PC 11	PC 15	PC 16	PC 21	PC 23	PC 24	PC 25
PLO 1	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
PLO 2				+		+			+	+	+				+	+	+	+	+	+	+	+	+	+	+				+	
PLO 3	+	+	+			+	+		+	+	+	+	+	+	+	+	+							+			+	+	+	+
PLO 4			+	+																						+			+	
PLO 5	+	+	+			+	+								+	+	+				+	+		+		+			+	
PLO 6	+	+	+			+	+	+							+	+	+				+	+		+		+			+	
PLO 7								+							+	+										+			+	
PLO 9															+	+				+	+	+	+							
PLO 10				+														+	+										+	
PLO 14					+		+	+							+						+			+				+		
PLO 17													+	+							+			+						
PLO 18																														
PLO 21		+							+																					
PLO 22					+																									
PLO					+	+																		+			+			

25																												
PLO 27					+	+	+	+						+											+			

Matrix of Correspondence between Program Competencies and Educational Program Components

	IC	GC 1	GC 2	GC 3	GC 4	GC 5	GC 6	GC 7	GC 8	GC 10	GC 11	GC 12	GC 13	GC 14	GC 15
ОК 24.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Notes: IC – Integral Competence

Matrix of Correspondence between Program Competencies and Educational Program Components (continued)

	PC 1	PC 2	PC 3	PC 4	PC 5	PC 6	PC 7	PC 8	PC 10	PC 11	PC 15	PC 16	PC 21	PC 23	PC 24	PC 25
ОК 24.	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

Matrix of Correspondence between Program Learning Outcomes and Educational Program Components

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 9	PLO 10	PLO 14	PLO 17	PLO 18	PLO 21	PLO 22	PLO 25	PLO 27
ОК 24.	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+

Assessment Criteria for Learning Results

Students' learning results are assessed in accordance with the Regulations on the Procedure for Assessing Students' Knowledge during Ongoing and Final Assessment of an Academic Discipline at Bogomolets National Medical University (with changes and additions), approved by the Academic Council of Bogomolets National Medical University (№4 of November 28, 2023).

Current and final control are control measures carried out at Bogomolets National Medical University (hereinafter – NMU) to determine the level of knowledge, skills, and abilities acquired by students in accordance with the requirements of higher education regulatory documents and to ensure the timely adjustment of the educational process in the relevant field of study and specialties of NMU.

The knowledge evaluation criteria determine the level of students' theoretical preparation, including the depth of their understanding of the learning material, the accuracy with which concepts and definitions are reproduced, the logical presentation of knowledge, the ability to establish cause-and-effect relationships, and the application of acquired knowledge to solve educational and clinical problems. Knowledge evaluation also takes into account students' ability to analyse information, make generalisations, and formulate well-reasoned conclusions. The system of students' knowledge evaluation in the academic discipline includes ongoing and final knowledge control, evaluation of practical training outcomes, and certification of higher education students enrolled in the Medicine educational programme.

For each stage of the lesson and each unit of current control, the student receives a traditional grade on the “5-4-3-2” scale. The teacher then calculates the arithmetic mean grade for the lesson, which is converted into points according to the grading scale (distribution) provided by the program of the academic discipline. If the student receives a grade of “2” when calculating the arithmetic mean traditional grade for the lesson, it is converted into 0 points. The maximum number of points a student can earn for current control is 80 points.

The results of knowledge control for each component of a lessons, including test items, are evaluated according to the following grading scale:

59% or fewer correct answers – Grade “2”

60-74% correct answers – Grade “3”

75-89% correct answers – Grade “4”

90-100% correct answers – Grade “5”.

A grade of “5” is awarded if the student demonstrates comprehensive, systematic, and thorough knowledge of the learning material, demonstrates confident command of professional terminology, correctly interprets clinical data, justifies diagnostic and therapeutic decisions, independently analyses clinical cases, performs practical skills accurately and without errors, and effectively

applies the acquired knowledge in both routine and non-routine professional situations.

A grade of “4” is awarded if the student demonstrates sufficiently comprehensive and sound knowledge of the learning material, correctly answers the principal questions, demonstrates the required practical skills, and is able to apply knowledge in typical clinical situations, but makes minor errors or inaccuracies that are corrected independently following clarification by the teacher.

A grade of “3” is awarded if the student has mastered the core content of the curriculum, possesses fundamental theoretical knowledge and basic practical skills, but provides incomplete or insufficiently substantiated answers, makes errors and inaccuracies, and requires guidance from the teacher when performing practical tasks or analysing clinical situations.

A grade of “2” is awarded if the student has not mastered a substantial part of the learning material, lacks essential theoretical knowledge and practical skills, is unable to solve typical clinical problems independently, and makes serious errors indicating an insufficient level of professional competence.

The final control is conducted in the form of module control: Module 1 (4th year, 7-8 semesters), Module 2 (5th year, 9–10 semesters), and Module 3 (6th year, 11-12 semesters). The results of the final control are assessed according to the University's 200-point knowledge control system and the national scale and are recorded in the corresponding checklists.

3. PROGRAM OF THE ACADEMIC DISCIPLINE INTERNAL MEDICINE (GASTROENTEROLOGY, HEMATOLOGY, PULMONOLOGY, CARDIOLOGY, RHEUMATOLOGY, NEPHROLOGY) INCLUDING ENDOCRINOLOGY, PHTHISIOLOGY, CLINICAL IMMUNOLOGY AND ALLERGOLOGY, EMERGENCY CONDITIONS IN NEUROLOGY, CLINICAL MEDICAL PRACTICE (PROFESSIONAL TRAINING) IN INTERNAL MEDICINE

945 hours/31,5 credits (lectures – 27 hours, practical lessons – 653 hours; self-study work – 265 hours)

MODULE 1 (Year 4)
INTERNAL MEDICINE (GASTROENTEROLOGY, HEMATOLOGY, PULMONOLOGY), INCLUDING ENDOCRINOLOGY, PHTHISIOLOGY, CLINICAL MEDICAL PRACTICE (PROFESSIONAL TRAINING) IN INTERNAL MEDICINE

300 hours/10 credits (lectures – 19 hours, practical lessons – 177 hours, self-study work – 104 hours)

Content module 1. Gastroenterology

72 hours/2,4 credits (lectures – 8 hours, practical lessons – 55 hours, self-study work – 9 hours)

Topic1. Obesity and its consequences

Definition. Etiology and pathogenesis. Classification. Clinical manifestations and anthropometric methods of examination (measurement of waist and hip circumference, assessment of fat distribution type). Methods for calculating Body Mass Index (BMI). Diagnosis. Main consequences of obesity: metabolic syndrome, diabetes mellitus, cardiovascular and gastrointestinal diseases. Pharmacological and non-pharmacological treatment.

Topic 2. Esophagitis. Gastroesophageal reflux disease

Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Complications. Management. Primary and secondary prevention. Prognosis and work capacity.

Topic 3. Dyspepsia. Gastritis and duodenitis

Dyspepsia. Definition. Etiology and pathogenesis. The role of *Helicobacter pylori (H. pylori)* in the occurrence of gastroduodenal pathology. Classification. Uninvestigated and functional dyspepsia. Diagnosis criteria. Differential diagnosis.

Modern approaches to the treatment of functional dyspepsia. Primary and secondary prevention.

Gastritis and duodenitis. Definition. Etiology and pathogenesis. Role of *H. pylori* in the development of gastritis and duodenitis. Classification. Clinical manifestations. Diagnosis. Diagnostic methods for *H. pylori* infection. Differential diagnosis. Management, including *H. pylori* eradication therapy. Primary and secondary prevention. Prognosis and work capacity.

Topic 4. Peptic ulcers of the stomach and duodenum

Definition. The main causes of peptic ulcers of the stomach and duodenum (H. pylori, medications, etc.). Classification. Clinical manifestations. Complications (perforation, penetration, bleeding, stenosis, malignancy). Diagnosis. Diagnosis of H. pylori infection. Differential diagnosis. Patient management. Eradication therapy, monitoring of eradication efficacy. Drug therapy of H. pylory-negative ulcers. Indications for endoscopic and surgical interventions. Primary and secondary prevention. Prognosis and work capacity.

Topic 5. Celiac disease and other enteropathies

Definition. Etiology and pathogenesis. The role of food component intolerance, immune factors and enzymopathies (intolerance of lactose, fructose, galactose, etc.). Syndromes of malabsorption and maldigestion. Diagnosis. Diagnostic criteria. Differential diagnosis. Complication. Differentiated therapy. Primary and secondary prevention. Prognosis and work capacity.

Topic 6. Inflammatory bowel diseases. Irritable bowel syndrome

Ulcerative colitis and Crohn's disease. Definition. Etiology and pathogenesis. Classification. Features of the clinical course depending on the degree of activity, severity and phase of the course. Diagnosis. Diagnostic criteria, differential diagnosis. Intestinal and extraintestinal complications and diseases associated with inflammatory bowel diseases (toxic dilatation, perforation, sclerosing cholangitis, spondylitis, arthritis, dermatitis, uveitis, etc.). Treatment. Primary and secondary prevention. Prognosis and work capacity.

Irritable bowel syndrome. Definition. Etiology and pathogenesis. Classification. Clinical manifestations of different options. Roman diagnostic criteria. Differential diagnosis. Treatment. Primary and secondary prevention. Prognosis and work capacity.

Topic 7. Gallstone disease, chronic cholecystitis, and functional biliary disorders

Definition. Etiology and pathogenesis. The significance of infection, motility disorders, and dyscholia in the development of chronic cholecystitis and gallstone disease. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Complications of gallstone disease. Treatment, including endoscopic and surgical. Primary and secondary prevention. Prognosis and work capacity.

Topic 8. Chronic hepatitis

Definition. Etiology and pathogenesis (the role of hepatitis B, C, D viruses, autoimmune, toxic, and drug-induced factors). Classification. Clinical manifestations depending on the etiology. Main clinico-biochemical syndromes. Diagnosis. Diagnostic criteria. Differential diagnosis. Complications. Patient management. Treatment. Primary and secondary prevention. Prognosis and work capacity.

Topic 9. Cirrhosis

Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Main clinico-biochemical syndromes. Diagnosis. Diagnostic criteria. Differential diagnosis. Complications. Patient management. Treatment, including therapy for complications. Indications for endoscopic and surgical interventions and liver transplantation. Primary and secondary prevention. Prognosis and work capacity.

Topic 10. Chronic pancreatitis

Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Main clinical syndromes (pain, exocrine and endocrine pancreatic insufficiency, dyspeptic syndrome). Diagnosis. Diagnostic criteria. Differential diagnosis. Complications. Differentiated treatment. Indications for endoscopic and

surgical interventions. Primary and secondary prevention. Prognosis and work capacity.

Content module 2. Hematology

30 hours/1 credit (lectures – 3 hours, practical lessons – 22 hours, self-study work – 5 hours)

Topic 11. Anemias

Definition. Classification. Etiology and pathogenesis of various types of anemias (posthemorrhagic, iron-deficiency, vitamin B12-deficiency, folate-deficiency, aplastic, and hemolytic). Clinical manifestations and diagnosis. Differential diagnosis. Complications. Treatment of different types of anemias. Blood component use and blood substitutes. Primary and secondary prevention. Prognosis and work capacity.

Topic 12. Hemophilia and idiopathic thrombocytopenic purpura (immune thrombocytopenia)

Definition. Classification. Etiology and pathogenesis, main clinical syndromes. Diagnosis. Diagnostic criteria. Differential diagnosis. Treatment. Prevention of bleeding. Primary and secondary prevention. Prognosis and work capacity.

Topic 13. Acute leukemias

Definition. Etiology and pathogenesis. Classification. Main clinical and hematological syndromes. Clinical manifestations. Diagnosis. Diagnostic criteria. Differential diagnosis. Complications. Treatment. Bone marrow transplantation. Primary and secondary prevention. Prognosis and work capacity.

Topics 14. Chronic leukemias

Definition. Etiology and pathogenesis. Classification. Main clinical and hematological syndromes. Clinical manifestations. Diagnosis. Diagnostic criteria. Differential diagnosis. Complications. Treatment. Bone marrow transplantation. Primary and secondary prevention. Prognosis and work capacity.

Topic 15. Principles of evidence-based medicine

Definition. Principles and components of evidence-based medicine. Basic concepts of clinical research. Levels of evidence and strength of recommendations. The role of evidence-based medicine in contemporary clinical practice. Medical and ethical aspects of evidence-based medicine.

Content module 3. Pulmonology

48 hours/1,6 credits (lectures – 4 hours, practical lessons – 38 hours, self-study work – 6 hours)

Topic 16. Chronic obstructive pulmonary disease. Bronchitis

Definition. The role of smoking, environmental, occupational factors, and infection in the development of these diseases. Classification. Clinical manifestations. Diagnosis. Laboratory and instrumental findings according to disease severity. Differential diagnosis. Complications. Treatment. Primary and secondary prevention. Prognosis and work capacity.

Topic 17. Bronchial asthma

Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Laboratory and instrumental findings according to disease severity. Differential diagnosis. Complications. Treatment. Emergency management of severe bronchial asthma exacerbations. Primary and secondary prevention. Prognosis and work capacity.

Topic 18. Pneumonia

Definition. Etiology and pathogenesis. Classification. Clinical manifestations and course variations depending on the pathogen. Diagnosis. Diagnostic criteria. Differential diagnosis. Complications (acute respiratory distress syndrome, destruction of lung tissue, acute respiratory failure, etc.). Differentiated treatment. Primary and secondary prevention. Prognosis and work capacity.

Topic 19. Pleurisy

Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Complications. Indications for

pleural paracentesis (thoracentesis) and pleural space drainage. Treatment. Primary and secondary prevention. Prognosis and work capacity.

Topic 20. Infectious and destructive lung diseases. Bronchiectasis

Infectious and destructive lung diseases. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Complications. Treatment. Indications for endoscopic and surgical interventions. Primary and secondary prevention. Prognosis and work capacity.

Bronchiectasis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Complications. Treatment. Indications for endoscopic and surgical interventions. Primary and secondary prevention. Prognosis and work capacity.

Topic 21. Respiratory failure

Definition of respiratory and pulmonary failure. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis, including pulmonary function testing, pulse oximetry, analysis of arterial and venous blood gases, and assessment of blood acid–base status. Differential diagnosis. Treatment. Primary and secondary prevention. Prognosis and working capacity.

Topic 22. Diagnosis and treatment of diseases of internal organs in the elderly

Age-related changes in metabolism. Comorbidities and their prevalence. Specific aspects of clinical manifestations, diagnosis, and pharmacotherapy in older adults. Prevention. Prognosis.

Content module 4. Endocrinology

30 hours/1 credit (lectures – 2 hours, practical lessons – 16 hours, self-study work – 12 hours)

Topic 23. Diabetes mellitus, classification, Etiology, pathogenesis, clinical presentation, diagnosis. Modern treatment of diabetes mellitus type 1

Diabetes mellitus, definition. Epidemiology of diabetes mellitus in Ukraine and worldwide, prognosis of morbidity, prevalence of diabetes mellitus amongst

different age group. Etiology and pathogenesis. of diabetes mellitus. Type 1 diabetes mellitus: role of viral infection and autoimmune processes, genetic predisposition. Type 2 diabetes mellitus: role of genetic predisposition, obesity, external factors. Insulin resistance and disturbance of insulin secretion. Classification of glucose intolerance states, clinical types of diabetes mellitus. Characteristics of internal organs demages due to diabetes mellitus: disturbances of cardio-vascular system, hepatobiliary system, kidneys and urinary tract, diabetic osteoarthropathy. Criteria of diagnosis of diabetes mellitus and other forms of hyperglycemia disturbances. Indications and method of performing of oral glucose tolerance test. Diagnostic importance of glycated hemoglobin test, glycated fructosamine test, C- peptide, glucosuria, ketonuria.

Main principles of therapy of diabetes mellitus. Achieving the target level of glycemia and glycated hemoglobin. Insulin therapy. Classification of insulin preparations, indications to their usage. Insulin analogues. Calculation of daily dose of insulin. Correction of dose of insulin according to bread units.

Regimes of insulintherapy: traditional (convential), intensified (basic – bolus), pump therapy. Complications of insulintherapy: hypoglycemic states, allergic reactions, lypodystrophy, insulinresistance syndrome, Somogie syndrome, insulin edema. Guidelines for management of type 1 diabetes mellitus.

Topic 24. Diabetes mellitus type 2, modern methods of treatment. Acute and chronic complications of diabetes mellitus

Algorythm of treatment of diabetes mellitus type 2. Main principles of management: diet, controlled physical activity, medical preparations, self- control, patient education. Medical preparations: insulin sensitizers (metfomin, tiazolidinediones), secretagogues (sulfonylurea derivates, glinides), incretines (GLP- 1 analogues, DPP-4 inhibitors), α-glucosidase inhibitors, sodium–glucose cotransporter 2 inhibitors (SGLT2i), insulin therapy. Guidelines for management of type 2 diabetes mellitus.

Diabetic coma: hyperglycemic кetoacidotic, hyperosmolar nonкetoacidotic, hyperlactacidemic. Etiology, pathogenesis, Clinical manifestations, diagnosis and

differential diagnosis, treatment. Hypoglycemic coma. Etiology, pathogenesis, Clinical manifestations, diagnosis, treatment.

Chronic complications of diabetes mellitus. Microvascular complications (diabetic retinopathy, nephropathy, neuropathy); macrovascular complications (ischemic heart disease, cerebral vascular disturbances, diabetic foot syndrome). Classification, diagnosis, treatment.

Topic 25. Thyroid and parathyroid glands disorders

Definition of Iodine deficiency state. Clanical signs of iodine deficiency. Indication of iodine deficient (endemic) territories by prevalence of goiter and iodinurea level among different age groups of population. Estimation of size of thyroid gland. Diffuse nontoxic and nodular goiter. The impact of inviromental and technical disasters on thyroid gland diseases. Iodine profilaxis: mass, group, individual. Iodized salt in iodine profilaxis. Iodine – containing drug restrictions to their usage.

Hypothyroidism: Etiology, pathogenesis, Clinical manifestations, diagnosis and differential diagnosis, treatment. Primary, central, periferial, subclinical, transient. Proper diagnosis of congenital hypothyroidism. Age impact on clinical course of hypothyroidism. Hypothyroidism as a part of autoimmune poliendocrinopathies. Subclinical hypothyroidism. Treatment of hypothyroidism. Pregnancy and hypothyroidism. Thyroidites, clinical signes, diagnosis, treatment.

Diseases with thyrotoxocosis. Etiology, pathogenesis, Clinical manifestations of Grave's disease, endocrine ophtalmopathy, diagnosis and differential diagnosis, treatment: medicines, radioactive iodine treatment 131-I, surgery. Comlications of treatment of Grave's disease.

Nodular goiter. Management of nodules in thyroid gland.

Pathomorphological classification of tumors in thyroid gland. Diagnosis of thyroid cancer. Impact of Chernobyl catastrophe in 1986 on thyroid cancer morbidity. Modern treatment and rehabilitation of the patients with thyroid cancer.

Parathyroid glands disorders. Hyperparathyroidism: Etiology, pathogenesis, Clinical manifestations, diagnosis and differential diagnosis, treatment. Indications

to surgery, postoperative period and rehabilitation. Medication treatment. Hypoparathyroidism: Etiology, pathogenesis, Clinical manifestations, diagnosis and differential diagnosis, treatment. The role of vitamin D deficiency in metabolic disoders.

Topic 26. Diseases of the hypothalamo-hypophysis system and adrenal glands. Metabolic disorders. Diseases of the gonads

Definition, epidemiology of acute and chronic adrenal insufficiency. Chronic adrenal insufficiency (Addison's disease). Etiology, pathogenesis, Clinical manifestations, diagnosis and differential diagnosis, treatment, prognosis**.** Acute adrenal insufficiency. Etiology, pathogenesis, Clinical manifestations, diagnosis and differential diagnosis, profilaxis, treatment. Classification of tumors of adrenal glands. Cushing syndrome (glucosteroma). Clinical manifestations, diagnosis and differential diagnosis, treatment**.** Androsteroma, esteroma, incidentaloma, mixed, combined tumors. Clinical manifestations, diagnosis and differential diagnosis, treatment. Primary hyperaldosteronism (Conn syndrome). Clinical manifestations, diagnosis and differential diagnosis, treatment. Pheochromocytoma. Clinical manifestations, diagnosis and differential diagnosis, treatment. Congenital hyperplasia of adrenal cortex, clinical forms, diagnosis and treatment.

Classification of hypothalamo–pituitary diseases. Acromegaly and pituitary gigantism. Etiology, pathogenesis, Clinical manifestations, diagnosis and differential diagnosis, treatment. Cushing disease. Etiology, pathogenesis, Clinical manifestations, diagnosis and differential diagnosis, treatment. Syndrome of hyperprolactinemia. Classification, Etiology, pathogenesis, Clinical manifestations, diagnosis and differential diagnosis, treatment. Diabetes insipidus. Etiology, pathogenesis, Clinical manifestations, diagnosis and differential diagnosis, treatment. Hypopituitarism. Etiology, pathogenesis, Clinical manifestations, diagnosis and differential diagnosis, treatment. Obesity. Etiology, pathogenesis, classification, Clinical manifestations, diagnosis treatment. Diseases of the gonads. Characteristics of the syndrome of multiple endocrine neoplasias.

Content module 5. Phthisiology

60 hours/2 credits (lectures – 2 hours, practical lessons – 26 hours, self-study work – 32 hours)

Topic 27. General Principles of Tuberculosis (TB) Control. Detection and Diagnosis of Tuberculosis

Key epidemiological indicators of tuberculosis and their interpretation. Epidemiology of tuberculosis in Ukraine and worldwide. Sources of TB infection and mechanisms of transmission. Clinical classification of tuberculosis. Concepts of TB infection, primary and secondary tuberculosis. Risk groups. Recognition of symptoms suggestive of tuberculosis. The role of laboratory methods in TB detection. Microscopic diagnosis of tuberculosis. Microbiological methods for TB diagnosis. Molecular diagnostic methods for tuberculosis. The role of radiological imaging in TB diagnosis. The role of computed tomography (CT), magnetic resonance imaging (MRI), and other imaging modalities in the diagnosis and differential diagnosis of tuberculosis. Radiological features of pulmonary and extrapulmonary tuberculosis. The role of invasive diagnostic procedures in confirming the diagnosis. Methods for diagnosing TB infection, including indications for testing, testing procedures, and interpretation of results**.**

Topic 28. Clinical Features of Tuberculosis

Clinical manifestations of pulmonary, extrapulmonary, and combined tuberculosis. Disseminated (miliary) tuberculosis. Tuberculosis of the spine and joints, pleura, lymph nodes, and central nervous system. Primary tuberculosis. The impact of universal BCG vaccination on the pathomorphosis of tuberculosis.

Topic 29. General Principles and Methods of Tuberculosis Treatment

Anti-tuberculosis drugs. Treatment regimens for drug-susceptible and drug-resistant tuberculosis. The concept of drug resistance. Treatment of extrapulmonary tuberculosis. Adverse effects of anti-tuberculosis therapy and strategies for their management. Treatment monitoring and assessment of treatment effectiveness. Definition of tuberculosis treatment outcomes. Directly observed treatment (DOT). Outpatient and inpatient management of tuberculosis.

Treatment adherence. Surgical management of pulmonary and extrapulmonary tuberculosis. Palliative care. Addressing stigma and discrimination against people affected by tuberculosis.

Topic 30. Infection Prevention and Control in Tuberculosis Management

The chain of infection transmission and strategies to interrupt it: early case detection, patient isolation, effective treatment of infectious patients, infection prevention and control (IPC), BCG vaccination, and tuberculosis preventive treatment (TPT). Infection prevention and control measures: administrative, environmental, and personal protective measures. Patient triage and the concept of high-, medium-, and low-risk areas. Respiratory hygiene. Indoor air quality management: natural and mechanical ventilation. Air filtration. Ultraviolet germicidal irradiation (UVGI): types and applications of UVGI devices. Respiratory protective equipment: types of respirators, fit testing, and appropriate use. Concepts of close contacts and TB exposure settings. Contact investigation and tracing. BCG vaccination: timing, contraindications, and administration technique. Post-vaccination reactions and BCG-related adverse events. Indications for tuberculosis preventive treatment. Tuberculosis preventive treatment regimens.

Topic 31. Tuberculosis in Immunocompromised Patients

Pathogenesis of tuberculosis in people living with HIV. Tuberculosis as an opportunistic infection. Clinical features, diagnosis, and management of TB/HIV co-infection. Timing of initiation of anti-tuberculosis treatment and antiretroviral therapy. Immune reconstitution inflammatory syndrome (IRIS) in people living with HIV: clinical manifestations and its impact on the course of tuberculosis. Tuberculosis in recipients of solid organ and hematopoietic stem cell transplants and in patients receiving tumor necrosis factor (TNF) inhibitors: diagnosis of TB infection, risk assessment, and prevention. The impact of comorbidities on tuberculosis, including diabetes mellitus and pneumoconiosis. Tuberculosis during pregnancy.

Content module 6. Clinical medical practice (professional training) in internal medicine

60 hours/2 credits (lectures – 0 hours, practical lessons – 20 hours, self-study work – 45 hours)

Topic 32. Principles of organizing planned and emergency internal medicine care

Organization of planned and emergency internal medicine care. Organization of the work of a physician in an inpatient internal medicine department. Principles of medical ethics and deontology in the work of a physician in an inpatient internal medicine department. Maintenance of medical records. Performance of medical procedures. Keeping a diary (Appendix 1).

Topic 33. Management of patients with the most common diseases of the digestive organs

Patient interview (elicitation of complaints and medical history) and physical examination of patients with the most common diseases of the digestive organs. Establishment of a preliminary diagnosis. Development of an examination plan and interpretation of the results of laboratory and instrumental investigations. Differential diagnosis. Establishment of a clinical diagnosis and prescription of treatment. Assessment of prognosis, work capacity, and prevention. Maintenance of medical records. Performance of medical procedures. Keeping a diary (Appendix 1).

Topic 34. Management of patients with the most common diseases of the blood and hematopoietic organs

Patient interview (elicitation of complaints and medical history) and physical examination of patients with the most common diseases of the blood and hematopoietic organs. Establishment of a preliminary diagnosis. Development of an examination plan and interpretation of the results of laboratory and instrumental investigations. Differential diagnosis. Establishment of a clinical diagnosis and prescription of treatment. Assessment of prognosis, work capacity, and prevention.

Maintenance of medical records. Performance of medical procedures. Keeping a diary (Appendix 1).

Topic 35. Management of patients with the most common diseases of the respiratory organs

Patient interview (elicitation of complaints and medical history) and physical examination of patients with the most common diseases of the respiratory organs. Establishment of a preliminary diagnosis. Development of an examination plan and interpretation of the results of laboratory and instrumental investigations. Differential diagnosis. Establishment of a clinical diagnosis and prescription of treatment. Assessment of prognosis, work capacity, and prevention. Maintenance of medical records. Performance of medical procedures. Keeping a diary (Appendix 1).

Topic 36. Diagnosis and emergency medical care for emergency conditions of the respiratory and digestive organs

Diagnosis and provision of emergency medical care for emergency conditions of the respiratory and digestive organs (acute respiratory failure, severe exacerbation of bronchial asthma, acute hepatic failure, esophageal and gastrointestinal bleeding). Maintenance of medical records. Performance of medical procedures. Keeping a diary (Appendix 1) and completing a consolidated digital report on completion of clinical medical practice (professional training) in internal medicine (Appendix 2).

MODULE 2 (Year 5).
INTERNAL MEDICINE (CARDIOLOGY, RHEUMATOLOGY, NEPHROLOGY), INCLUDING CLINICAL IMMUNOLOGY AND ALLERGOLOGY

195 hours/6,5 credits (lectures – 8 hours, practical lessons – 142 hours, self-study work – 40 hours)

Content module 1. Clinical immunology and allergology

Topic 1. Modern ideas about the structure and principles of functioning of the immune system, clinical and laboratory assessment of its disorders

Modern possibilities of clinical immunology in diagnosis, treatment and prevention of diseases.

Definition and types of immunity. Factors of innate immunity. Specific immunity, its features, stages of formation and cooperation of immunocompetent cells that participate in the formation of the immune response. Populations (T- and B-lymphocytes) and subpopulations of lymphocytes. Immunoglobulins, main functions. The main histocompatibility complex: structure, properties, function.

Features of the immunological history. Laboratory methods for evaluating the immune system: humoral and cellular links, innate and acquired protective factors; comprehensive assessment of local immunity. Immunogram, interpretation of results. Possibilities and limitations of immunological methods in the clinic. Peculiarities of making an immunological diagnosis.

Topic 2. Immune inflammation and infectious diseases. Immunopathogenesis, immunodiagnosis, therapy

Mechanisms of immune protection in bacterial and viral infections. The role of the immune system in antifungal immunity and protection against helminths. The importance of the state of the immune system in the development of opportunistic and protozoan infections. Immunological methods in the diagnosis of infectious diseases.

Immune response to an acute inflammatory process. Dynamics indicators leukograms, proteinograms and immunograms in acute, recurrent and chronic inflammation.

Types and features of specific immunoprophylaxis of infectious diseases. Immune-dependent reactions and complications during vaccination.

Topic 3. Congenital immunodeficiencies

Congenital immunodeficiencies: definition, classification, mechanisms of development. Clinical signs, immunoDiagnosis, doctor's tactics, approaches to treatment: combined, T- and B-dependent immunodeficiencies caused by a violation of the phagocytic link of immunity and complement deficiency.

Topic 4. Acquired immunodeficiencies

Acquired immunodeficiencies: definition, causes, mechanisms of development, classification, diagnosis. The role of acquired immunodeficiency diseases in pathogenesis various diseases. Early detection of signs of secondary immunodeficiency. Basic approaches to treatment. Immunorehabilitation, immunoprophylaxis.

Chronic fatigue syndrome.

Topic 5. Basics of transplantation immunity. Immunology of reproduction. Immune-dependent forms of infertility

Basic concepts, terminology (auto-, allo-, xeno - transplant). Pre-transplantation monitoring. Mechanisms rejection allograft: subacute, acute and chronic. Post-transplantation infectious complications, diagnostic criteria. Immunosuppressive therapy: mechanisms actions, principles of appointment, complications. New immunological methods of diagnosis and therapy in transplantology.

Immune relationships in the “father – mother” and “mother – fetus” systems. Immune status of pregnant women. Immune-dependent forms of infertility in marriage. Causes and immunological mechanisms of formation of antisperm autoantibodies in men and women, immunoDiagnosis. Immune conflicts in the “mother-fetus” system: diagnosis, treatment, prevention.

Topic 6. Immunology of tumors. Immune aspects of autoimmune pathology

Antiblastoma and problastoma mechanisms of interaction of the immune system of the “host” organism and the “tumor”. Factors of immunological resistance of the tumor. The concept of tumor-associated antigens. Immunosuppressive effect of tumors. Immune changes in cancer patients. Modern approaches to immunotherapy of patients with oncological diseases.

Definition of the concept of autoimmune reactions, autoimmune disease. Mechanisms of disruption of immunological tolerance, the role of genetic factors. Immunodiagnosis, immunopathogenesis. The role of immunological research methods in the early verification of the diagnosis of autoimmune diseases.

Autoimmune component in immunopathogenesis various human diseases. Modern approaches to the use of immunotropic drugs of the new generation in the treatment of autoimmune diseases.

Topic 7. IgE - dependent diseases, modern methods of allergy Diagnosis. Allergen-specific immunotherapy

The role of genetic and environmental factors in the immunopathogenesis of allergies. Types and main stages of immunological reactions. Modern aspects of allergic Diagnosis.

Atopy as a systemic disease. Clinical examples of aTopic diseases. Fundamentals of molecular Diagnosis. Screening methods in the assessment of sensitization to allergens. Types of skin tests. Elimination and provocative tests in allergology. Principles of treatment of allergic diseases. Allergospecific immunotherapy, indications and contraindications.

Features of the immunopathogenesis of bronchial asthma, allergic rhinitis, urticaria, etc.

Topic 8. Non-aTopic most common allergic diseases. Drug allergy

Contact dermatitis. IgE - dependent diseases, modern methods of allergy Diagnosis. Allergen-specific immunotherapy. Drug allergy: causes, immunopathogenesis, clinic, allergy diagnosis and prevention.

Content module 2. Cardiology

84 hours/2,8 credits (lectures – 4 hours, practical lessons – 58,5 hours, self-study works – 21,5 hours)

Topic 9. Atherosclerosis

Definition. The role of dyslipidemia, general and local inflammation, vascular wall injury, and platelets in disease development. Risk factors. Cardiovascular risk stratification. Clinical manifestations depending on the predominant localization of atherosclerotic lesions (aorta, coronary, mesenteric, and renal arteries, arteries of the lower extremities). Diagnosis. Differential

diagnosis. Complications. Treatment. Primary and secondary prevention. Prognosis and work capacity.

Topic 10. Essential hypertension

Definition. The role of neurohumoral mechanisms in the regulation of blood pressure, endothelial function, and other factors in the pathogenesis of essential hypertension. Classification. Clinical manifestations. Target organ damage. Diagnosis. Differential diagnosis. Cardiovascular risk stratification. Non-pharmacological and pharmacological treatment. Uncomplicated and complicated hypertensive crises and the principles of their management. Primary and secondary prevention. Prognosis and work capacity.

Topic 11. Secondary hypertension

Definition. The main causes and diagnosis of renal (renovascular, renoparenchymal), endocrine (Cushing's syndrome and disease, pheochromocytoma, primary aldosteronism, hyper- and hypothyroidism), and hemodynamic (coarctation of the aorta) arterial hypertension. Hypertension in obstructive sleep apnea syndrome and pregnancy. Diagnosis. Differential diagnosis. Treatment, including endoscopic and surgical. Primary and secondary prevention. Prognosis and work capacity.

Topic 12. Coronary artery disease. Chronic coronary syndromes

Coronary artery disease (CAD): definition, etiology, pathogenesis, and classification. Chronic coronary syndromes. Canadian Cardiovascular Society classification of angina. Ischemia with non-obstructive coronary arteries (INOCA) and angina with non-obstructive coronary arteries (ANOCA). Silent myocardial ischemia. Cardiosclerosis. Clinical manifestations of chronic coronary syndromes. Significance of Diagnosis. Differential diagnosis. Treatment, including disease-modifying therapy. Myocardial revascularization. Primary and secondary prevention. Prognosis and work capacity.

Topic 13. Acute coronary syndromes

Definition and classification of acute coronary syndromes, unstable angina, and acute myocardial infarction (AMI). Clinical manifestations and diagnostic

approach. Diagnosis. Diagnostic criteria. Differential diagnosis. Complications of AMI (acute left ventricular failure, cardiac arrhythmias and conduction disorders, myocardial rupture, acute ventricular aneurysm, Dressler syndrome, etc.). Emergency care and treatment. Prognosis-modifying therapy. Rehabilitation. Primary and secondary prevention. Prognosis and work capacity.

Topic 14. Cardiac arrhythmias

Definition. Etiology. Classification. Electrophysiological mechanisms of arrhythmias (extrasystole, atrial fibrillation and atrial flutter, supraventricular and ventricular tachycardias, ventricular fibrillation). Clinical manifestations. Diagnosis (ECG criteria for arrhythmias, Holter monitoring) and differential diagnosis. Complications. Pharmacological and non-pharmacological methods of treatment. Emergency medical care for paroxysmal cardiac arrhythmias and sudden cardiac death. Primary and secondary prevention. Prognosis and work capacity.

Topic 15. Cardiac conduction disorders

Definition. Etiology. Classification. Clinical manifestations and ECG diagnosis of sinoatrial, atrioventricular, and bundle branch blocks. Management of acute and chronic cardiac conduction disorders. Emergency care for Morgagni-Adams-Stokes syndrome. Indications and principles of cardiac pacing (temporary, permanent). Primary and secondary prevention. Prognosis and work capacity.

Topic 16. Cor pulmonale. Pulmonary embolism

Cor pulmonale. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Investigation results based on etiology. Differential diagnosis. Principles of differentiated treatment. Primary and secondary prevention. Prognosis and work capacity.

Pulmonary embolism (PE). Definition. Risk factors. Pathogenesis of hemodynamic disturbances. Classification. Clinical manifestations. Diagnosis (clinical assessment of the probability of PE, laboratory and instrumental investigations). Diagnostic algorithms. Differential diagnosis. Early mortality risk stratification. Management strategy and treatment of patients with acute PE. Long-

term treatment and prevention of recurrence. Primary and secondary prevention. Prognosis and work capacity.

Topic 17. Congenital heart disease in adults

Definition. Atrial and ventricular septal defects, patent ductus arteriosus, coarctation of the aorta. Mechanisms of hemodynamic disorders, and the significance of pulmonary hypertension development. Clinical manifestations. Diagnosis. Differential diagnosis. Complications. Eisenmenger syndrome. Treatment (pharmacological therapy, surgical and catheter interventions). Prevention of complications. Prognosis and work capacity.

Topic 18. Endocarditis. Valvular heart disease

Endocarditis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Features of the clinical course depending on the pathogen. Diagnosis. Diagnostic criteria. Differential diagnosis. Complications (heart failure, embolism, abscess, etc.). Treatment. Antibiotic therapy regimens. Indications for surgical treatment. Primary and secondary prevention. Prognosis and work capacity.

Valvular heart disease. Mitral stenosis, mitral regurgitation, aortic stenosis, aortic regurgitation, and tricuspid regurgitation. Etiology, mechanisms of hemodynamic disorders. Classification. Multiple and mixed valvular heart disease. Clinical manifestations. Diagnosis. Differential diagnosis. Complications. Treatment. Indications for interventional procedures and surgical treatment. Primary and secondary prevention. Prognosis and work capacity.

Topic 19. Myocarditis and cardiomyopathy

Definition. Classification. Etiology and pathogenesis of myocarditis and main phenotypes of cardiomyopathy (dilated, hypertrophic, etc.). Clinical manifestations. Diagnosis and diagnostic criteria. Differential diagnosis. Complications. Treatment of myocarditis and various cardiomyopathy phenotypes. Primary and secondary prevention. Prognosis and work capacity.

Topic 20. Pericarditis

Definition. Etiology and pathogenesis. Classification. Features of clinical manifestations, course, and diagnosis of various forms of pericarditis. Differential diagnosis. Cardiac tamponade. Indications for pericardial puncture, its diagnostic and therapeutic significance. Differentiated therapy of various forms depending on etiological factors. Primary and secondary prevention. Prognosis and work capacity.

Topic 21. Acute and chronic heart failure

Acute heart failure. Definition. Etiology and pathogenesis of central and peripheral hemodynamic disorders. Classification. Clinical manifestations. Diagnosis. Management at the pre-hospital and hospital stages, and pre-discharge. Emergency care of acute decompensated heart failure, acute pulmonary edema, isolated right ventricular failure, and cardiogenic shock.

Chronic heart failure. Definition. Etiology and pathogenesis: the role of neurohumoral activation and cardiac remodeling. Classification. Clinical manifestations. Diagnosis and differential diagnosis. Non-pharmacological and pharmacological treatment of various chronic heart failure phenotypes, including guideline-directed medical therapy (GDMT). Primary and secondary prevention. Prognosis and work capacity.

Content module 2. Rheumatology

39 hours/1,3 credits (lectures – 1 hours, practical lessons - 27 hours, self-study works – 11 hours)

Topic 22. Acute rheumatic fever. Systemic connective tissue diseases (systemic lupus erythematosus)

Acute rheumatic fever. Definition. The role of streptococcal infection and immunological reactivity in the development of acute rheumatic fever. Classification. Clinical manifestations (carditis, polyarthritis, chorea, erythema marginatum, subcutaneous rheumatic nodules, etc.). Diagnosis. Diagnostic criteria. Differential diagnosis. Complications. Treatment. Primary and secondary

prevention. Prognosis and work capacity. Chronic rheumatic heart disease as a consequence of previous acute rheumatic fever.

Systemic lupus erythematosus. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Classification criteria. Diagnosis. Diagnostic algorithm. Differential diagnosis. Complications. Non-pharmacological and pharmacological treatment, including pulse therapy. Prevention. Prognosis and work capacity.

Topic 23. Systemic connective tissue diseases (systemic sclerosis, dermatomyositis and polymyositis).

Systemic sclerosis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Classification criteria. Diagnosis. Differential diagnosis. Complications. Treatment. Prevention. Prognosis and work capacity.

Dermatomyositis and polymyositis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Classification criteria. Diagnosis. Differential diagnosis. Complications. Treatment. Prevention. Prognosis and work capacity.

Topic 24. Systemic vasculitis

Definition. Etiology and pathogenesis. Classification. Polyarteritis nodosa, IgA vasculitis, and hypersensitivity vasculitis. Clinical manifestations. Diagnosis. Diagnostic criteria. Differential diagnosis. Treatment. Prevention. Prognosis and work capacity.

Topic 25. Rheumatoid arthritis

Definition. Etiology and pathogenesis. The role of immune status disorders in the development of the disease. Classification. Clinical manifestations. Classification criteria. Diagnosis, radiographic stages. Assessment of functional status. Differential diagnosis. Complications. Patient management algorithm. Treatment: disease-modifying antirheumatic drugs (DMARDs) and symptomatic treatment. Prevention. Prognosis and work capacity.

Topic 26. Osteoarthritis/osteoarthrosis. Gout

Osteoarthritis/osteoarthrosis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Diagnostic criteria. Differential diagnosis. Non-pharmacological and pharmacological treatment, including symptom-modifying drugs. Primary and secondary prevention. Prognosis and work capacity.

Gout. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Diagnostic criteria for gouty arthritis. Diagnosis. Differential diagnosis. Non-pharmacological and pharmacological treatment, including urate-lowering therapy. Primary and secondary prevention. Prognosis and work capacity.

Topic 27. Spondyloarthritis (Axial spondyloarthritis. Reactive arthritis)

Axial spondyloarthritis, including ankylosing spondyloarthritis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Classification criteria. Diagnosis. Differential diagnosis. Non-pharmacological and pharmacological treatment. Prevention. Prognosis and work capacity.

Reactive arthritis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Diagnostic criteria. Differential diagnosis. Complications. Treatment. Primary and secondary prevention. Prognosis and work capacity.

Content module 3. Nephrology

27 hours/0,9 credits (lectures – 1 hour, practical lessons – 13,5 hours, FC 2 – 5 hours, self-study works – 7,5 hours)

Topic 28. Glomerulonephritis. Renal amyloidosis

Glomerulonephritis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations and characteristics of specific morphological variants. Diagnosis. Differential diagnosis. Complications. Treatment based on morphological variant and clinical course. Primary and secondary prevention. Prognosis and work capacity.

Renal amyloidosis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Complications. Treatment. Primary and secondary prevention. Prognosis and work capacity.

Topic 29. Pyelonephritis. Tubulointerstitial nephritis

Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Complications. Treatment. Primary and secondary prevention. Prognosis and work capacity.

Topic 30. Acute kidney injury. Chronic kidney disease

Acute kidney injury. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Diagnostic criteria. Differential diagnosis. Complications. Treatment of acute kidney injury and its complications. Renal replacement therapy: hemodialysis, hemofiltration, hemodiafiltration. Indications, contraindications, and complications of kidney replacement therapy. Primary and secondary prevention. Prognosis and work capacity.

Chronic kidney disease. Definition. Etiology and pathogenesis of organ and system disorders. Classification. Clinical manifestations. Diagnosis. Diagnostic criteria. Differential diagnosis. Complications. Treatment depending on the stage and renoprotection. Renal replacement therapy: hemodialysis, hemofiltration, hemodiafiltration, peritoneal dialysis, kidney transplantation. Indications, contraindications, and complications of kidney replacement therapy. Primary and secondary prevention. Prognosis and work capacity.

MODULE 3 (Year 6).
INTERNAL MEDICINE, INCLUDING PHTHISIOLOGY, ENDOCRINOLOGY, EMERGENCY CONDITIONS IN NEUROLOGY, AND CLINICAL MEDICAL PRACTICE (PROFESSIONAL TRAINING) IN INTERNAL MEDICINE

Total hours/credits 450/15 (lectures – 0 hours, practical lessons – 334 hours, self-study works – 116 hours)

Content module 1. Management of Patients with Major Symptoms and Syndromes in the Cardiology Clinic

54,5 hours/1,8 credits (practical lessons – 49,5 hours, self-study works – 5 hours)

Topic 1. Management of patients with arterial hypertension

Major diseases and conditions associated with arterial hypertension: essential hypertension and secondary hypertension, including renal hypertension (renovascular and renal parenchymal); endocrine hypertension (Cushing's syndrome and Cushing's disease, pheochromocytoma, primary aldosteronism, hyperthyroidism, hypothyroidism); coarctation of the aorta; and obstructive sleep apnea. Isolated systolic and diastolic hypertension. Hypertension in pregnancy. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of arterial hypertension. Primary and secondary prevention. Prognosis and work capacity.

Topic 2. Management of patients with chronic chest pain

Major diseases and conditions associated with chronic chest pain: cardiovascular diseases (angina pectoris, aortic valve stenosis, hypertrophic cardiomyopathy); diseases of the digestive system (gastroesophageal reflux diseas, achalasia, esophageal spasm, hiatal hernia, peptic ulcers of the stomach and duodenum); musculoskeletal disorders (thoracic osteochondrosis); and panic disorder. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with chronic chest pain. Primary and secondary prevention. Prognosis and work capacity.

Topic 3. Management of patients with acute chest pain

Major diseases and conditions associated with acute chest pain: cardiovascular diseases (acute coronary syndrome, acute pericarditis, acute myocarditis, coronary arteritis, aortic dissection, pulmonary embolism); respiratory

diseases (pleuritis, pneumothorax); musculoskeletal disorders (myositis, costochondritis); diseases of the nervous system (herpes zoster, intercostal neuralgia). Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with acute chest pain. Primary and secondary prevention. Prognosis and work capacity.

Topic 4. Management of patients with cardiac arrhythmias

Etiology and pathogenesis. Classification. Supraventricular and ventricular extrasystoles, atrial fibrillation, and atrial flutter. Clinical manifestations. Diagnosis; ECG findings. Differential diagnosis. Non-pharmacological and pharmacological treatment. Major classes of antiarrhythmic drugs, indications, contraindications, and adverse effects. Cardioversion and interventional management. Primary and secondary prevention. Prognosis and work capacity.

Topic 5. Management of patients with cardiac conduction disorders

Etiology and pathogenesis. Classification. Sinoatrial conduction disorders, atrioventricular blocks of varying degrees, and bundle branch blocks. Sick sinus syndrome. Frederick syndrome. Clinical manifestations. Diagnosis; ECG findings. Differential diagnosis. Treatment; cardiac pacing. Primary and secondary prevention. Prognosis and work capacity.

Topic 6. Management of patients with dyspnea and edema

Major diseases and conditions associated with dyspnea: chronic heart failure; respiratory failure resulting from airway obstruction and diseases of the lungs and pleura; pulmonary embolism; anemias; and panic disorder. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with dyspnea. Primary and secondary prevention. Prognosis and work capacity.

Major diseases and conditions associated with edema: generalized edema (heart failure, nephrotic syndrome, cirrhosis with portal hypertension,

hypoalbuminemia of various etiologies (nutritional, malabsorption syndrome, cachexia), endocrine disorders (hypothyroidism), edema during pregnancy, drug-induced and idiopathic edema); localized edema (allergic and angiedema, venous, lymphatic, and orthostatic edema). Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with edema. Primary and secondary prevention. Prognosis and work capacity.

Topic 7. Management of patients with pulmonary hypertension

Major diseases and conditions associated with pulmonary hypertension (PH): pulmonary arterial hypertension; PH associated with left heart disease; PH associated with lung diseases and/or hypoxia; PH associated with pulmonary artery obstruction; and PH with unclear and/or multifactorial mechanisms. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with PH. Primary and secondary prevention. Prognosis and work capacity.

Topic 8. Management of patients with heart murmurs

Major diseases and conditions associated with systolic and/or diastolic heart murmurs: congenital heart diseases (ventricular septal defect, atrial septal defect, patent ductus arteriosus, coarctation of the aorta); acquired heart valve diseases (mitral stenosis, mitral valve regurgitation, mitral valve prolapse, aortic stenosis, aortic valve regurgitation, tricuspid valve regurgitation); hypertrophic cardiomyopathy. Functional systolic murmur. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment. Indications for interventional procedures and surgical treatment. Primary and secondary prevention. Prognosis and work capacity.

Topic 9. Management of patients with chronic heart failure

Definition. Major causes and pathogenesis. Classification. Diagnostic criteria for chronic heart failure with reduced, mildly reduced, and preserved left ventricular ejection fraction. Clinical manifestations. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis. Pharmacological and non-pharmacological treatment according to the type, functional class, and stage of chronic heart failure. Surgical treatment and cardiac devices. Impact of different treatment modalities on prognosis. Primary and secondary prevention. Prognosis and work capacity.

Content module 2. Management of Patients with Major Symptoms and Syndromes in the Rheumatology Clinic

30 hours/1 credit (practical lessons – 27,5 hours, self-study works – 2,5 hours)

Topic 10. Management of patients with back and limb pain

Major diseases and conditions associated with back and limb pain: spondyloarthritis (axial spondyloarthritis, reactive arthritis, arthritis associated with inflammatory bowel disease (Crohn's disease and ulcerative colitis)), spinal osteochondrosis, osteoporosis, dermatomyositis/polymyositis, and neuropathies of various etiologies, including those associated with systemic vasculitis, diabetes mellitus, and other conditions. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with back and limb pain. Primary and secondary prevention. Prognosis and work capacity.

Topic 11. Management of patients with articular syndrome

Major diseases and conditions associated with articular syndrome: rheumatoid arthritis, osteoarthritis, reactive arthritis, gout, systemic lupus erythematosus, systemic sclerosis, dermatomyositis/polymyositis, axial spondyloarthritis, and polyarteritis nodosa. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential

diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with articular syndrome. Primary and secondary prevention. Prognosis and work capacity

Topic 12. Management of patients with purpura

Major diseases and conditions associated with purpura: hemorrhagic vasculitis (IgA-vasculitis), hypersensitivity vasculitis, polyarteritis nodosa, idiopathic thrombocytopenic purpura (immune thrombocytopenia), and disseminated intravascular coagulation. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with purpura. Primary and secondary prevention. Prognosis and work capacity.

Topic 13. Management of patients with fever

Major diseases and conditions associated with prolonged fever: systemic connective tissue diseases, polyarteritis nodosa, rheumatoid arthritis, infective endocarditis, malignant neoplasms, sepsis, tuberculosis, inflammatory bowel disease, and acquired immunodeficiency syndrome (AIDS). Fever of unknown origin. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with prolonged fever. Primary and secondary prevention. Prognosis and work capacity.

Topic 14. Management of patients with weight loss

Major diseases and conditions associated with weight loss: systemic connective tissue diseases, systemic vasculitis, malignant neoplasms, nutritional and psychogenic weight loss, and other conditions. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with weight loss. Primary and secondary prevention. Prognosis and work capacity.

Content module 3. Management of Patients with Major Symptoms and Syndromes in the Gastroenterology Clinic

42 hours/1,4 credits (practical lessons – 38,5 hours, self-study works – 3,5 hours)

Topic 15. Management of patients with dysphagia and heartburn

Major diseases and conditions associated with dysphagia: esophagitis, esophageal cancer, diffuse esophageal spasm, achalasia, esophageal diverticula, systemic sclerosis, and dysphagia associated with disorders of the central and peripheral nervous systems and muscles. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with dysphagia. Primary and secondary prevention. Prognosis and work capacity.

Major diseases and conditions associated with heartburn: esophagitis, gastroesophageal reflux disease, functional dyspepsia, chronic gastritis, and peptic ulcer disease of the stomach and duodenum. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with dysphagia and heartburn. Primary and secondary prevention. Prognosis and work capacity.

Topic 16. Management of patients with dyspepsia

Definition. Main causes. Classification. Uninvestigated, functional, and organic dyspepsia. Functional dyspepsia and its subtypes: epigastric pain syndrome, postprandial distress syndrome, and overlap syndrome. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment. Primary and secondary prevention. Prognosis and work capacity.

Topic 17. Management of patients with chronic abdominal pain

Major diseases and conditions associated with chronic abdominal pain: functional gastrointestinal disorders (disorders of gut-brain interaction), chronic cholecystitis, Gallstone disease, chronic pancreatitis, chronic gastritis, duodenitis, peptic ulcer disease of the stomach and duodenum, enteritis, and colitis. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with chronic abdominal pain. Indications for endoscopic and surgical interventions. Primary and secondary prevention. Prognosis and work capacity.

Topic 18. Management of patients with chronic diarrhea and constipation

Major diseases and conditions associated with chronic diarrhea: chronic atrophic gastritis, post-gastrectomy conditions, Zollinger-Ellison syndrome, irritable bowel syndrome, Crohn's disease, ulcerative colitis, small intestinal bacterial overgrowth, celiac disease, food intolerance, chronic pancreatitis, and diabetic enteropathy. The role of food intolerance, enzymopathies, and immune mechanisms in the development of chronic diarrhea. Malabsorption and maldigestion syndromes. Main types of diarrhea (secretory, exudative, osmotic, motility-related, and functional). Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithms. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with chronic diarrhea. Primary and secondary prevention. Prognosis and work capacity.

Major diseases and conditions associated with constipation: irritable bowel syndrome, colorectal cancer, anorectal diseases, hypothyroidism, neurogenic and psychogenic disorders, nutritional disorders, situational and iatrogenic constipation. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major

diseases associated with constipation. Primary and secondary prevention. Prognosis and work capacity.

Topic 19. Management of patients with jaundice

Major diseases and conditions associated with jaundice: chronic hepatitis, cirrhosis and liver tumors, hemolytic anemias, Gallstone disease, pancreatic head cancer, cancer of the major duodenal papilla (ampulla of Vater), and benign hyperbilirubinemias. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with jaundice. Primary and secondary prevention. Prognosis and work capacity.

Topic 20. Management of patients with hepatomegaly and hepatosplenomegaly

Major diseases and conditions associated with hepatomegaly and hepatosplenomegaly: diseases of the liver parenchyma and hepatic vasculature, including chronic hepatitis, cirrhosis, liver tumors, and Budd-Chiari syndrome; diseases of the blood and hematopoietic system, including leukemias, Hodgkin lymphoma, and polycythemia vera; right-sided heart failure, including constrictive pericarditis; storage diseases, including hemochromatosis. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with hepatomegaly and hepatosplenomegaly. Indications for endoscopic and surgical interventions. Primary and secondary prevention. Prognosis and work capacity.

Topic 21. Management of patients with portal hypertension and ascites

Major diseases and conditions leading to portal hypertension and ascites: cirrhosis, liver tumors, Budd–Chiari syndrome, portal vein thrombosis or thrombosis of its branches, and thrombosis, stenosis, or obliteration of the inferior vena cava at or above the level of the hepatic vein confluence; right-sided heart failure, including constrictive pericarditis. Differential diagnostic significance of

clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with portal hypertension and ascites. Indications for endoscopic and surgical interventions. Primary and secondary prevention. Prognosis and work capacity.

Content module 4. Management of Patients with Major Symptoms and Syndromes in the Pulmonology Clinic

36 hours/1,2 credits (practical lessons – 33 hours, self-study works – 3 hours)

Topic 22. Management of patients with pulmonary infiltrate

Major diseases and conditions associated with pulmonary infiltrates: pneumonia, pulmonary tuberculosis, pulmonary infarction, benign and malignant lung tumors, pulmonary eosinophilias, and pulmonary sarcoidosis. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with pulmonary infiltrates. Primary and secondary prevention. Prognosis and work capacity.

Topic 23. Management of patients with chronic cough

Major diseases and conditions associated with chronic cough: chronic obstructive pulmonary disease, bronchial asthma, pulmonary tuberculosis, bronchiectasis, lung tumors, pneumoconioses, gastroesophageal reflux disease, and upper airway cough syndrome (postnasal drip syndrome). Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with chronic cough. Primary and secondary prevention. Prognosis and work capacity.

Topic 24. Management of patients with bronchial obstructive syndrome

Major diseases and conditions associated with bronchial obstructive syndrome: chronic obstructive pulmonary disease, bronchial asthma, and tumors of the trachea and bronchi. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with bronchial obstructive syndrome. Primary and secondary prevention. Prognosis and work capacity.

Topic 25. Management of patients with cyanosis

Major diseases and conditions associated with cyanosis: lung diseases, including chronic obstructive pulmonary disease, and interstitial lung diseases; cardiovascular diseases, including congenital heart defects complicated by Eisenmenger syndrome, mitral stenosis, pulmonary embolism, and heart failure; dyshemoglobinemias. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with cyanosis. Primary and secondary prevention. Prognosis and work capacity.

Topic 26. Management of patients with hemoptysis

Major diseases and conditions associated with hemoptysis: bronchiectasis, malignant tumors of the bronchi and lungs, pulmonary tuberculosis, lung abscess, pneumonia, mitral stenosis, and pulmonary embolism. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with hemoptysis. Primary and secondary prevention. Prognosis and work capacity.

Topic 27. Management of patients with pleural effusion

Major diseases and conditions associated with pleural effusion: pneumonia, pulmonary tuberculosis, malignant tumors of the lungs and pleura, heart failure, acute pancreatitis, cirrhosis, nephrotic syndrome, and systemic connective tissue diseases. Differential diagnostic significance of clinical manifestations and

laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with pleural effusion. Indications for pleural puncture and its possible complications. Primary and secondary prevention. Prognosis and work capacity.

Content module 5. Management of Patients with Major Symptoms and Syndromes in the Hematology Clinic

21 hours/0,7 credits (practical lessons – 18 hours, self-study works – 3 hours)

Topic 28. Management of patients with anemia

Major types of anemia: acute and chronic posthemorrhagic, iron deficiency, vitamin B_{12} deficiency, folate deficiency, aplastic, and hemolytic anemia. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment. Indications, contraindications, procedure, and possible complications of transfusion of blood components and blood substitutes. Primary and secondary prevention. Prognosis and work capacity.

Topic 29. Management of patients with leukocytosis and lymphadenopathy

Major diseases and conditions associated with leukocytosis: acute and chronic lymphoid and myeloid leukemias, myeloproliferative neoplasms (including polycythemia vera), leukemoid reactions, acute and chronic infectious diseases, sepsis, and systemic connective tissue diseases. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with leukocytosis. Primary and secondary prevention. Prognosis and work capacity.

Major diseases and conditions associated with lymphadenopathy: Hodgkin lymphoma and non-Hodgkin lymphomas, acute leukemias and chronic lymphoid

leukemia, infectious mononucleosis, reactive lymphadenitis, tuberculosis, sarcoidosis, metastatic involvement of the lymph nodes, systemic connective tissue diseases, HIV infection, and sepsis. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with lymphadenopathy. Primary and secondary prevention. Prognosis and work capacity.

Topic 30. Management of patients with bleeding

Major diseases and conditions associated with bleeding: hemophilia, aplastic anemias, acute and chronic leukemias, idiopathic thrombocytopenic purpura (immune thrombocytopenia), myelodysplastic syndromes, disseminated intravascular coagulation, and acquired coagulopathies, particularly in liver diseases. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Differential diagnosis algorithm. Patient management. Non-pharmacological and pharmacological treatment of the underlying diseases associated with bleeding. Primary and secondary prevention. Prognosis and work capacity.

Content module 6. Management of Patients with Major Symptoms and Syndromes in the Nephrology Clinic

18 hours/0,6 credits (practical lessons – 16,5 hours, self-study works – 1,5 hours)

Topic 31. Management of patients with urinary syndrome

Major diseases and conditions associated with urinary syndrome: acute and chronic glomerulonephritis, chronic pyelonephritis, tubulointerstitial nephritis, dysmetabolic nephropathies, urolithiasis, diabetic kidney disease). Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Algorithm for differential diagnosis. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated

with urinary syndrome. Primary and secondary prevention. Prognosis and work capacity.

Topic 32. Management of patients with nephrotic syndrome

Major diseases and conditions associated with nephrotic syndrome: acute and chronic glomerulonephritis, renal amyloidosis, diabetic kidney disease, and multiple myeloma. Differential diagnostic significance of clinical manifestations and laboratory and instrumental findings. Algorithm for differential diagnosis. Patient management. Non-pharmacological and pharmacological treatment of the major diseases associated with nephrotic syndrome. Primary and secondary prevention. Prognosis and work capacity.

Topic 33. Management of patients with chronic kidney disease

Major diseases and conditions leading to the development of chronic kidney disease: chronic glomerulonephritis, chronic pyelonephritis, tubulointerstitial nephritis, diabetic kidney disease, renal amyloidosis, hypertensive nephropathy, and systemic connective tissue diseases with kidney involvement. Classification. Clinical manifestations. Diagnostic criteria. Diagnostic significance of laboratory and instrumental findings. Algorithm for differential diagnosis. Patient management. Non-pharmacological and pharmacological treatment. Kidney replacement therapy: hemodialysis, hemofiltration, and hemodiafiltration. Indications, contraindications, and complications of kidney replacement therapy. Primary and secondary prevention. Prognosis and work capacity.

Content module 7. Endocrinology

30 hours/1 credit (practical lessons – 14 hours, self-study works – 16 hours)

Topic 34. Management of patients with diabetes mellitus

Criteria for the diagnosis of diabetes mellitus and other categories of hyperglycemia. Indications and rules for glucose tolerance test. Diagnostic value of glycated hemoglobin, glucosuria, ketonuria. The target level of glycemia and glycated hemoglobin. Ketoacidotic conditions in diabetes mellitus. Etiology, pathogenesis, clinic, diagnosis, differential diagnosis, treatment. The main methods

of treatment of diabetes mellitus, diet, dosed exercise, insulin therapy, teaching the patient, self-control.

Complications of insulin therapy: hypoglycemic conditions, insulin allergy, post-injection lipodystrophy, insulin resistance, chronic insulin overdose (Somogy syndrome), insulin edema.

Chronic complications of diabetes mellitus. Classification. Diabetic nephropathy, stages of development, diagnosis, differential diagnosis, treatment and prevention. Diabetic retinopathy: stages of the process, diagnosis, prevention and treatment. Diabetic neuropathy, classification, diagnosis and treatment. Diabetic foot, classification, diagnosis, treatment.

Topic 35. Management of patients with underlying thyroid disease

The concept of endemic (nontoxic) and nodular forms of goiter. Diseases accompanied by thyrotoxicosis. Rationale for the diagnosis of thyrotoxicosis. Treatment of toxic goiter. Hypothyroidism. Chronic thyroiditis. Rationale for the diagnosis of autoimmune thyroiditis. Nodular forms of goiter. Classification of thyroid tumors. Rationale for the diagnosis of thyroid cancer.

Topic 36. Management of patients with diabetic and hypoglycemic emergencies, acute adrenal insufficiency and thyrotoxic crises

Etiology and pathogenesis. of diabetic coma: hyperglycemic кetoacidotic, nonкetotic hyperosmolar, hyperlactacidemic. Clinical manifestations and course options. Diagnosis and differential diagnosis. Algorithm for providing medical care to patients with diabetic coma. Hypoglycemic coma and hypoglycemia, the main causes, provoking factors. Classification of hypoglycemia by severity, diagnosis. Treatment of hypoglycemia depending on the severity.

Etiology and pathogenesis. acute adrenal insufficiency and thyrotoxic crises. Clinical manifestations, diagnosis and differential diagnosis. Algorithm for providing emergency care.

Content module 8. Phthisiology

30 hours/1 credit (practical lessons – 15 hours, self-study works – 15 hours)

Topic 37. Management of Patients with Possible Pulmonary, Pleural, Spinal and Joint, Central Nervous System, Renal, and Lymph Node Tuberculosis.

Standards for the diagnosis and treatment of tuberculosis. Individualized patient management. Laboratory confirmation methods, imaging modalities, and invasive diagnostic procedures for the diagnosis of pulmonary and extrapulmonary tuberculosis. Treatment regimens for drug-susceptible tuberculosis and drug-resistant tuberculosis (DR-TB). Directly observed treatment (DOT): management of patients with tuberculosis in inpatient and outpatient settings.

Topic 38. Management of Patients with an Increased Risk of Tuberculosis (HIV Infection, Solid Organ and Hematopoietic Stem Cell Transplantation, Tumor Necrosis Factor Inhibitor Therapy, and Primary Immunodeficiency Disorders)

HIV infection, solid organ and hematopoietic stem cell transplantation, treatment with tumor necrosis factor (TNF) inhibitors, and primary immunodeficiency disorders as conditions associated with an increased risk of tuberculosis. Clinical manifestations and disease course of tuberculosis in people living with HIV. Challenges in the diagnosis of tuberculosis in people living with HIV and specific features of diagnostic algorithms. Development of active tuberculosis following solid organ or hematopoietic stem cell transplantation or during treatment with TNF inhibitors: risk assessment, diagnosis of TB infection, and preventive strategies. Primary immunodeficiency disorders: approaches to BCG vaccination.

Topic 39. Principles of the Diagnosis and Treatment of Tuberculosis and Diseases Requiring Differential Diagnosis with Tuberculosis (Community-Acquired Pneumonia, Nontuberculous Mycobacterial Disease, and Invasive Fungal Infections), with a Focus on Combating Antimicrobial Resistance

Differential diagnosis of tuberculosis and diseases with similar clinical manifestations, including community-acquired pneumonia, nontuberculous mycobacterial disease, and invasive fungal infections. Principles of rational

antimicrobial therapy for tuberculosis, community-acquired pneumonia, nontuberculous mycobacterial disease, and invasive fungal infections. Antimicrobial stewardship and strategies to combat antimicrobial resistance.

Content module 9. Emergency conditions in neurology

30 hours/1 credit (practical lessons – 15 hours, self-study works – 15 hours)

Topic 40. Management of patients with an acute cerebrovascular disorder

Short scheme of neurological examination. Clinical classification of acute cerebrovascular disorders. Glasgow coma scale. Cerebral coma and criteria for its diagnosis. Transient cerebrovascular disorders. Transient ischemic attacks. Ischemic cerebral stroke. Hemorrhagic stroke. Criteria for diagnosis. Differential diagnosis. Intensive care in the acute period. Subarachnoid hemorrhage. Criteria for diagnosis, differential diagnosis. Principles of the intensive care in the acute period. Management of patients after a stroke. Secondary prevention of stroke. Standards of treatment.

Topic 41. Management of patients with epileptic and non-epileptic paroxysmal states

Types and causes of a short-term loss of consciousness. Epileptic attack. Neurogenic syncope. Somatogenic syncope. Psychogenic syncope. Drop attacks. Differential diagnosis and treatment. The role of instrumental and laboratory methods of investigation.

Epilepsy. Status epilepticus, diagnosis and emergency care.

Topic 42. Management of patients with an infectious and infectious-allergic diseases of central and peripheral nervous system

Meningeal syndrome. Methods of detection meningeal symptoms. Diagnosis and differential diagnosis of the different types of meningitis. Criteria for diagnosis of encephalitis (herpetic, parainfectious, after vaccination). Neuroborreliosis (neurological manifestations of Lyme disease). Diagnosis of poliomyelitis, myelitis, neuroborreliosis.

Infectious-allergic mononeuropathy and polyradiculoneuropathy (Guillain–Barré syndrome, post-diphtheritic polyneuropathy, chronic demyelinating polyneuropathy).

Topic 43. Management of patients with acute pain syndromes in the case of damage to the central and peripheral nervous system

Headache. Primary (migraine, muscle tension pain) and secondary. Prosopalgia. Neuralgia of a trigeminal nerve, pterygopalatine node ganglionitis, Hunt's syndrome. Diagnosis, differential diagnosis, instrumental methods of examination and treatment.

Back pain. Vertebrogenic lesions of the nervous system: reflex and radicular syndromes of cervical, thoracic and lumbosacral levels. Diagnosis, differential diagnosis, instrumental methods of investigation and treatment.

Non-vertebrogenic pain syndromes (herpetic ganglionitis, brachial plexitis, carpal canal syndrome). Diagnosis, differential diagnosis, instrumental methods of investigation and treatment.

Topic 44. Management of patients with neurological manifestations of HIV-infection

Types of damage of nervous system, caused by HIV: acute meningoencephalitis, atypical aseptic meningitis, myelopathy, damage of a peripheral nervous system, AIDS-related dementia. Etiology, pathogenesis, main clinical manifestations.

Damage of a nervous system that occurs against the background of immunodeficiency: caused by toxoplasmosis, herpes simplex virus, cytomegalovirus, papovavirus, fungi. Tumors of the central nervous system in patients with AIDS: primary lymphoma, Kaposi's sarcoma. Cerebrovascular disorders in patients with AIDS. Diagnosis of the neurological manifestations of AIDS, treatment, prognosis, prevention.

Content module 10. Clinical Medical Practice (Professional Training) in Internal Medicine

75 hours/2,5 credits (practical lessons – 30 hours, self-study works – 45 hours)

Topic 45. Principles of organization of medical care in Ukraine. Management of patients with diseases of the cardiovascular system

Principles of the organization of medical care in Ukraine. Fundamentals of the health legislation of Ukraine. Organization of planned and emergency internal medicine care and the work of a physician in an inpatient internal medicine department. Duties and rights of a physician in an inpatient internal medicine department. Principles of medical ethics and deontology in the work of a physician in an inpatient internal medicine department. Maintenance of medical records. Keeping a diary (Appendix 3).

Management of patients with diseases of the cardiovascular system. Patient interview (elicitation of complaints, history of the present illness, review of systems, and past medical history) and physical examination of patients with diseases of the cardiovascular system. Identification of the leading symptom or syndrome. Establishment of a preliminary diagnosis. Development of an examination plan and interpretation of the results of laboratory and instrumental investigations. Diagnostic criteria. Differential diagnosis, justification and establishment of the clinical diagnosis, and prescription of non-pharmacological and pharmacological treatment, including prognosis-modifying therapy. Assessment of prognosis. Work capacity and prevention. Maintenance of medical records. Performance of medical procedures. Keeping a diary (Appendix 3).

Topic 46. Management of patients with diseases of the musculoskeletal system, connective tissue and digestive organs

Patient interview (elicitation of complaints, history of the present illness, review of systems, and past medical history) and physical examination of patients with diseases of the musculoskeletal system, connective tissue and digestive organs. Identification of the leading symptom or syndrome. Establishment of a preliminary diagnosis. Development of an examination plan and interpretation of the results of laboratory and instrumental investigations. Diagnostic criteria.

Differential diagnosis, justification and establishment of the clinical diagnosis, and prescription of non-pharmacological and pharmacological treatment, including prognosis-modifying therapy. Assessment of prognosis. Work capacity and prevention. Maintenance of medical records. Performance of medical procedures. Keeping a diary (Appendix 3).

Topic 47. Management of patients with diseases of the respiratory organs, blood and hematopoietic organs and the genitourinary system

Patient interview (elicitation of complaints, history of the present illness, review of systems, and past medical history) and physical examination of patients with diseases of the respiratory organs, blood and hematopoietic organs and the genitourinary system. Identification of the leading symptom or syndrome. Establishment of a preliminary diagnosis. Development of an examination plan and interpretation of the results of laboratory and instrumental investigations. Diagnostic criteria. Differential diagnosis, justification and establishment of the clinical diagnosis, and prescription of non-pharmacological and pharmacological treatment, including prognosis-modifying therapy. Assessment of prognosis. Work capacity and prevention. Maintenance of medical records. Performance of medical procedures. Keeping a diary (Appendix 3).

Topic 48. Differentiated approach to emergency medical care for cardiovascular emergencies

Provision of emergency medical care for cardiovascular emergencies (hypertensive crisis, acute coronary syndrome, acute heart failure, sudden cardiac arrest, and cardiac arrhythmias, including paroxysmal tachycardia and atrial fibrillation/flutter), taking into account the patient's age, comorbidities, and special considerations for emergency medical care during pregnancy. Maintenance of medical records. Performance of medical procedures. Keeping a diary (Appendix 3).

Topic 49. Differentiated approach to emergency medical care for gastrointestinal emergencies

Provision of emergency medical care for gastrointestinal emergencies (acute liver failure, esophageal bleeding, and gastrointestinal bleeding), taking into account the patient's age, comorbidities, and special considerations for emergency medical care during pregnancy. Maintenance of medical records. Performance of medical procedures. Keeping a diary (Appendix 3).

Topic 50. Differentiated approach to emergency medical care for respiratory and genitourinary emergencies

Provision of emergency medical care for respiratory and genitourinary emergencies (acute respiratory failure, severe exacerbation of bronchial asthma, and acute kidney injury), taking into account the patient's age, comorbidities, and special considerations for emergency medical care during pregnancy. Maintenance of medical records. Performance of medical procedures. Keeping a diary (Appendix 3) and completing a consolidated digital report on completion of clinical medical practice (Appendix 4).

Content module 11. Emergency Conditions in the Internal Medicine Clinic

83,5 hours/2,8 credits (practical lessons – 77 hours, self-study works – 6,5 hours)

Topic 51. Management of sudden cardiac arrest

Standards of emergency diagnosis and emergency care at the pre-hospital and hospital stages. Cardiopulmonary resuscitation algorithms. Pharmacological support. Post-resuscitation care. Patient management**.**

Topic 52. Management of patients with hypertensive crisis

Criteria for uncomplicated and complicated hypertensive crisis. Standards of emergency care at the pre-hospital and hospital stages according to the type of hypertensive crisis and the presence of target organ damage. Prevention.

Topic 53. Management of patients with acute coronary syndrome

Diagnostic criteria. Differential diagnosis. Standards of emergency care at the pre-hospital and hospital stages. Patient management according to the type of

acute coronary syndrome. Prognosis-modifying therapy. Primary and secondary prevention.

Topic 54. Management of patients with pulmonary embolism

Diagnostic criteria. Differential diagnosis. Early mortality risk stratification. Standards of emergency care at the pre-hospital and hospital stages. Patient management according to risk stratification. Primary and secondary prevention.

Topic 55. Management of patients with acute heart failure

Diagnostic criteria. Differential diagnosis. Standards of emergency care at the pre-hospital and hospital stages. Patient management according to the underlying cause and clinical presentation of acute heart failure. Primary and secondary prevention.

Topic 56. Management of patients with shock

Diagnostic criteria. Differential diagnosis. Standards of emergency care at the pre-hospital and hospital stages. Patient management according to the type of shock (hypovolemic, cardiogenic, obstructive, and distributive, including anaphylactic and septic shock). Subsequent patient management.

Topic 57. Management of patients with acute/paroxysmal cardiac arrhythmias and conduction disorders

High-grade ventricular extrasystoles, supraventricular tachycardias (including those associated with Wolff-Parkinson-White syndrome), ventricular paroxysmal tachycardias, atrial fibrillation and atrial flutter, and paroxysmal atrioventricular blocks. Diagnosis. Differential diagnosis. Standards of emergency care at the pre-hospital and hospital stages. Patient management according to the type of cardiac arrhythmia and hemodynamic status. Cardioversion and interventional treatment. Prevention.

Topic 58. Management of patients with acute respiratory failure

Diagnostic criteria. Differential diagnosis. Standards of emergency care at the pre-hospital and hospital stages. Patient management according to the type and cause of acute respiratory failure. Prevention.

Topic 59. Management of patients with melena and hematemesis

Diagnostic criteria. Differential diagnosis. Standards of emergency care at the pre-hospital and hospital stages. Patient management depending on the underlying cause (esophageal variceal bleeding, erosions of the gastric and duodenal mucosa, peptic ulcer disease of the stomach and duodenum, malignancies, ulcerative colitis, hemorrhagic vasculitis) and severity of the clinical course. Role of endoscopic, other instrumental, and laboratory investigations. Conservative treatment, indications for blood component transfusion. Indications for endoscopic hemostasis and emergency surgical treatment. Primary and secondary prevention.

Topic 60. Management of patients with acute liver failure

Clinical manifestations according to etiology. Diagnosis. Diagnostic criteria. Differential diagnosis. Standards of emergency care at the prehospital and hospital stages. Major complications and the principles of their management, including acute hepatic encephalopathy. The use of artificial and bioartificial liver support systems. Liver transplantation. Predictors of poor prognosis. Prevention.

Topic 61. Management of patients with with oligoanuria

Standards of diagnosis. Differential diagnosis. Standards of emergency care at the prehospital and hospital stages. Management strategies depending on the cause of acute kidney injury (prerenal, renal, or postrenal). The role of laboratory and instrumental investigations. Kidney replacement therapy modalities. Prevention.

Topic 62. Management of patients with coma

Classification. Diagnostic criteria. Differential diagnosis. Glasgow Coma Scale. Standards of emergency care at the pre-hospital and hospital stages according to the cause of coma (hypoxic, uremic, hepatic, alcoholic, etc.). Prevention.

Topic 63. Management of patients with syncope

Diagnostic criteria. Differential diagnosis. Standards of emergency care in the prehospital and hospital settings for syncope of different etiologies: cardiac syncope, including syncope associated with structural heart disease (aortic

stenosis, hypertrophic cardiomyopathy, cardiac tamponade, prosthetic valve dysfunction, aortic dissection, severe pulmonary hypertension, and pulmonary embolism); arrhythmic syncope, including syncope associated with paroxysmal cardiac arrhythmias, sinus node dysfunction, paroxysmal atrioventricular block, and cardiac pacemaker malfunction; reflex syncope (vasovagal syncope, situational syncope, and carotid sinus syndrome); and syncope due to orthostatic hypotension. Primary and secondary prevention.

4. Structure of the academic discipline

Names of content modules and Topics	Number of hours					
	full time education					
	Total	Including				
		l.	p.	lab.	ind.	s-s.w.
1	2	3	4	5	6	7
Module 1 (Year 4). Internal Medicine (Gastroenterology, Hematology, and Pulmonology), Including Endocrinology, Phthisiology, and Clinical Medical Practice (Professional Training) in Internal Medicine						
Content module 1. Gastroenterology						
Topic 1. Obesity and its consequences	6,0		5,5			0,5
Topic 2. Esophagitis. Gastroesophageal reflux disease	7,0	1,0	5,5			0,5
Topic 3. Dyspepsia. Gastritis and duodenitis	7,0	1,0	5,5			0,5
Topic 4. Peptic ulcer of the stomach and duodenum	7,0	1,0	5,5			0,5
Topic 5. Celiac disease and other enteropathies	6,0		5,5			0,5
Topic 6. Inflammatory bowel diseases. Irritable bowel syndrome	7,0	1,0	5,5			0,5
Topic 7. Gallstone disease, chronic cholecystitis and functional biliary disorders	7,5	1,0	5,5			1,0
Topic 8. Chronic hepatitis	7,5	1,0	5,5			1,0
Topic 9. Cirrhosis	7,5	1,0	5,5			1,0
Topic 10. Chronic pancreatitis	7,5	1,0	5,5			1,0
Preparation and writing of a medical case history	2,0					2,0
Together according to the content module 1	72,0	8,0	55,0			9,0
Content module 2. Hematology						

Topic 11. Anemias	7,5	1,0	5,5			1,0
Topic 12. Hemophilia and idiopathic thrombocytopenic purpura (immune thrombocytopenia)	7,0		5,5			1,5
Topic 13. Acute leukemias	7,5	1,0	5,5			1,0
Topic 14. Chronic leukemias	7,0		5,5			1,5
Topic 15. Principles of evidence-based medicine	1,0	1,0				
Together according to the content module 2	30,0	3,0	22,0			5,0
Content module 3. Pulmonology						
Topic 16. Chronic obstructive pulmonary disease. Bronchitis	7,5	1	5,5			1,0
Topic 17. Bronchial asthma	7,5	1	5,5			1,0
Topic 18. Pneumonia	7,5	1	5,5			1,0
Topic 19. Pleurisy	6,5		5,5			1,0
Topic 20. Infectious and destructive lung diseases. Bronchiectasis	6,5		5,5			1,0
Topic 21. Respiratory failure	6,5		5,5			1,0
Topic 22 Diagnosis and treatment of diseases of internal organs in the elderly	1,0	1,0				
Together according to the content module 3	43,0	4,0	33,0			6,0
Content module 4. Endocrinology						
Topic 23. Diabetes mellitus, classification, Etiology, pathogenesis, clinical presentation, diagnosis. Modern treatment of Diabetes mellitus type 1	7,5	0,5	4			3
Topic 24. Diabetes mellitus type 2, modern methods of therapy. Acute and chronic complications of diabetes mellitus	7,5	0,5	4			3
Topic 25. Thyroid and parathyroid glands disorders	8	1,0	4			3
Topic 26. Diseases of the hypothalamo-hypophysis system and adrenal glands. Metabolic disorders. Diseases of the gonads	7		4			3
Together according to the content module 4	30	2	16			12
Content module 5. Phthisiology						
Topic 27. General Principles of	13	1	5			7

Tuberculosis (TB) Control. Detection and Diagnosis of Tuberculosis						
Topic 28. Clinical Features of Tuberculosis	12		5			7
Topic 29. General Principles and Methods of Tuberculosis Treatment	12	1	5			6
Topic 30. Infection Prevention and Control in Tuberculosis Management	11,5		5,5			6
Topic 31. Tuberculosis in Immunocompromised Patients	11,5		5,5			6
Together according to the content module 5	60	2	26			32
Content module 6. Clinical Medical Practice (Professional Training) in Internal Medicine						
Topic 32. Principles of organizing planned and emergency internal medicine care	12,0		4,0			8,0
Topic 33. Management of patients with the most common diseases of the digestive organs	12,0		4,0			8,0
Topic 34. Management of patients with the most common diseases of the blood and hematopoietic organs	12,0		4,0			8,0
Topic 35. Management of patients with the most common diseases of the respiratory organs	12,0		4,0			8,0
Topic 36. Diagnosis and emergency medical care for emergency conditions of the respiratory and digestive organs	12,0		4,0			8,0
Together according to the content module 6	60,0		20,0			40,0
Final control	5,0		5,0			
Total number of hours for module 1	300	19	177			104
Module 2 (Year 5). Internal Medicine (Cardiology, Rheumatology, Nephrology), Including Clinical Immunology and Allergology						
Content module 1. Clinical immunology and allergology						
Topic 1. Modern ideas about the structure and principles of functioning of the immune system, clinical and laboratory assessment of her disorders. Modern possibilities of clinical immunology in diagnosis, treatment and prevention of diseases	7,5	2	5			0,5

Topic 2. Immune inflammation and infectious diseases. Immunopathogenesis, immunodiagnosis, therapy.	5,5		5			0,5
Topic 3. Congenital immunodeficiencies	5,5		5			0,5
Topic 4. Acquired immunodeficiencies	5,5		5			0,5
Topic 5. Basics of transplantation immunity. Immunology of reproduction. Immune-dependent forms of infertility	5		4			1
Topic 6. Immunology of tumors. Immune aspects of autoimmune pathology	5		4			1
Topic 7. IgE - dependent diseases, modern methods of allergy diagnosis. Allergen-specific immunotherapy	5,5		5			0,5
Topic 8. Non-atopic most common allergic diseases. Drug allergy	5,5		5			0,5
Together according to the content module 1	45	2	38			5
Content module 2. Cardiology						
Topic 9. Atherosclerosis	6,0		4,5			1,5
Topic 10. Essential hypertension	7,0	1,0	4,5			1,5
Topic 11. Secondary hypertension	6,0	1,0	4,5			1,5
Topic 12. Coronary artery disease. Chronic coronary syndromes	7,0	1,0	4,5			1,5
Topic 13. Acute coronary syndromes	7,0	1,0	4,5			1,5
Topic 14. Cardiac arrhythmias	6,0		4,5			1,5
Topic 15. Cardiac conduction disorders	6,0		4,5			1,5
Topic 16. Cor pulmonale. Pulmonary embolism	6,0		4,5			1,5
Topic 17. Congenital heart disease in adults	6,0		4,5			1,5
Topic 18. Endocarditis. Valvular heart disease	6,0		4,5			1,5
Topic 19. Myocarditis and cardiomyopathy	6,0		4,5			1,5
Topic 20. Pericarditis	6,0		4,5			1,5
Topic 21. Acute and chronic heart failure	7,0	1,0	4,5			1,5

Preparation and writing of a medical case history	2,0					2,0
Together according to the content module 2	84,0	4,0	58,5			21,5
Content module 3. Rheumatology						
Topic 22. Acute rheumatic fever. Systemic connective tissue diseases (systemic lupus erythematosus)	6,5		4,5			2,0
Topic 23. Systemic connective tissue diseases (systemic scleroderma, polymyositis, dermatomyositis)	6,5		4,5			2,0
Topic 24. Systemic vasculitis	6,5		4,5			2,0
Topic 25. Rheumatoid arthritis	7,0	1,0	4,5			1,5
Topic 26. Osteoarthritis/osteoarthrosis. Gout	6,5		4,5			2,0
Topic 27. Spondylarthritis (Axial spondylarthritis. Reactive arthritis)	6,0		4,5			1,5
Together according to the content module 3	39,0	1,0	27,0			11,0
Content module 4. Nephrology						
Topic 28. Glomerulonephritis. Renal amyloidosis	7,0		4,5			2,5
Topic 29. Pyelonephritis. Tubulointerstitial nephritis	7,0		4,5			2,5
Topic 30. Acute kidney injury. Chronic kidney disease	8,0	1,0	4,5			2,5
Final control	5,0		5,0			
Together according to the content module 4	27,0	1,0	18,5			7,5
Total number of hours for module 2	195,0	8,0	142,0			45,0
Module 3 (Year 6). Internal Medicine, Including Phthisiology, Endocrinology, Emergency Conditions in Neurology, and Clinical Medical Practice (Professional Training) in Internal Medicine						
Content module 1. Management of Patients with Major Symptoms and Syndromes in the Cardiology Clinic						
Topic 1. Management of patients with hypertension	6,0		5,5			0,5
Topic 2. Management of patients with chronic chest pain	6,0		5,5			0,5
Topic 3. Management of patients with acute chest pain	6,0		5,5			0,5
Topic 4. Management of patients with cardiac arrhythmias	6,0		5,5			0,5
Topic 5. Management of patients with	6,0		5,5			0,5

cardiac conduction disorders						
Topic 6. Management of patients with dyspnea and edema	6,0		5,5			0,5
Topic 7. Management of patients with pulmonary hypertension	6,0		5,5			0,5
Topic 8. Management of patients with a heart murmur	6,0		5,5			0,5
Topic 9. Management of patients with chronic heart failure	6,0		5,5			0,5
Preparation and writing of a medical case history	0,5					0,5
Together according to the content module 1	54,5		49,5			5
Content module 2. Management of Patients with Major Symptoms and Syndromes in the Rheumatology Clinic						
Topic 10. Management of patients with the pain in the back and limbs	6,0		5,5			0,5
Topic 11. Management of patients with articular syndrome	6,0		5,5			0,5
Topic 12. Management of patients with purpura	6,0		5,5			0,5
Topic 13. Management of patients with fever	6,0		5,5			0,5
Topic 14. Management of patients with weight loss	6,0		5,5			0,5
Together according to the content module 2	30,0		27,5			2,5
Content module 3. Management of Patients with Major Symptoms and Syndromes in the Gastroenterology Clinic						
Topic 15. Management of patients with dysphagia and heartburn	6,0		5,5			0,5
Topic 16. Management of patients with dyspepsia	6,0		5,5			0,5
Topic 17. Management of patients with chronic abdominal pain	6,0		5,5			0,5
Topic 18. Management of patients with chronic diarrhea and constipation	6,0		5,5			0,5
Topic 19. Management of patients with jaundice	6,0		5,5			0,5
Topic 20. Management of patients with hepatomegaly and hepatosplenomegaly	6,0		5,5			0,5
Topic 21. Management of patients	6,0		5,5			0,5

with portal hypertension and ascites						
Together according to the content module 3	42,0		38,5			3,5
Content module 4. Management of Patients with Major Symptoms and Syndromes in the Pulmonology Clinic						
Topic 22. Management of patients with pulmonary infiltrate	6,0		5,5			0,5
Topic 23. Management of patients with chronic cough	6,0		5,5			0,5
Topic 24. Management of patients with bronchial obstructive syndrome	6,0		5,5			0,5
Topic 25. Management of patients with cyanosis	6,0		5,5			0,5
Topic 26. Management of patients with hemoptysis	6,0		5,5			0,5
Topic 27. Management of patients with pleural effusion	6,0		5,5			0,5
Together according to the content module 4	36,0		33,0			3,0
Content module 5. Management of Patients with Major Symptoms and Syndromes in the Hematology Clinic						
Topic 28. Management of patients with anemia	7,0		6,0			1,0
Topic 29. Management of patients with leukocytosis and lymphadenopathy	7,0		6,0			1,0
Topic 30. Management of patients with bleeding	7,0		6,0			1,0
Together according to the content module 5	21,0		18,0			3,0
Content module 6: Management of Patients with Major Symptoms and Syndromes in the Nephrology Clinic						
Topic 31. Management of patients with urinary syndrome	6,0		5,5			0,5
Topic 32. Management of patients with nephrotic syndrome	6,0		5,5			0,5
Topic 33. Management of patients with chronic kidney disease	6,0		5,5			0,5
Together according to the content module 6	18,0		16,5			1,5
Content module 7. Endocrinology						
Topic 34. Management of patient with diabetes mellitus	10		5			5
Topic 35. Management of patient	10		4			6

with underlying thyroid disease						
Topic 36. Management of patients with diabetic and hypoglycemic emergencies, acute adrenal insufficiency and thyrotoxic crises	10		5			5
Together according to the content module 7	30		14			16
Content module 8. Phthisiology						
Topic 37. Management of Patients with Possible Pulmonary, Pleural, Spinal and Joint, Central Nervous System, Renal, and Lymph Node Tuberculosis.	10		5			5
Topic 38. Management of Patients with an Increased Risk of Tuberculosis (HIV Infection, Solid Organ and Hematopoietic Stem Cell Transplantation, Tumor Necrosis Factor Inhibitor Therapy, and Primary Immunodeficiency Disorders)	10		5			5
Topic 39. Principles of the Diagnosis and Treatment of Tuberculosis and Diseases Requiring Differential Diagnosis with Tuberculosis (Community-Acquired Pneumonia, Nontuberculous Mycobacterial Disease, and Invasive Fungal Infections), with a Focus on Combating Antimicrobial Resistance	10		5			5
Together according to the content module 9	30		15			15
Content module 9. Emergency conditions in neurology						
Topic 40. Management of patients with an acute cerebrovascular disorder	7,5		5			2,5
Topic 41. Management of patients with epileptic and non-epileptic paroxysmal states	7,5		5			2,5
Topic 42. Management of patients with infectious and infectious-allergic diseases of central and peripheral nervous system	7,5		5			2,5
Topic 43. Management of patients with acute pain syndromes in the case of damage to the central and	4					4

peripheral nervous system						
Topic 44. Management of patients with neurological manifestations of HIV-infection.	3,5					3,5
Together according to the content module 9	30		15			15
Content module 10. Clinical Medical Practice (Professional Training) in Internal Medicine						
Topic 45. Principles of organization of medical care in Ukraine. Management of patients with diseases of the cardiovascular system	12,0		5,0			7,0
Topic 46. Management of patients with diseases of the musculoskeletal system, connective tissue and digestive organs	12,0		5,0			7,0
Topic 47. Management of patients with diseases of the respiratory organs, blood and hematopoietic organs and the genitourinary system	12,0		5,0			7,0
Topic 48. Differentiated approach to emergency medical care for cardiovascular emergencies	13,0		5,0			8,0
Topic 49. Differentiated approach to emergency medical care for gastrointestinal emergencies	13,0		5,0			8,0
Topic 50. Differentiated approach to emergency medical care for respiratory and genitourinary emergencies	13,0		5,0			8,0
Together according to the content module 10	75,0		30,0			45,0
Content module 11. Emergency Conditions in the Internal Medicine Clinic						
Topic 51. Management of sudden cardiac arrest	6,0		5,5			0,5
Topic 52. Management of patients with hypertensive crisis	6,0		5,5			0,5
Topic 53. Management of patients with acute coronary syndrome	6,0		5,5			0,5
Topic 54. Management of patients with pulmonary embolism	6,0		5,5			0,5
Topic 55. Management of patients with acute heart failure	6,0		5,5			0,5
Topic 56. Management of patients	6,0		5,5			0,5

with shock						
Topic 57. Management of patients with acute/paroxysmal cardiac rhythm and conduction disorders	6,0		5,5			0,5
Topic 58. Management of patients with acute respiratory failure	6,0		5,5			0,5
Topic 59. Management of patients with the melena and hematemesis	6,0		5,5			0,5
Topic 60. Management of patients with acute liver failure	6,0		5,5			0,5
Topic 61. Management of patients with oligoanuria	6,0		5,5			0,5
Topic 62. Management of patients with coma	6,0		5,5			0,5
Topic 63. Management of patients with syncope	6,0		5,5			0,5
Together according to the content module 11	83,5		77,0			6,5
Final control	5,5		5,5			
Total number of hours for module 3	450,0		334,0			116,0
Total number of hours for discipline	945,0	27,0	653,0			265,0

5. Topics of lectures

No.	Name of the topic	Number of hours
Module 1 (Year 4). Internal Medicine (Gastroenterology, Hematology, Pulmonology), Including Endocrinology, Phthisiology, and Clinical Medical Practice (Professional Training) in Internal Medicine		
1.	Gastroesophageal reflux disease	1
2.	Gastritis	1
3.	Peptic ulcer of the stomach and duodenum	1
4.	Inflammatory bowel diseases	1
5.	Chronic cholecystitis and Gallstone disease	1
6.	Chronic hepatitis	1
7.	Cirrhosis	1
8.	Chronic pancreatitis	1
9.	Anemias	1
10.	Acute leukemias	1
11.	Principles of evidence-based medicine	1
12.	Chronic obstructive pulmonary disease	1

13.	Bronchial asthma	1
14.	Pneumonia	1
15.	Diagnosis and treatment of diseases of internal organs in the elderly	1
16.	Diabetes mellitus	1
17.	Thyroid gland diseases	1
18.	Tuberculosis as a medical and social problem. Characteristics of the infectious process in tuberculosis.	1
19.	General principles of tuberculosis diagnosis, treatment, and prevention.	1
Total number of hours for module 1		19
Module 2 (Year 5). Internal Medicine (Cardiology, Rheumatology, Nephrology), Including Clinical Immunology and Allergology		
1.	Modern possibilities of clinical immunology in diagnosis, treatment and prevention of diseases	2
2.	Essential hypertension	1
3.	Chronic coronary syndromes	1
4.	Acute coronary syndrome	1
5.	Chronic heart failure	1
6.	Rheumatoid arthritis	1
7.	Chronic kidney disease	1
Total number of hours for module 2		8
Total number of hours for discipline		27

6. Topics of seminars

№	Name of the topic	Number of hours
1	-	
2	-	

7. Topics of practical lessons

No.	Name of the topic	Number of hours
Module 1 (Year 4). Internal Medicine (Gastroenterology, Hematology, and Pulmonology), Including Endocrinology, Phthisiology, and Clinical Medical Practice (Professional Training) in Internal Medicine		
1.	Obesity and its consequences	5,5
2.	Esophagitis. Gastroesophageal reflux disease	5,5
3.	Dyspepsia. Gastritis and duodenitis	5,5

4.	Peptic ulcer of the stomach and duodenum	5,5
5.	Celiac disease and other enteropathies	5,5
6.	Inflammatory bowel diseases. Irritable bowel syndrome	5,5
7.	Gallstone disease, chronic cholecystitis and functional disorders of the biliary tract	5,5
8.	Chronic hepatitis	5,5
9.	Cirrhosis	5,5
10.	Chronic pancreatitis	5,5
11.	Anemias	5,5
12.	Hemophilia and idiopathic thrombocytopenic purpura (immune thrombocytopenia)	5,5
13.	Acute leukemias	5,5
14.	Chronic leukemias	5,5
15.	Chronic obstructive pulmonary disease. Bronchitis	5,5
16.	Bronchial asthma	5,5
17.	Pneumonia	5,5
18.	Pleurisy	5,5
19.	Infectious and destructive lung diseases. Bronchiectasis	5,5
20.	Respiratory failure	5
21.	Diabetes mellitus, classification, Etiology, pathogenesis, clinical presentation, diagnosis. Modern treatment of Diabetes mellitus type 1	4
22.	Diabetes mellitus type 2, modern methods of therapy. Acute and chronic complications of diabetes mellitus	4
23.	Thyroid and parathyroid glands disorders	4
24.	Diseases of the hypothalamo-hypophysis system and adrenal glands. Metabolic disorders. Diseases of the gonads	4
25.	General Principles of Tuberculosis (TB) Control. Detection and Diagnosis of Tuberculosis	5
26.	Clinical Features of Tuberculosis	5
27.	General Principles and Methods of Tuberculosis Treatment	5
28.	Infection Prevention and Control in Tuberculosis Management	5,5
29.	Tuberculosis in Immunocompromised Patients	5,5
30.	Principles of organizing planned and emergency internal medicine care	4

31.	Management of patients with the most common diseases of the digestive organs	4
32.	Management of patients with the most common diseases of the blood and hematopoietic organs	4
33.	Management of patients with the most common diseases of the respiratory organs	4
34.	Diagnosis and emergency medical care for emergency conditions of the respiratory and digestive organs	4
35.	Final control	5
Total number of hours for module 1		177
Module 2 (Year 5). Internal Medicine (Cardiology, Rheumatology, Nephrology), Including Clinical Immunology and Allergology		
1.	Modern ideas about the structure and principles of functioning of the immune system, clinical and laboratory assessment of its disorders	5
2.	Immune inflammation and infectious diseases. Immunopathogenesis, immunodiagnosis, therapy	5
3.	Congenital immunodeficiencies	5
4.	Acquired immunodeficiencies	5
5.	Immunological basis of transplantation immunity. Immunology of reproduction. Immune-dependent forms of infertility	4
6.	Immunology of tumors. Immune aspects of autoimmune pathology	4
7.	IgE - dependent diseases, modern methods of allergy diagnosis. Allergen-specific immunotherapy	5
8.	Non-atopic most common allergic diseases. Drug allergy	5
9.	Atherosclerosis	4,5
10.	Essential hypertension	4,5
11.	Secondary hypertension	4,5
12.	Coronary artery disease. Chronic coronary syndromes	4,5
13.	Acute coronary syndromes	4,5
14.	Cardiac arrhythmias	4,5
15.	Cardiac conduction disorders	4,5
16.	Cor pulmonale. Pulmonary embolism	4,5
17.	Congenital heart disease in adults	4,5
18.	Endocarditis. Valvular heart disease	4,5
19.	Myocarditis and cardiomyopathy	4,5
20.	Pericarditis	4,5

21.	Acute and chronic heart failure	4,5
22.	Acute rheumatic fever. Systemic connective tissue diseases (systemic lupus erythematosus)	4,5
23.	Systemic connective tissue diseases (scleroderma, polymyositis, dermatomyositis)	4,5
24.	Systemic vasculitis	4,5
25.	Rheumatoid arthritis	4,5
26.	Osteoarthritis/osteoarthrosis. Gout	4,5
27.	Spondylarthritis (Axial spondylarthritis. Reactive arthritis)	4,5
28.	Glomerulonephritis. Renal amyloidosis	4,5
29.	Pyelonephritis. Tubulointerstitial nephritis	4,5
30.	Acute kidney injury. Chronic kidney disease.	4,5
31.	Final control	5
Total number of hours for module 2		142
Module 3 (Year 6). Internal Medicine, Including Phthisiology, Endocrinology, Emergency Conditions in Neurology, and Clinical Medical Practice (Professional Training) in Internal Medicine		
1.	Management of patients with arterial hypertension	5,5
2.	Management of patients with chronic chest pain	5,5
3.	Management of patients with acute chest pain	5,5
4.	Management of patients with cardiac arrhythmias	5,5
5.	Management of patients with cardiac conduction disorders	5,5
6.	Management of patients with dyspnea and edema	5,5
7.	Management of patients with pulmonary hypertension	5,5
8.	Management of patients with heart murmurs	5,5
9.	Management of patients with chronic heart failure	5,5
10.	Management of patients with the pain in the back and limbs	5,5
11.	Management of patients with articular syndrome	5,5
12.	Management of patients with purpura	5,5
13.	Management of patients with fever	5,5
14.	Management of patients with weight loss	5,5
15.	Management of patients with dysphagia and heartburn	5,5
16.	Management of patients with dyspepsia	5,5
17.	Management of patients with chronic abdominal pain	5,5
18.	Management of patients with chronic diarrhea and constipation	5,5
19.	Management of patients with jaundice	5,5
20.	Management of patients with hepatomegaly and hepatosplenomegaly	5,5
21.	Management of patients with portal hypertension and ascites	5,5
22.	Management of patients with pulmonary infiltrate	5,5
23.	Management of patients with chronic cough	5,5
24.	Management of patients with bronchial obstructive syndrome	5,5

25.	Management of patients with cyanosis	5,5
26.	Management of patients with hemoptysis	5,5
27.	Management of patients with pleural effusion	5,5
28.	Management of patients with anemia	6
29.	Management of patients with leukocytosis and lymphadenopathy	6
30.	Management of patients with bleeding	6
31.	Management of patients with urinary syndrome	5,5
32.	Management of patients with nephrotic syndrome	5,5
33.	Management of patients with chronic kidney disease	5,5
34.	Management of patient with diabetes mellitus	5
35.	Management of patient with underlying thyroid disease	4
36.	Management of patients with diabetic and hypoglycemic emergencies, acute adrenal insufficiency and thyrotoxic crises	5
37.	Management of Patients with Possible Pulmonary, Pleural, Spinal and Joint, Central Nervous System, Renal, and Lymph Node Tuberculosis.	5
38.	Management of Patients with an Increased Risk of Tuberculosis (HIV Infection, Solid Organ and Hematopoietic Stem Cell Transplantation, Tumor Necrosis Factor Inhibitor Therapy, and Primary Immunodeficiency Disorders)	5
39.	Principles of the Diagnosis and Treatment of Tuberculosis and Diseases Requiring Differential Diagnosis with Tuberculosis (Community-Acquired Pneumonia, Nontuberculous Mycobacterial Disease, and Invasive Fungal Infections), with a Focus on Combating Antimicrobial Resistance	5
40.	Management of patients with an acute cerebrovascular disorder.	5
41.	Management of patients with epileptic and non-epileptic paroxysmal states	5
42.	Management of patients with infectious and infectious-allergic diseases of central and peripheral nervous system	5
43.	Principles of organization of medical care in Ukraine. Management of patients with diseases of the cardiovascular system	5
44.	Management of patients with diseases of the musculoskeletal system, connective tissue and digestive organs	5
45.	Management of patients with diseases of the respiratory organs, blood and hematopoietic organs and the genitourinary system	5
46.	Differentiated approach to emergency medical care for cardiovascular emergencies	5
47.	Differentiated approach to emergency medical care for gastrointestinal emergencies	5
48.	Differentiated approach to emergency medical care for respiratory and genitourinary emergencies	5

49.	Management of sudden cardiac arrest	5,5
50.	Management of patients with hypertensive crisis	5,5
51.	Management of patients with acute coronary syndrome	5,5
52.	Management of patients with pulmonary embolism	5,5
53.	Management of patients with acute heart failure	5,5
54.	Management of patients with shock	5,5
55.	Management of patients with acute/paroxysmal cardiac rhythm and conduction disorders	5,5
56.	Management of patients with acute respiratory failure	5,5
57.	Management of patients with the melena and hematemesis	5,5
58.	Management of patients with acute liver failure	5,5
59.	Management of patients with oligoanuria	5,5
60.	Management of patients with coma	5,5
61.	Management of patients with syncope	5,5
62.	Final control	5,5
Total number of hours for module 3		334
Total number of hours for discipline		653

8. Topics of laboratory lessons

No.	Name of the topic	Number of hours
1	-	
2	-	

9. Self-study work

No.	Name of the Topic	Number of hours
Module 1 (Year 4). Internal Medicine (Gastroenterology, Hematology, and Pulmonology), Including Endocrinology, Phthisiology, and Clinical Medical Practice (Professional Training) in Internal Medicine		
1.	- Preparation for a practical lesson on Topic No. 1 “Obesity and its consequences”. - Mastering the methodology for calculating body mass index.	0,5
2.	- Preparation for a practical lesson on Topic No. 2 “Esophagitis. Gastroesophageal reflux disease”. - Mastering the skills of interpreting findings of 24-hour esophageal pH monitoring relevant to the topic. - Mastering the skills of interpreting esophagogastroduodenoscopy findings relevant to the topic.	0,5

3.	- Preparation for a practical lesson on Topic No. 3 “Dyspepsia. Gastritis and duodenitis”. - Mastering the skills of interpreting results of the ^{13}C-urea breath test. - Mastering the skills of interpreting findings of gastric acid secretory function assessment (intragastric topographic express pH-metry). - Mastering the skills of interpreting esophagogastroduodenoscopy findings relevant to the topic.	0,5
4.	- Preparation for a practical lesson on Topic No. 4 “Peptic ulcer of the stomach and duodenum”. - Mastering the skills of interpreting esophagogastroduodenoscopy findings relevant to the topic.	0,5
5.	- Preparation for a practical lesson on Topic No. 5 “Celiac disease and other enteropathies”. - Mastering the skills of interpreting results of enzyme-linked immunosorbent assay (ELISA) for the diagnosis of celiac disease (antibodies to tissue transglutaminase and deamidated gliadin peptides) and hydrogen breath tests.	0,5
6.	- Preparation for a practical lesson on Topic No. 6 “Inflammatory bowel diseases. Irritable bowel syndrome”. - Mastering the skills of interpreting colonoscopy findings relevant to the topic. - Mastering the skills of interpreting results of fecal calprotectin testing.	0,5
7.	- Preparation for a practical lesson on Topic No. 7 “Gallstone disease, chronic cholecystitis and functional disorders of the biliary tract”. - Mastering the skills of interpreting liver, biliary tract, and gallbladder ultrasound findings relevant to the topic.	1,0
8.	- Preparation for a practical lesson on Topic No. 8 “Chronic hepatitis”. - Mastering the skills of interpreting complete blood count and blood biochemistry results (total protein and protein fractions, bilirubin and its fractions, ALT, AST, and alkaline phosphatase activities) relevant to the topic. - Mastering the skills of interpreting results of serological blood tests (serum markers of viral and autoimmune hepatitis) and polymerase chain reaction testing (qualitative and quantitative analysis and viral genotyping).	1,0

9.	- Preparation for a practical lesson on Topic No. 9 “Cirrhosis”. - Mastering the skills of interpreting results of blood biochemistry tests (ALT, AST, gamma-glutamyl transferase, alkaline phosphatase, bilirubin and its fractions, total protein and protein fractions, glucose, and coagulation tests) relevant to the topic. - Mastering the skills of interpreting liver, gallbladder, pancreas, spleen, and portal venous system ultrasound findings (including Doppler ultrasonography) relevant to the topic.	1,0
10.	- Preparation for a practical lesson on Topic No. 10 “Chronic pancreatitis”. - Mastering the skills of interpreting complete blood count, urinalysis, urinary α-amylase, blood biochemistry (α-amylase activity), and fecal elastase-1 test results. - Mastering the skills of interpreting results of carbohydrate metabolism tests (blood glucose, insulin, C-peptide, pancreatic polypeptide, and glucagon; glucose, galactose, and D-xylose tolerance tests).	1,0
11.	Preparation and writing of a medical case history.	2
12.	- Preparation for a practical lesson on Topic No. 11 “Anemias”. - Mastering the skills of interpreting complete blood count relevant to the topic. - Mastering the skills of interpreting results of iron metabolism tests (serum iron, total iron-binding capacity, transferrin saturation, and ferritin). - Mastering the skills of myelogram interpretation relevant to the topic.	1,0
13.	- Preparation for a practical lesson on Topic No. 12 “Hemophilia and idiopathic thrombocytopenic purpura (immune thrombocytopenia)”. - Mastering the skills of interpreting complete blood count relevant to the topic. - Mastering the skills of interpreting coagulation test results relevant to the topic.	1,5
14.	- Preparation for a practical lesson on Topic No. 13 “Acute leukemias”. - Mastering the skills of interpreting complete blood count and myelogram relevant to the topic. - Mastering the skills of interpreting results of cytochemical tests.	1,0
15.	- Preparation for a practical lesson on Topic No. 14 “Chronic leukemias”. - Mastering the skills of interpreting complete blood count and myelogram relevant to the topic.	1,5

16.	- Preparation for a practical lesson on Topic No. 16 “Chronic obstructive pulmonary disease. Bronchitis”. - Mastering the skills of interpreting results of microscopic and bacteriological examination of sputum. - Mastering the skills of interpreting pulmonary function test results relevant to the topic.	1,0
17.	- Preparation for a practical lesson on Topic No. 17 “Bronchial asthma”. - Mastering the skills of interpreting results of microscopic and bacteriological examination of sputum. - - Mastering the skills of interpreting pulmonary function test results relevant to the topic.	1,0
18.	- Preparation for a practical lesson on Topic No. 18 “Pneumonia”. - Mastering the skills of interpreting results of microscopic, bacterioscopic, and bacteriological examination of sputum, including antimicrobial susceptibility testing. - Mastering the skills of interpreting chest ultrasonography and chest radiography findings relevant to the topic.	1,0
19.	- Preparation for a practical lesson on Topic No. 19 “Pleurisy”. - Mastering the skills of interpreting chest ultrasonography and chest radiography findings relevant to the topic. - Mastering the skills of interpreting results of microscopic, bacterioscopic, and bacteriological examination of pleural fluid.	1,0
20.	- Preparation for a practical lesson on Topic No. 20 “Infectious and destructive lung diseases. Bronchiectasis”. - Mastering the skills of interpreting chest radiography findings relevant to the topic. - Mastering the skills of interpreting complete blood count. - Mastering the skills of interpreting results of microscopic, bacterioscopic, and bacteriological examination of sputum, including antimicrobial susceptibility testing.	1,0
21.	- Preparation for a practical lesson on Topic No. 21 “Respiratory failure”. - Mastering the skills of interpreting results of arterial and venous blood gas analysis.	1,0
22.	- Preparation for a practical lesson on Topic №23 “Diabetes mellitus, classification, etiology, pathogenesis, clinical presentation, diagnosis. Modern treatment of Diabetes mellitus type 1”. - Mastering the skills of interpretation of laboratory examination methods (glucose-tolerance test, glycemic profile, C-peptide, HbA1c, lipids) by Topic. - Mastering the skills of interpretation of glycemic profile, HbA1c, prescription of insulin drugs, of writing the prescriptions for basic insulin preparations by Topic.	3

23.	- Preparation for a practical lesson on Topic №24 “Diabetes mellitus type 2, modern methods of treatment. Acute and chronic complications of Diabetes mellitus” . - Mastering the skills of interpretation of glycemic profile, glyceted hemoglobin level, of writing the prescriptions on main antidiabetic drugs by Topic. - Mastering the skills of treatment the patient with ketoacidosis, ketoacidotic and hypoglycemic comas by Topic.	3
24.	- Preparation for a practical lesson on Topic №25 “Thyroid and parathyroid glands disorders”. - Mastering the skills of interpretation of thyroid and parathyroid hormone tests (PTH, TSH, fT_3, fT_4, ATPO, calcitonin, anti-rTSH, thyreoglobulin) by Topic.	3
25.	- Preparation for a practical lesson on Topic №26 "Diseases of the hypothalamo-hypophysis system and adrenal glands. Metabolic disorders. Diseases of the gonads”. - Mastering the skills of interpretation of adrenal glands hormone test (ACTH, cortisol, aldosteron, metanephrines in urine) by Topic. - Mastering the skills of interpretation of hormone test (GH, ILF-1, prolactin, gonadotropins, vasopressin) and Zimnitsky urine test by Topic. - Mastering the skills of determining the degree of obesity by BMI by Topic.	3
26.	Preparation for the practical class on Topic 27: General Principles of Tuberculosis (TB) Control. Detection and Diagnosis of Tuberculosis - Mastering skills in identifying groups at increased tuberculosis risk. - Mastering skills in symptom-based screening for tuberculosis. - Mastering skills in planning the patient pathway for individuals with symptoms suggestive of tuberculosis in the primary healthcare setting. - Mastering skills in interpreting interferon-gamma release assay (IGRA), tuberculin skin test (TST), sputum smear microscopy, mycobacterial culture, and molecular diagnostic test results. - Mastering skills in interpreting imaging findings (chest radiography, computed tomography, magnetic resonance imaging, and ultrasonography) in pulmonary, spinal, osteoarticular, central nervous system, renal, and lymph node tuberculosis.	7

27.	Preparation for the practical class on Topic 28 Clinical Features of Tuberculosis - Mastering skills in determining the appropriate patient pathway for individuals with possible tuberculosis identified through screening. - Mastering skills in determining the appropriate patient pathway for individuals with presumptive tuberculosis presenting for outpatient care. - Mastering skills in determining the appropriate patient pathway for individuals with possible tuberculosis identified during emergency hospital admission (e.g., acute febrile illness, meningeal syndrome, or acute abdominal syndrome).	7
28.	Preparation for the practical class on Topic 29 General Principles and Methods of Tuberculosis Treatment - Mastering an individualized tuberculosis treatment plan. - Mastering skills in recognizing and managing adverse effects of anti-tuberculosis therapy. - Mastering skills in promoting treatment adherence among patients with tuberculosis.	6
29.	Preparation for the practical class on Topic 30 Infection Prevention and Control in TB management - Mastering skills in patient triage. - Mastering skills in assessing the effectiveness of environmental infection prevention and control measures. - Mastering skills in the appropriate selection and use of personal protective equipment (PPE).	6
30.	Preparation for the practical class on Topic 31: Tuberculosis in Immunocompromised Patients - Mastering an algorithm for the diagnosis of tuberculosis in people living with HIV in the outpatient setting. - Mastering skills in interpreting the lateral flow urine lipoarabinomannan (LF-LAM) assay. - Mastering skills in tuberculosis risk assessment and preventive strategies for patients receiving immunosuppressive therapy.	6
31.	- Preparation for a practical lesson on Topic No. 32 “Principles of organizing planned and emergency internal medicine care”. - Mastering the skills of maintaining medical records.	8
32.	- Preparation for a practical lesson on Topic No. 33 “Management of patients with the most common diseases of the digestive organs”. - Improvement of skills in the interpretation of blood biochemistry test results (ALT, AST, gamma-glutamyl transferase, alkaline phosphatase, bilirubin and its fractions, total serum protein and protein fractions, blood glucose, and coagulation test results).	8

33.	- Preparation for a practical lesson on Topic No. 34 “Management of patients with the most common diseases of the blood and hematopoietic organs”. - Improvement of skills in the interpretation of complete blood count and bone marrow aspirate findings.	8
34.	- Preparation for a practical lesson on Topic No. 35 “Management of patients with the most common diseases of the respiratory organs”. - Improvement of skills in the interpretation of pulmonary function test findings. - Mastering the skills of interpreting chest ultrasonography and chest radiography findings. - Mastering the methodology for performing intramuscular and intravenous injections.	8
35.	- Preparation for a practical lesson on Topic No. 36 “Diagnosis and emergency medical care for emergency conditions of the respiratory and digestive organs”. - Improvement of skills in the interpretation of imaging findings of the chest and abdominal organs.	8
Total number of hours for module 1		104
Module 2 (Year 5). Internal Medicine (Cardiology, Rheumatology, Nephrology), Including Clinical Immunology and Allergology		
1.	- Preparation for a practical lesson on topic №1 “Modern ideas about the structure and principles of functioning of the immune system, clinical and laboratory assessment of its disorders”. - Mastering the skills of interpretation of screening data immunograms.	0,5
2.	- Preparation for a practical lesson on topic №2 “Immune inflammation and infectious diseases”. - Mastering the skills of interpretation of data of the main indicators of the immunogram in acute and chronic viral infections. - Mastering the skills of interpreting data of the main indicators of the immunogram in acute and chronic bacterial infections.	0,5
3.	- Preparation for a practical lesson on topic №3 “Congenital immunodeficiencies”. - Mastering the skills of data interpretation for diagnosing deficiencies of the humoral link of immunity. - Mastering the skills of data interpretation for diagnosing deficiencies of the T-cell link of immunity. - Mastering data interpretation skills for diagnosing deficiencies of the phagocytic link of immunity. - Mastery of data interpretation skills for diagnosis of complement system component deficiencies.	0,5

4.	- Preparation for a practical lesson on topic №4 "Acquired immunodeficiencies " - Mastering the skills of data interpretation for diagnosing deficiencies of the humoral link of immunity - Mastering the skills of data interpretation for diagnosing deficiencies of the T-cell link of immunity - Mastering data interpretation skills for diagnosing deficiencies of the phagocytic link of immunity - Mastery of data interpretation skills for diagnosis of complement system component deficiencies	0,5
5.	Preparation for a practical lesson on topic №5 “Fundamentals of transplant immunity. Immunology of reproduction. Immune-dependent forms of infertility”. - of phenotyping data when selecting a donor-recipient pair - Mastering the skills of interpreting data of the main indicators of the immunogram for the diagnosis of an acute rejection crisis - Mastering the skills of interpreting the data of a woman's immunogram to determine the form of immune-dependent infertility. - Mastering the skills of interpreting the data of a man's immunogram to determine the form of immune-dependent infertility. - Mastering the skills of data interpretation to determine the histocompatibility index of a couple for the diagnosis of relative infertility	1,0
6.	- Preparation for a practical lesson on topic №6 “Immune aspects of autoimmune pathology. Immunology of tumors”. - Mastering the skills of interpretation of autoantibody determination data for the diagnosis of autoimmune disease. - Mastering the skills of interpretation of immunogram data for diagnosis of the autoimmune nature of the disease. - Mastering the skills of interpretation of immunogram data indicators to assess the effectiveness of immunosuppressant therapy. - Mastering the skills of interpreting data of the main indicators of the immunogram for the assessment of antiblastoma protective factors. - Mastering the skills of interpretation of data on the determination of oncofetal antigens for the diagnosis of tumors. - Mastering the skills of interpretation of tumor-associated antigen determination data for tumor diagnosis.	1,0

7.	- Preparation for a practical lesson on topic №7 “IgE - dependent diseases, modern methods of allergy Diagnosis. Allergen-specific immunotherapy”. - Mastering the skills of interpretation of test data with different groups of allergens. - Mastering the skills of interpretation of allergy screening data for the diagnosis of sensitization to a causative allergen. - Mastering the skills of interpretation of allergy screening data to assess the effectiveness of allergen-specific prescribing immunotherapy.	0,5
8.	- Preparation for the practical lesson on topic №8 “Non-atopic most common allergic diseases. Drug allergy”. - Mastering the skills of interpreting patch test data with different groups of haptens /allergens. - Mastering the skills of interpreting immunogram data to determine the type of allergic reaction. - Mastering the skills of interpreting tryptase level data for the diagnosis of anaphylaxis.	0,5
9.	- Preparation for a practical lesson on Topic No. 9 “Atherosclerosis”. - Mastering the skills of interpreting blood lipid profile results.	1,5
10.	- Preparation for a practical lesson on Topic No. 10 “Essential hypertension”. - Mastering the skills in blood pressure measurement. - Mastering the skills in electrocardiogram (ECG) recording. - Mastering the skills of ECG and echocardiography findings interpretation relevant to the topic.	1,5
11.	- Preparation for a practical lesson on Topic No. 11 “Secondary hypertension”. - Mastering the skills of interpreting echocardiographic findings relevant to the topic. - Mastering the skills of interpreting ECG relevant to the topic.	1,5
12.	- Preparation for a practical lesson on Topic No. 12 “Coronary artery disease. Chronic coronary syndromes”. - Mastering the skills of interpreting ECG and echocardiographic findings relevant to the topic.	1,5
13.	- Preparation for a practical lesson on Topic No. 13 “Acute coronary syndrome”. - Mastering the skills of interpreting ECG relevant to the topic. - Mastering the skills of interpreting results of cardiac biomarker testing.	1,5
14.	- Preparation for a practical lesson on Topic No. 14 “Cardiac arrhythmias”. - Mastering the skills of interpreting ECG relevant to the topic.	1,5

15.	- Preparation for a practical lesson on Topic No. 15 “Cardiac conduction disorders”. - Mastering the skills of interpreting ECG relevant to the topic.	1,5
16.	- Preparation for a practical lesson on Topic No. 16 “Cor pulmonale. Pulmonary embolism”. - Mastering the skills of interpreting echocardiographic findings relevant to the topic. - Mastering the skills of interpreting coagulation test results and D-dimer levels.	1,5
17.	- Preparation for a practical lesson on Topic No. 17 “Congenital heart disease in adults”. - Mastering the skills of interpreting Doppler echocardiographic findings relevant to the topic. - Mastering the skills of interpreting chest radiographic findings relevant to the topic. - Mastering the skills of interpreting ECG relevant to the topic.	1,5
18.	Preparation for a practical lesson on Topic No. 18 “Endocarditis. Valvular heart disease”. - Mastering the skills of interpreting Doppler echocardiographic findings relevant to the topic. - Mastering the skills of interpreting chest radiographic findings relevant to the topic. - Mastering the skills of interpreting ECG relevant to the topic. - Mastering the skills of interpreting results of blood microbiological testing. - Mastering the skills of interpreting results of blood biochemical tests (acute-phase markers, total protein and protein fractions, procalcitonin).	1,5
19.	- Preparation for a practical lesson on Topic No. 19 “Myocarditis and cardiomyopathy”. - Mastering the skills of interpreting echocardiographic findings relevant to the topic. - Mastering the skills of interpreting results of blood biochemical tests (acute-phase markers, total protein and protein fractions).	1,5
20.	- Preparation for a practical lesson on Topic No. 20 “Pericarditis”. - Mastering the skills of interpreting echocardiographic findings relevant to the topic. - Mastering the skills of interpreting results of blood biochemical tests (acute-phase markers, total protein, and protein fractions).	1,5

21.	- Preparation for a practical lesson on Topic No. 21 “Acute heart failure. Chronic heart failure”. - Mastering the skills of interpreting echocardiographic findings relevant to the topic. - Mastering the skills of interpreting results of blood biochemical tests (B-type natriuretic peptide (BNP) and N-terminal pro-B-type natriuretic peptide (NT-proBNP)).	1,5
22.	Preparation and writing of a medical case history.	2,0
23.	- Preparation for a practical lesson on Topic No. 22 “Acute rheumatic fever. Systemic connective tissue diseases (systemic lupus erythematosus)”. - Mastering the skills of interpreting results of blood biochemical tests (acute-phase markers, antistreptolysin O (ASO), total protein, and protein fractions). - Mastering the skills of interpreting results of immunological blood tests (antinuclear antibodies (ANA), anti-double-stranded DNA antibodies (anti-dsDNA), and anti-Smith antibodies).	2,0
24.	- Preparation for a practical lesson on Topic No. 23 “Systemic connective tissue diseases (systemic scleroderma, polymyositis, dermatomyositis)”. - Mastering the skills of interpreting results of blood biochemical tests (acute-phase markers, total protein, protein fractions, and creatine kinase). - Mastering the skills of interpreting results of immunological blood tests (anti-topoisomerase I antibodies (Scl-70) and anti-Jo-1 antibodies).	2,0
25.	- Preparation for a practical lesson on Topic No. 24 “Systemic vasculitis”. - Mastering the skills of interpreting results of blood laboratory tests (acute-phase markers, total protein and protein fractions, creatinine, pANCA, cANCA, and HBsAg).	2,0
26.	- Preparation for a practical lesson on Topic No. 25 “Rheumatoid arthritis”. - Mastering the skills of interpreting results of immunological blood tests (rheumatoid factor, anti-cyclic citrullinated peptide antibodies (anti-CCP)). - Mastering the skills of interpreting joint radiographic findings relevant to the topic.	1,5
27.	- Preparation for a practical lesson on Topic No. 26 “Osteoarthritis/osteoarthrosis. Gout”. - Mastering the skills of interpreting joint radiographic findings relevant to the topic. - Mastering the skills of interpreting results of blood biochemical tests (serum uric acid level).	2,0

28.	- Preparation for a practical lesson on Topic No. 27 “Spondylarthritis (Axial spondylarthritis. Reactive arthritis)”. - Mastering the skills of interpreting results of immunogenetic testing (HLA-B27). - Mastering the skills of interpreting joint radiographic findings relevant to the topic.	1,5
29.	- Preparation for a practical lesson on Topic No. 28 “Glomerulonephritis. Renal amyloidosis” - Mastering the skills of interpreting results of laboratory tests (complete blood count, urinalysis, 24-hour proteinuria, total protein and protein fractions, creatinine, estimated glomerular filtration rate, total cholesterol, and blood electrolytes). - Mastering the skills of interpreting renal ultrasound findings relevant to the topic.	2,5
30.	- Preparation for a practical lesson on Topic No. 29 “Pyelonephritis. Tubulointerstitial nephritis”. - Mastering the skills of interpreting results of laboratory tests (complete blood count, urinalysis, Nechiporenko and Zimnitsky urine tests, urine culture, creatinine, and estimated glomerular filtration rate). - Mastering the skills of interpreting renal ultrasound findings relevant to the topic.	2,5
31.	- Preparation for a practical lesson on Topic No. 30 “Acute kidney injury. Chronic kidney disease”. - Mastering the skills of interpreting results of laboratory tests (complete blood count, urinalysis, urine albumin-to-creatinine ratio, total protein and protein fractions, creatinine, estimated glomerular filtration rate, urea, blood electrolytes, and acid–base status). -Mastering the skills of interpreting renal ultrasound findings relevant to the topic.	2,5
Total number of hours for module 2		45
Module 3 (Year 6). Internal Medicine, Including Phthisiology, Endocrinology, Emergency Conditions in Neurology, and Clinical Medical Practice (Professional Training) in Internal Medicine		

1.	- Preparation for a practical lesson on Topic No. 1 “Management of patients with arterial hypertension”. - Improvement of skills in electrocardiogram (ECG) recording and interpretation, blood pressure measurement, and interpretation of the obtained data relevant to the topic. - Improvement of skills in the interpretation of echocardiographic findings relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (serum creatinine, estimated glomerular filtration rate, and blood electrolytes).	0,5
2.	- Preparation for a practical lesson on Topic No. 2 “Management of patients with chronic chest pain”. - Improvement of skills in the interpretation of ECG and exercise stress test results relevant to the topic. - Improvement of skills in the interpretation of echocardiographic findings relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (blood lipid profile).	0,5
3.	- Preparation for a practical lesson on Topic No. 3 “Management of patients with acute chest pain”. - Improvement of skills in the interpretation of ECG relevant to the topic. - Improvement of skills in the interpretation of chest radiographic findings relevant to the topic. - Improvement of skills in the interpretation of echocardiographic findings relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (biochemical markers of myocardial necrosis, coagulation test results, and D-dimer level).	0,5
4.	- Preparation for a practical lesson on Topic No. 4 “Management of patients with cardiac arrhythmias”. - Improvement of skills in the interpretation of ECG in cardiac rhythm disorders. - Improvement of skills in the interpretation of coagulation test results.	0,5
5.	- Preparation for a practical lesson on Topic No. 5 “Management of patients with cardiac conduction disorders”. - Improvement of skills in the interpretation of ECG in cardiac conduction disorders.	0,5

6.	- Preparation for a practical lesson on Topic No. 6 “Management of patients with dyspnea and edema”. - Improvement of skills in the interpretation of Doppler echocardiographic findings relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (total bilirubin and its fractions, total protein and protein fractions, serum transaminases, creatinine, and estimated glomerular filtration rate).	0,5
7.	- Preparation for a practical lesson on Topic No. 7 “Management of patients with pulmonary hypertension”. - Improvement of skills in the interpretation of Doppler echocardiographic findings relevant to the topic.	0,5
8.	- Preparation for a practical lesson on Topic No. 8 “Management of patients with heart murmurs”. - Improvement of skills in the interpretation of Doppler echocardiographic findings relevant to the topic. - Improvement of skills in the interpretation of chest radiographic findings relevant to the topic.	0,5
9.	- Preparation for a practical lesson on Topic No. 9 “Management of patients with chronic heart failure”. - Improvement of skills in the interpretation of Doppler echocardiographic findings relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (coagulation test results, serum creatinine, estimated glomerular filtration rate, blood electrolytes, and B-type natriuretic peptide (BNP) and N-terminal pro-B-type natriuretic peptide (NT-proBNP) levels).	0,5
10.	Preparation and writing of a medical case history.	0,5
11.	- Preparation for a practical lesson on Topic No. 10 “Management of patients with pain in the back and limbs”. - Improvement of skills in the interpretation of radiographic findings of the spine, chest, and sacroiliac joints relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (immune status parameters, HLA-B27, and creatine kinase).	0,5
12.	- Preparation for a practical lesson on Topic No. 11 “Management of patients with articular syndrome”. - Improvement of skills in the interpretation of radiographic findings of joints relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (synovial fluid analysis, complete blood count, blood acute-phase markers, serum uric acid, rheumatoid factor, anti-cyclic citrullinated peptide antibodies (anti-CCP), ANA, and dsDNA antibodies).	0,5

13.	- Preparation for a practical lesson on Topic No. 12 “Management of patients with purpura”. - Improvement of skills in the interpretation of laboratory test results (complete blood count, coagulation test results, pANCA, and cANCA).	0,5
14.	- Preparation for a practical lesson on Topic No. 13 “Management of patients with fever”. - Improvement of skills in the interpretation of chest radiographic findings and abdominal ultrasound findings relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (complete blood count, urinalysis, blood culture, ANA, dsDNA antibodies, and procalcitonin).	0,5
15.	- Preparation for a practical lesson on Topic No. 14 “Management of patients with weight loss”. - Improvement of skills in the interpretation of laboratory test results (complete blood count, urinalysis, acute-phase markers, total serum protein and protein fractions, albumin, blood glucose, creatinine, and blood electrolytes). - Improvement of skills in the interpretation of immunological blood test results (ANA, anti-dsDNA, ANCA, rheumatoid factor, and anti-CCP).	0,5
16.	- Preparation for a practical lesson on Topic No.15 “Management of patients with dysphagia and heartburn”. - Improvement of skills in the interpretation of esophagogastroduodenoscopy findings relevant to the topic. - Improvement of skills in the interpretation of gastric secretory function test results (24-hour pH monitoring).	0,5
17.	- Preparation for a practical lesson on Topic No. 16 “Management of patients with dyspepsia”. - Improvement of skills in the interpretation of esophagogastroduodenoscopy findings relevant to the topic. - Improvement of skills in the interpretation of gastric secretory function test results (topographic express pH-metry).	0,5
18.	- Preparation for a practical lesson on Topic No. 17 “Management of a patient the with chronic abdominal pain”. - Improvement of skills in the interpretation of gastrointestinal endoscopy findings (upper gastrointestinal endoscopy and colonoscopy) relevant to the topic. - Improvement of skills in the interpretation of biochemical blood test results (total serum protein and protein fractions, serum transaminases, total bilirubin and its fractions, alkaline phosphatase, alpha-amylase, and gamma-glutamyl transferase (GGT)).	0,5

19.	- Preparation for a practical lesson on Topic No. 18 “Management of patients with chronic diarrhea and constipation”. -Improvement of skills in the interpretation of colonoscopy findings relevant to the topic. - Improvement of skills in the interpretation of breath test results (^{13}C-urea, ^{13}C-triglyceride, ^{13}C-starch, ^{13}C-lactose, and hydrogen breath tests with glucose and lactulose). - Improvement of skills in the interpretation of fecal elastase-1 results.	0,5
20.	- Preparation for a practical lesson on Topic No. 19 «Management of patients with jaundice". - Improvement of skills in the interpretation of abdominal ultrasound findings (liver, gallbladder, and bile ducts) relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (total bilirubin and its fractions, albumin, total serum protein and protein fractions, serum transaminases, alkaline phosphatase, GGT, and coagulation test results).	0,5
21.	- Preparation for a practical lesson on Topic No. 20 “Management of patients with hepatomegaly and hepatosplenomegaly”. - Improvement of skills in the interpretation of biochemical blood test results (total bilirubin and its fractions, albumin, serum transaminases, total serum protein and protein fractions, alkaline phosphatase, alpha-amylase, and GGT). - Improvement of skills in the interpretation of abdominal ultrasound findings relevant to the topic.	0,5
22.	Preparation for a practical lesson on Topic No. 21 “Management of patients with portal hypertension and ascites”. - Improvement of skills in the interpretation of abdominal ultrasound findings relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (complete blood count, total bilirubin and its fractions, albumin, total serum protein and protein fractions, serum transaminases, alkaline phosphatase, GGT, blood electrolytes, and coagulation test results).	0,5
23.	- Preparation for a practical lesson on Topic No. 22 “Management of patients with pulmonary infiltrate”. - Improvement of skills in the interpretation of chest radiographic findings relevant to the topic. - Improvement of skills in the interpretation of the results of general and microbiological sputum examination.	0,5

24.	- Preparation for a practical lesson on Topic No. 23 “Management of patients with chronic cough”. - Improvement of skills in the interpretation of chest radiographic findings relevant to the topic. - Improvement of skills in the interpretation of spirometry findings and bronchodilator test results relevant to the topic.	0,5
25.	- Preparation for a practical lesson on Topic No. 24 “Management of patients with bronchial obstruction syndrome”. - Improvement of skills in the interpretation of spirometry findings and bronchodilator test results relevant to the topic.	0,5
26.	- Preparation for a practical lesson on Topic No. 25 “Management of patients with cyanosis” - Improvement of skills in the interpretation of chest radiographic findings relevant to the topic. - Improvement of skills in the interpretation of echocardiography findings relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (arterial and venous blood gas analysis)	0,5
27.	- Preparation for a practical lesson on Topic No. 26 “Management of patients with hemoptysis”. - Improvement of skills in the interpretation of chest radiographic findings relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (coagulation test results and D-dimer level).	0,5
28.	- Preparation for a practical lesson on Topic No. 27 “Management of patients with pleural effusion”. - Improvement of skills in the interpretation of chest radiographic findings relevant to the topic. - Improvement of skills in the interpretation of pleural fluid examination results (biochemical, cytological, and microbiological).	0,5
29.	- Preparation for a practical lesson on Topic No. 28 “Management of patients with anemia”. - Improvement of skills in the interpretation of complete blood count, bone marrow aspirate findings, and bone marrow trephine biopsy results relevant to the topic. - Improvement of skills in the interpretation of serum iron metabolism parameters.	1
30.	- Preparation for a practical lesson on Topic No. 29 “Management of patients with leukocytosis and lymphadenopathy”. - Improvement of skills in the interpretation of complete blood count and bone marrow aspirate findings. - Improvement of skills in the interpretation of lymph node biopsy cytological examination findings.	1

31.	- Preparation for a practical lesson on Topic No. 30 “Management of patients with bleeding” - Improvement of skills in the interpretation of complete blood count and coagulation test results.	1
32.	- Preparation for a practical lesson on Topic No. 31 “Management of a patient urinary syndrome”. - Improvement of skills in the interpretation of ultrasound and radiological findings of the genitourinary system relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (complete blood count, urinalysis, urine tests according to Nechiporenko and Zimnitsky, urine microbiological examination, creatinine, estimated glomerular filtration rate, urea, and serum uric acid).	0,5
33.	- Preparation for a practical lesson on Topic No. 32 “Management of patients with nephrotic syndrome”. - Improvement of skills in the interpretation of ultrasound and radiological findings of the genitourinary system relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (complete blood count, urinalysis, 24-hour proteinuria, total cholesterol, total serum protein and protein fractions, creatinine, electrolytes, and estimated glomerular filtration rate).	0,5
34.	- Preparation for a practical lesson on Topic No. 33 “Management of a patient chronic kidney disease”. - Improvement of skills in the interpretation of ultrasound and radiological findings of the genitourinary system relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (complete blood count, urinalysis, electrolytes, urea, creatinine, and estimated glomerular filtration rate).	0,5
35.	- Preparation for a practical lesson on Topic №34 “Management of patient with diabetes mellitus”. - Improvement of the interpretation of the laboratory research methods (blood glucose, glycemic profile, glycated hemoglobin, ketone bodies in the blood and urine) by Topic.	5
36.	- Preparation for a practical lesson on Topic №35 “Management of patient with underlying thyroid disease”. - Improvement of the interpretation of the laboratory research methods (levels of TSH, fT3, fT4, ATPO, antibodies to TSH receptors, ioduria) by Topic.	6

37.	- Preparation for a practical lesson on Topic №36 “Management of patients with diabetic and hypoglycemic emergencies, acute adrenal insufficiency and thyrotoxic crises”. - Improvement of the interpretation of the laboratory research methods (blood glucose, glycated hemoglobin, electrolytes, ketone bodies in the blood and urine, acid-base state of the blood, levels of TSH, fT4, ACTH, cortisol, aldosterone) by topic.	5
38.	Preparation for Practical Class 37: Management of Patients with Suspected Tuberculosis of the Lungs, Pleura, Spine and Joints, Central Nervous System, Kidneys, and Lymph Nodes. - Improve interpretation of imaging findings (X-ray, computed tomography, magnetic resonance imaging, and ultrasound of the chest and other organs). Refine diagnostic and treatment approaches for specific forms of tuberculosis according to the pathogen's drug-resistance profile.	5
39.	Preparation for Practical Class 38: Management of Patients with Conditions that Increase the Risk of Tuberculosis (HIV infection, organ and bone marrow transplantation, treatment with tumor necrosis factor inhibitors, primary immunodeficiency disorders). - Risk assessment, prevention, diagnosis, and treatment of tuberculosis in HIV-positive patients. TB risk assessment and prevention in patients with autoimmune diseases, malignancies, and those preparing for or having undergone organ or bone marrow transplantation.	5
40.	Preparation for Practical Class 39: Principles of Diagnosis and Treatment of Tuberculosis and Diseases Requiring Differential Diagnosis with Tuberculosis (Community-Acquired Pneumonia, Nontuberculous Mycobacterial Disease, Invasive Fungal Infections) to Combat Antimicrobial Resistance. - Study approaches to the prevention and treatment of drug-resistant tuberculosis. - Study diagnostic algorithms and rational antimicrobial treatment of nontuberculous mycobacterial infections. - Study diagnostic algorithms and rational antimicrobial treatment of invasive fungal infections. Study diagnostic algorithms and rational antimicrobial treatment of community-acquired pneumonia.	5
41.	Preparation for a practical lesson on Topic №40 “Management of patients with an acute cerebrovascular disorder”.	2,5
42.	Preparation for a practical lesson on Topic №41 “Management of patients with epileptic and non-epileptic paroxysmal states”.	2,5

43.	Preparation for a practical lesson on Topic №42 “Management of patients with infectious and infectious-allergic diseases of central and peripheral nervous system”.	2,5
44.	Self-study lesson on Topic №43 “Management of patients with acute pain syndromes in the case of damage to the central and peripheral nervous system”.	4
45.	Self-study lesson on Topic №44 “Management of patients with neurological manifestations of HIV-infection”.	3,5
46.	- Preparation for a practical lesson on Topic No. 45 “Principles of organization of medical care in Ukraine. Management of patients with diseases of the cardiovascular system”. - Improvement of skills in intravenous injection techniques. - Improvement of skills in ECG recording and interpretation. - Improvement of skills in the interpretation of Doppler echocardiography findings. - Improvement of skills in the interpretation of laboratory test results (lipid profile, coagulation test results, D-dimer, biochemical markers of myocardial necrosis, creatinine, and estimated glomerular filtration rate).	7,0
47.	- Preparation for a practical lesson on Topic No. 46 “Management of patients with diseases of the musculoskeletal system, connective tissue and digestive organs”. - Improvement of skills in the interpretation of ultrasonography and imaging findings of the spine, chest, and joints. - Improvement of skills in the interpretation of synovial fluid analysis and serological test results in autoimmune diseases. - Improvement of skills in the interpretation of ultrasonography findings of the abdominal organs, esophageal and gastric pH-metry, and upper and lower gastrointestinal endoscopy findings. - Improvement of skills in the interpretation of blood biochemistry test results (total serum protein and protein fractions, serum transaminases, total bilirubin and its fractions, alkaline phosphatase, alpha-amylase, and GGT). - Improvement of skills in the interpretation of breath test results and faecal elastase-1 determination.	7,0

48.	- Preparation for a practical lesson on Topic No. 47 “Management of patients with diseases of the respiratory organs, blood and hematopoietic organs and the genitourinary system”. - Improvement of skills in the interpretation of ultrasonography and imaging findings of the chest, pulmonary function test results, and bronchoscopy findings. - Improvement of skills in the interpretation of sputum and pleural fluid test results. - Improvement of skills in the interpretation of complete blood count, bone marrow aspirate findings, histomorphological examination of lymph node biopsy specimens, and serum iron metabolism parameters. - Improvement of skills in the interpretation of imaging findings of the genitourinary system relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (urinalysis, Nechiporenko and Zimnytskyi urine tests, urine microbiological examination, creatinine, estimated glomerular filtration rate, urea, and uric acid).	7,0
49.	- Preparation for a practical lesson on Topic No. 48 “Differentiated approach to emergency medical care for cardiovascular emergencies”. - Improvement of skills in cardiopulmonary resuscitation techniques. - Improvement of skills in the interpretation of ECG and Doppler echocardiography findings. - Improvement of skills in the interpretation of coagulation test, D-dimer levels, natriuretic peptide levels, and biochemical markers of myocardial necrosis.	8,0
50.	- Preparation for a practical lesson on Topic No. 49 “Differentiated approach to emergency medical care for gastrointestinal emergencies”. - Improvement of skills in the interpretation of blood biochemistry test results (total bilirubin and its fractions, albumin, serum transaminases, total serum protein and protein fractions, alkaline phosphatase, alpha-amylase, and GGT). - Improvement of skills in the interpretation of ultrasonography and gastrointestinal endoscopy findings.	8,0

51.	- Preparation for a practical lesson on Topic No. 50 “Differentiated approach to emergency medical care for respiratory and genitourinary emergencies”. - Improvement of skills in the interpretation of chest imaging findings. - Improvement of skills in the interpretation of laboratory test results (arterial and venous blood gases and blood acid-base status parameters). - Improvement of skills in the interpretation of imaging findings of the genitourinary system relevant to the topic.	8,0
52.	- Preparation for a practical lesson on Topic No. 351 “Management of sudden cardiac arrest”. - Improvement of skills in performing the cardiopulmonary resuscitation algorithm.	0,5
53.	- Preparation for a practical lesson on Topic No. 52 “Management of patients with hypertensive crisis”. - Improvement of skills in blood pressure measurement and interpretation of the obtained data. - Improvement of skills in the interpretation of ECG and echocardiography findings relevant to the topic.	0,5
54.	- Preparation for a practical lesson on Topic No. 53 “Management of patients with acute coronary syndrome”. - Improvement of skills in ECG recording and interpretation relevant to the topic. - Improvement of skills in the interpretation of echocardiography findings relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (biochemical markers of myocardial necrosis).	0,5
55.	- Preparation for a practical lesson on Topic No. 54 “Management of patients with pulmonary embolism”. - Improvement of skills in the interpretation of echocardiography and chest radiography findings relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (coagulation test results, D-dimer, arterial and venous blood gases, and blood acid–base status parameters).	0,5
56.	- Preparation for a practical lesson on Topic No. 55 “Management of patients with acute heart failure”. - Improvement of skills in the interpretation of echocardiography findings relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (coagulation test results, serum creatinine, estimated glomerular filtration rate, blood electrolytes, BNP NT-proBNP and D-dimer) relevant to the topic.	0,5

57.	- Preparation for a practical lesson on Topic No. 56 “Management of patients with shock”. - Improvement of skills in ECG recording and interpretation, and the interpretation of echocardiography findings relevant to the topic.	0,5
58.	- Preparation for a practical lesson on Topic No. 57 “Management of patients with acute/paroxysmal cardiac rhythm and conduction disorders”. - Improvement of skills in the interpretation of ECG findings relevant to the topic. - Improvement of skills in the interpretation of coagulation test.	0,5
59.	- Preparation for a practical lesson on Topic No. 58 “Management of patients with acute respiratory failure”. - Improvement of skills in the interpretation of chest radiography findings relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (arterial and venous blood gases, and blood acid-base status parameters).	0,5
60.	- Preparation for a practical lesson on Topic No. 59 “Management of patients with the melena and hematemesis”. - Improvement of skills in the interpretation of esophagogastroduodenoscopy and colonoscopy findings relevant to the topic.	0,5
61.	- Preparation for a practical lesson on Topic No. 60 “Management of patients with acute liver failure”. - Improvement of skills in the interpretation of laboratory test results (ALT, AST, total bilirubin and its fractions, urea, coagulation test results, arterial and venous blood gases, blood acid–base status parameters, urine toxicology screening, and screening for viral infections).	0,5
62.	- Preparation for a practical lesson on Topic No. 61 “Management of patients with oligoanuria”. - Improvement of skills in the interpretation of ultrasonography and imaging findings of the genitourinary system relevant to the topic. - Improvement of skills in the interpretation of laboratory test results (complete blood count, urinalysis, 24-hour proteinuria, total cholesterol, total serum protein and protein fractions, creatinine, estimated glomerular filtration rate, and electrolytes).	0,5

63.	- Preparation for a practical lesson on Topic No. 62 “Management of patients with coma”. - Improvement of skills in the interpretation of laboratory test results (complete blood count, blood glucose, ALT, AST, creatinine, estimated glomerular filtration rate, total bilirubin and its fractions, electrolytes, coagulation test results, arterial and venous blood gases, and blood acid-base status parameters).	0,5
64.	- Preparation for a practical lesson on Topic No. 63 “Management of patients with syncope”. - Improvement of skills in the interpretation of ECG and echocardiography findings relevant to the topic. - Improvement of skills in blood pressure measurement and the interpretation of the obtained data.	0,5
Total number of hours for module 3		116
Total number of hours for discipline		265

10. Individual tasks

- Report at clinical conferences of department bases
- Presentation of medical medical case history at a practical lessons
- Abstract and article writing

11. Methods of teaching

According to the source of knowledge: verbal methods (explanation, lectures, discussions, educational dialogue, and storytelling); visual methods (illustration and demonstration); practical methods (practical lessons, acquisition and practice of practical skills); and independent work with textbooks and other learning resources.

According to the logic of presentation of educational material: analytical, synthetic, analytical-synthetic, inductive, deductive, and transductive methods.

According to the level of students' cognitive activity: explanatory-illustrative, reproductive, problem-based, partially exploratory (heuristic), research methods, and the problem-presenting method.

Interactive teaching methods: role-playing, small-group (team-based) learning, the case method (case-based learning), creative assignments, interactive

educational video courses, participation in medical conferences and multidisciplinary case conferences, brainstorming, discussions, and simulation-based learning.

Distance learning methods: learning using modern educational platforms and digital educational resources (LIKAR.NMU platform, Zoom, Skype, Google Classroom, etc.).

12.Methods and Forms of Control, Distribution of Points Awarded to Students and Evaluation

Methods of control: oral (oral questioning, interview), written, test-based, practical (assessment of practical skills and competencies), computer-based (programmed) control, control of individual assignments, and self-control.

The system of assessing students' knowledge of the discipline includes current and final control of knowledge, evaluation of the results of practicals, certification of students of higher education according to the "Medicine" educational level.

Current education

When organizing education under the credit-transfer system of education, the session-module control is used, which provides for the following types of control:

Initial knowledge control is intended to determine students' baseline knowledge of related disciplines that is required for successful study of the academic discipline. The results of the initial knowledge control are not taken into account in the student's ongoing assessment, as they are intended solely for diagnostic and informational purposes for the teacher.

Current control provides for 100% oral questioning of all students in the group during each practical class, with mandatory evaluation of all components of the class, including test control, solving case-based tasks, description of medicinal products, and other required activities. Each practical lessons also includes control of practical skills.For each stage of the lessons and each component of current

control, the student receives a traditional grade of: ”5”, “4”, “3”, or “2”. Based on these grades, the teacher calculates the arithmetic mean grade for the class, which is converted into points according to the grading scale (distribution) specified in the Programme of the Academic Discipline, Masteringed and approved before the beginning of the course. If a student receives Grade “2” (Unsatisfactory), it is converted into 0 points.

A student has the right to improve his or her knowledge and practical skills in the topic for which the overall Grade “2” (Unsatisfactory) and, accordingly, 0 points were received during the next practical lessons as part of the current control procedure, in accordance with the departmental regulations, without being awarded additional points.

The following are also subject to evaluation:

- written assignments provided for in the academic discipline programme;
- topics designated for self-study outside scheduled class hours.

Departments may also award additional points for participation in and winning prize places at international, national, and other Olympiads in the academic discipline.

After the lesson, the teacher announces the students’ average grade.

The total number of points accumulated by the student during current study constitutes a component of the overall grade for the academic discipline in accordance with the forms of final knowledge control. The maximum number of points that may be accumulated through current control is 80 points.

Points for the evaluation of the student's individual work are awarded within the maximum number of points allocated for current control, namely within the 80-point limit, as determined by the department.

The total number of points awarded for current control, taking into account the evaluation of all types of learning activities (classroom activities, individual work, and lecture attendance), shall not exceed 80 points. The final score for current learning activities is determined as the arithmetic sum of the points awarded for each practical class.

During the evaluation of each module topic, the student is awarded grades according to both the 4-point (traditional) grading scale and the multi-point grading scale, using the approved assessment criteria established for the academic discipline. All types of learning activities specified in the methodological guidelines for the topic are taken into account. The student must receive a grade for each topic. Grades awarded according to the traditional grading scale are converted into points.

The grades awarded according to the traditional grading scale are converted into points depending on the number of topics included in the module. The number of points corresponding to Grade "5" is calculated by dividing the maximum number of points allocated for current learning activities (80 points) by the number of practical lessons. The number of points corresponding to Grade "3" is calculated as 60% of the maximum number of points allocated for current learning activities (i.e., 48-50 points), divided by the number of practical lessons. The weighting of each topic within a module, expressed in points, shall be identical.

The forms of evaluation of current learning activities shall be standardised and shall include control of both theoretical knowledge and practical training.

Distribution of Points Received by Students

Module 1 (Year 4). Internal Medicine (Gastroenterology, Hematology, and Pulmonology), Including Endocrinology, Phthisiology, and Clinical Medical Practice (Professional Training) in Internal Medicine. Form of Control: Final Control

<table>
<tr><td colspan="2">Current evaluation and self-study*</td><td rowspan="2">Individual student work</td><td rowspan="2">Total points for current learning</td><td rowspan="2">Final control</td><td rowspan="2">Total</td></tr>
<tr><td>Traditional scale</td><td>Conversion into points</td></tr>
<tr><td colspan="2">T1-T34</td><td rowspan="5">5,2 points, including: 2,6 points for writing a medical case</td><td rowspan="5">Maximum 80 points</td><td rowspan="5">Maximum 120 points</td><td rowspan="5">Maximum 200 points</td></tr>
<tr><td>5</td><td>2,2</td></tr>
<tr><td>4</td><td>1,8</td></tr>
<tr><td>3</td><td>1,4</td></tr>
<tr><td>2</td><td>0</td></tr>
</table>

		history; 2,6 points for completing individual tasks			

Note. * – 50% of the points are allocated to self-study (for each topic).

Module 2 (Year 5). Internal Medicine (Cardiology, Rheumatology, Nephrology), Including Clinical Immunology and Allergology. Form of Control: Final Control

Current evaluation and self-study*		Individual student work	Total points for current learning	Final control	Total
Traditional scale	Conversion into points				
T1-T30		5 points, including: 2.5 points for writing a medical case history; 2.5 points for completing individual tasks	Maximum 80 points	Maximum 120 points	Maximum 200 points
5	2,5				
4	2,1				
3	1,6				
2	0				

Note. * – 50% of the points are allocated to self-study (for each topic).

Module 3 (Year 6). Internal Medicine, Including Phthisiology, Endocrinology, Emergency Conditions in Neurology, and Clinical Medical Practice (Professional Training) in Internal Medicine. Form of Control: Final Control

Current evaluation and self-study*		Individual student work	Total points for current learning	Final control	Total
Traditional scale	Conversion into points				
T1-T61		6.8 points, including: 2.0 points for writing a medical case history; 4.8	Maximum 80 points	Maximum 120 points	Maximum 200 points
5	1,2				
4	1,0				
3	0,8				
2	0				

		points (1.6 points each) for completing three individual tasks			

Note. * – 50% of the points are allocated to self-study (for each topic).

Final Control

Final control is intended to determine the level of knowledge and skills acquired by students. It is conducted upon completion of the academic discipline and includes control of both theoretical knowledge and practical training. The types of final control include final assessment and certification of higher education students.

Students are admitted to the final control in the academic discipline provided that they have attended at least 75% of classroom-based learning activities (lectures, seminars, laboratory classes, and practical lessons) and have accumulated all the required points during the study of the academic discipline.

If a student has attended less than 75% of the scheduled classroom hours (i.e., has missed 25% or more of the classes), the student shall be considered as having failed to fulfil the academic programme and curriculum requirements for the academic discipline and, therefore, must repeat the academic discipline.

Final control is conducted in the form of a final assessment for the academic discipline: module 1 (year 4, semesters 7-8), module 2 (year 5, semesters 9-10), and module 3 (year 6, semesters 11-12), using a combined format.

The scope of the topics included in the final control shall cover the most important topics of the academic discipline and shall not include the entire body of learning material specified in the Programme of the Academic Discipline.

The results of the final assessment are evaluated using the 200-point knowledge evaluation system adopted by the University and the national grading scale and are recorded in the relevant official records.

Final control is a form of final assessment designed to evaluate the knowledge and skills acquired by the student in the academic discipline over the

entire period of study. It is conducted upon completion of the academic discipline during the final practical lesson.

When determining the grade for the academic discipline, both the points accumulated by the student during current learning (maximum 80 points) and the result of the final control (maximum 120 points) are taken into account.

The student takes the final control with the number of points accumulated during current learning.

The format of the final control and the types of assessment tasks are determined by the Programme of the Academic Discipline and the departmental regulations.

Credit for the completed academic discipline is awarded provided that the student has accumulated a total number of points that is not lower than the minimum required by the Programme of the Academic Discipline, corresponding to the minimum ECTS grade E, namely 111 points.

Forms of control: initial knowledge control, current control, intermediate control, and final control.

The grade for the academic discipline is determined as the arithmetic mean of the points obtained for Module 1 (Year 4), Module 2 (Year 5), and Module 3 (Year 6).

Assessment of knowledge in the discipline is carried out using the appropriate scale:

Points	National grading scale	ECTS grading scale	
		Grade	Description
170-200	Excellent	A	Excellent (excellent performance with only a small number of errors)
155-169	Good	B	Very good (above-average with several errors)
140-154		C	Good (generally correct performance with a certain number of significant errors)
125-139	Satisfactory	D	Satisfactory (fair performance, but with a

			significant number of shortcomings)
111-124		E	Sufficient (performance satisfics minimum criteria)
60-110	Unsatisfactory	FX	Unsatisfactory (with the possibility of resit)
1-59		F	Unsatisfactory (with mandatory repetition of the academic discipline)

The regulations governing the conduct of the final control, including the list of examination topics, are discussed and approved at a methodological meeting of the department and the Central Methodological Commission for Therapeutic Disciplines, approved by the Vice-Rector for Research, Academic and Educational Affairs, and published before the beginning of the course (on the University's website, departmental notice board, and communicated to students during the first lecture or practical lesson).

Procedure for Liquidation of Academic Debt

When receiving an unsatisfactory grade in a discipline in the range of 60-110 points (FX), in the range of 1-59 points (F), the student has the right to retake it 2 times: once by the cathedral commission with the participation of the head of the department, and the last time – a commission with the participation of the head of the department and the dean, upon receiving an unsatisfactory grade in the discipline, the student is obliged to re-study it in extracurricular time on a paid basis.

Retaking subjects with unsatisfactory grades is carried out according to a schedule drawn up by the department and coordinated with the dean (the interval between attempts or subjects is at least 3 days). The subjects studied in the 106 corresponding course must be completed before the beginning of the new academic year. The presence of academic debt before the beginning of the new academic year is the basis for expelling a student **from the university for failure to meet the requirements of the curriculum (or registration o f an academic leave and repeated course of study due to health).

Repeated receipt of an unsatisfactory grade by a student based on the result of restudying it, taking into account two changes in a discipline or unsatisfactory grades from 3 disciplines, as well as the presence of missed classroom training classes without valid reasons, the sum of which is 120 hours or more, determines his expulsion from the university for non-fulfillment of the curriculum.

The student's ability to pass the final examination (PC) in a discipline is not affected by the results of other disciplines.

Means of diagnosing learning achievement: individual tasks, presentations, questions for current control, workbooks, test questions, test tasks, case, results of laboratory and instrumental investigations, clinical case discussion records, theoretical questions and tasks for final control, a diary of clinical medical practice and a consolidated digital report on completion of clinical medical practice.

Means of assessing learning progress

List of Theoretical Questions for the Final Control.

Module 1 (Year 4). Internal Medicine (Gastroenterology, Hematology, and Pulmonology), Including Endocrinology, Phthisiology, and Clinical Medical Practice (Professional Training) in Internal Medicine

1. Obesity and its consequences. Definition. Etiology and pathogenesis. Classification. Clinical manifestations and anthropometric methods of examination (measurement of waist and hip circumference, assessment of fat distribution type). Methods for calculating BMI. Diagnosis. Main consequences of obesity: metabolic syndrome, diabetes mellitus, cardiovascular and gastrointestinal diseases. Pharmacological and non-pharmacological treatment.

2. Esophagitis. Gastroesophageal reflux disease. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Complications. Management. Primary and secondary prevention. Prognosis and work capacity.

3. Dyspepsia. Definition. Etiology and pathogenesis. The role of *Helicobacter pylori (H. pylori)* in the occurrence of gastroduodenal pathology. Classification. Uninvestigated and functional dyspepsia. Diagnosis criteria. Differential diagnosis. Modern approaches to the treatment of functional dyspepsia. Primary and secondary prevention.

4. Gastritis and duodenitis. Definition. Etiology and pathogenesis. Role of *H. pylori* in the development of gastritis and duodenitis. Classification. Clinical manifestations. Diagnosis. Diagnostic methods for *H. pylori* infection. Differential diagnosis. Management, including *H. pylori* eradication therapy. Primary and secondary prevention. Prognosis and work capacity.

5. Peptic ulcers of the stomach and duodenum. Definition. The main causes of peptic ulcers of the stomach and duodenum (H. pylori, medications, etc.). Classification. Clinical manifestations. Complications (perforation, penetration, bleeding, stenosis, malignancy). Diagnosis. Diagnosis of H. pylori infection. Differential diagnosis. Patient management. Eradication therapy, monitoring of eradication efficacy. Drug therapy of H. pylory-negative ulcers. Indications for endoscopic and surgical interventions. Primary and secondary prevention. Prognosis and work capacity.

6. Celiac disease and other enteropathies. Definition. Etiology and pathogenesis. The role of food component intolerance, immune factors and enzymopathies (intolerance of lactose, fructose, galactose, etc.). Syndromes of malabsorption and maldigestion. Diagnosis. Diagnostic criteria. Differential diagnosis. Complication. Differentiated therapy. Primary and secondary prevention. Prognosis and work capacity.

7. Inflammatory bowel diseases. Ulcerative colitis and Crohn's disease. Definition. Etiology and pathogenesis. Classification. Features of the clinical course depending on the degree of activity, severity and phase of the course. Diagnosis. Diagnostic criteria, differential diagnosis. Intestinal and extraintestinal complications and diseases associated with inflammatory bowel diseases (toxic dilatation, perforation, sclerosing cholangitis, spondylitis, arthritis, dermatitis,

uveitis, etc.). Treatment. Primary and secondary prevention. Prognosis and work capacity.

8. Irritable bowel syndrome. Definition. Etiology and pathogenesis. Classification. Clinical manifestations of different options. Roman diagnostic criteria. Differential diagnosis. Treatment. Primary and secondary prevention. Prognosis and work capacity.

9. Gallstone disease, chronic cholecystitis, and functional biliary disorders. Definition. Etiology and pathogenesis. The significance of infection, motility disorders, and dyscholia in the Masteringment of chronic cholecystitis and Gallstone disease. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Complications of Gallstone disease. Treatment, including endoscopic and surgical. Primary and secondary prevention. Prognosis and work capacity.

10. Chronic hepatitis. Definition. Etiology and pathogenesis. (the role of hepatitis B, C, D viruses, autoimmune, toxic, and drug-induced factors). Classification. Clinical manifestations depending on the Etiology. Main clinico-biochemical syndromes. Diagnosis. Diagnostic criteria. Differential diagnosis. Complications. Patient management. Treatment. Primary and secondary prevention. Prognosis and work capacity.

11. Cirrhosis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Main clinico-biochemical syndromes. Diagnosis. Diagnostic criteria. Differential diagnosis. Complications. Patient management. Treatment, including therapy for complications. Indications for endoscopic and surgical interventions and liver transplantation. Primary and secondary prevention. Prognosis and work capacity.

12. Chronic pancreatitis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Main clinical syndromes (pain, exocrine and endocrine pancreatic insufficiency, dyspeptic syndrome). Diagnosis. Diagnostic criteria. Differential diagnosis. Complications. Differentiated treatment. Indications for endoscopic and surgical interventions. Primary and secondary prevention. Prognosis and work capacity.

13. Anemias. Definition. Classification. Etiology and pathogenesis. of various types of anemias (posthemorrhagic, iron-deficiency, vitamin B12-deficiency, folate-deficiency, aplastic, and hemolytic). Clinical manifestations and Diagnosis. Differential diagnosis. Complications. Treatment of different types of anemias. Blood component use and blood substitutes. Primary and secondary prevention. Prognosis and work capacity.

14. Hemophilia and idiopathic thrombocytopenic purpura (immune thrombocytopenia). Definition. Classification. Etiology and pathogenesis. , main clinical syndromes. Diagnosis. Diagnostic criteria. Differential diagnosis. Treatment. Prevention of bleeding. Primary and secondary prevention. Prognosis and work capacity.

15. Acute leukemias. Definition. Etiology and pathogenesis. Classification. Main clinical and hematological syndromes. Clinical manifestations. Diagnosis. Diagnostic criteria. Differential diagnosis. Complications. Treatment. Bone marrow transplantation. Primary and secondary prevention. Prognosis and work capacity.

16. Chronic leukemias. Definition. Etiology and pathogenesis. Classification. Main clinical and hematological syndromes. Clinical manifestations. Diagnosis. Diagnostic criteria. Differential diagnosis. Complications. Treatment. Bone marrow transplantation. Primary and secondary prevention. Prognosis and work capacity.

17. Principles of evidence-based medicine. Definition. Principles and components of evidence-based medicine. Basic concepts of clinical research. Levels of evidence and strength of recommendations. The role of evidence-based medicine in contemporary clinical practice. Medical and ethical aspects of evidence-based medicine.

18. Chronic obstructive pulmonary disease. Bronchitis. Definition. The role of smoking, environmental and occupational factors, and infection in the development of these diseases. Classification. Clinical manifestations. Diagnosis. Laboratory and instrumental findings according to disease severity. Differential

diagnosis. Complications. Treatment. Primary and secondary prevention. Prognosis and work capacity.

19. Bronchial asthma. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Laboratory and instrumental findings according to disease severity. Differential diagnosis. Complications. Treatment. Emergency management of severe bronchial asthma exacerbations. Primary and secondary prevention. Prognosis and work capacity.

20. Pneumonia. Definition. Etiology and pathogenesis. Classification. Clinical manifestations and course variations depending on the pathogen. Diagnosis. Diagnostic criteria. Differential diagnosis. Complications (acute respiratory distress syndrome, destruction of lung tissue, acute respiratory failure, etc.). Differentiated treatment. Primary and secondary prevention. Prognosis and work capacity.

21. Pleurisy. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Complications. Indications for pleural paracentesis (thoracentesis) and pleural space drainage. Treatment. Primary and secondary prevention. Prognosis and work capacity.

22. Infectious and destructive lung diseases. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Complications. Treatment. Indications for endoscopic and surgical interventions. Primary and secondary prevention. Prognosis and work capacity.

23. Bronchiectasis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Complications. Treatment. Indications for endoscopic and surgical interventions. Primary and secondary prevention. Prognosis and work capacity.

24. Respiratory failure. Definition of respiratory and pulmonary failure. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis, including pulmonary function testing, pulse oximetry, analysis of arterial and venous blood gases, and assessment of blood acid–base status. Differential diagnosis. Treatment. Primary and secondary prevention. Prognosis and working capacity.

25. Diagnosis and treatment of diseases of internal organs in the elderly. Age-related changes in metabolism. Comorbidities and their prevalence. Specific aspects of clinical manifestations, diagnosis, and pharmacotherapy in older adults. Prevention. Prognosis.

26. Diabetes mellitus, classification, Etiology, pathogenesis, clinical presentation, diagnosis: diagnostic algorithms and protocols.

27. Modern treatment of diabetes mellitus type 1 and type 2: treatment algorithms and protocols.

28. Acute and chronic complications of diabetes mellitus Diagnostic and treatment algorithms and protocols of diabetic coma (hyperglycemic кetoacidotic, hyperosmolar nonкetoacidotic, hyperlactacidemic and hypoglycemic coma, diabetic neuropathy, nephropathy, retinopathy, diabetic foot syndrome). Peculiarities of the course and treatment of diabetes during pregnancy and in surgical patients.

29. Iodine deficiency diseases of the thyroid gland. Clinical signs of iodine deficient (endemic) area according to WHO. Clinical signes, diagnosis, prevention and treatment. Hypothyroidism and thyroiditis. Classification, clinical signes, diagnosis, treatment: diagnostic and treatment algorithms of iodine deficiency diseases, hypothyroidism and thyroiditis.

30. Thyrotoxicosis, Etiology, pathogenesis, Clinical manifestations. Thyroid cancer, classification, clinical signes, diagnosis and differential diagnosis. Parathyroid glands disorders, classification, clinical signes. Diagnostic and treatment algorithms of thyrotoxicosis, thyroid cancer, hyperparathyroidism and hypoparathyroidism.

31. Adrenal gland disease. Chronic adrenal insufficiency. Etiology, pathogenesis, clinical presentation, diagnosis, prevention and treatment. Hormonally active tumors of the adrenal glands: diagnostic and treatment algorithms of Cushing syndrome and pheochromocytoma.

32. Diseases of the hypothalamo-hypophysis system: acromegaly and pituitary gigantism, Cushing disease, hyperprolactinemia, diabetes insipidus,

hypopituitarism. Obesity. Diseases of the gonads. Etiology, pathogenesis, Clinical manifestations. Diagnostic and treatment algorithms.

33. Key epidemiological indicators of tuberculosis infection and their interpretation. Epidemiology of tuberculosis in Ukraine and worldwide. Tuberculosis risk groups.

34. Clinical classification of tuberculosis. Concepts of tuberculosis infection and active tuberculosis disease.

35. Pulmonary, extrapulmonary, and combined TB. Disseminated (miliary) tuberculosis: clinical features, diagnosis, and treatment.

36. Symptoms of possible tuberculosis.

37. Clinical features of tuberculosis in HIV-positive patients.

38. Methods for TB diagnosing at the primary healthcare level.

39. Sputum smear microscopy: its role in tuberculosis detection, advantages, and limitations. Liquid and solid media in tuberculosis diagnosis: its role in tuberculosis detection, advantages, and limitations.

40. Molecular diagnostic methods for tuberculosis: principles of use, indications, advantages, limitations, and interpretation of results.

41. Radiological and instrumental methods for tuberculosis diagnosis.

42. Diagnosis of tuberculosis infection.

43. TB diagnosis in HIV-positive patients.

44. TB treatment of tuberculosis in HIV-positive patients. Timing of anti-tuberculosis therapy and antiretroviral therapy.

45. general principles of TB treatment.

46. Organization of outpatient tuberculosis treatment. Indications for hospitalization.

47. Infection prevention and control in tuberculosis prevention. Principles of administrative infection prevention and control.

48. Respiratory protection for healthcare workers: selection, fit, donning, and proper use of respirators.

49. Tuberculosis contact investigation.

50. Tuberculosis preventive treatment: treatment regimens, indications, and contraindications.

List of Practical Tasks and Assignments for the Final Control. Module 1 (Year 4). Internal Medicine (Gastroenterology, Hematology, and Pulmonology), Including Endocrinology, Phthisiology, and Clinical Medical Practice (Professional Training) in Internal Medicine

List of typical professional tasks and skills assessed during the final control:

• Work with the patient:

- Elicit complaints and obtain the history of the present illness and the past medical history.
- Collect information on the patient's general condition (level of consciousness and body constitution) and assess the patient's general appearance (inspection of the skin and subcutaneous adipose tissue, palpation of the lymph nodes, thyroid gland, and mammary glands). Examine the musculoskeletal system (inspection and palpation).
- Examine the respiratory system (inspection and palpation of the chest, percussion and auscultation of the lungs).
- Examine the cardiovascular system (inspection and palpation of the precordial area and superficial blood vessels, percussion of the cardiac borders, and auscultation of the heart and blood vessels).
- Examine the digestive system (inspection of the abdomen, palpation and percussion of the intestines, stomach, liver, and spleen, and palpation of the pancreas).
- Examine the urinary system (inspection of the lumbar region and palpation of the kidneys).

- Establish a preliminary diagnosis (List 2).
- Prescribe and justify laboratory and/or instrumental investigations for patients with diseases (List 4).

- Interpret the results of laboratory and instrumental investigations (List 4).
- Perform the differential diagnosis of diseases (List 2).
- Establish a clinical diagnosis of diseases (List 2).
- Determine the appropriate patient management regimen and diet for patients with diseases (List 2).
- Determine the principles and nature of treatment (conservative, interventional, or surgical) for diseases (List 2).
- Diagnose emergency conditions and provide emergency medical care (List 3).
- Perform medical procedures (List 5).
- Determine the strategy for secondary prevention in patients requiring dispensary follow-up.
- Maintain medical records.

List 2 (Diseases)

Diseases of the blood and hematopoietic organs

1. Anemias
2. Acute and chronic leukemias
3. Hemophilia
4. Idiopathic thrombocytopenic purpura (immune thrombocytopenia).

Respiratory diseases

1. Chronic obstructive pulmonary disease
2. Bronchitis
3. Bronchial asthma
4. Pneumonia
5. Pleurisy
6. Infectious destructive lung disease
7. Bronchiectasis

8 Respiratory failure

9. Pulmonary failure.

Digestive diseases

1. Esophagitis. Gastroesophageal reflux disease
2. Functional gastrointestinal disorders (disorders of gut-brain interaction)
3. Gastritis and duodenitis
4. Peptic ulcers of the stomach and duodenum. Ulcer disease
5. Enteritis. Colitis
6. Gallstone disease, chronic cholecystitis, and functional biliary disorders
7. Chronic hepatitis
8. Cirrhosis
9. Chronic pancreatitis.

Endocrine system diseases, nutritional and metabolic disorders

1. Acromegaly and pituitary gigantism
2. Hypothyroidism
3. Hypopituitarism
4. Thyrotoxicosis
5. Endemic goiter
6. Diabetes insipidus
7. Nodular goiter, tumors of the thyroid gland
8. Obesity
9. Congenital adrenal hyperplasia
10. Disturbance of calcium-phosphorus metabolism, vitamin D metabolism
11. Thyroiditis
12. Cushing disease and syndrome
13. Chronic adrenal insufficiency
14. Diabetes mellitus
15. Hypoparathyroidism
16. Hyperparathyroidism
17. Adrenal tumors
18. Hyperinsulinism

19. Neuroendocrine tumors
20. Tumors of the pituitary gland
21. Hyperprolactinemia
22. Hypogonadism.

Tuberculosis

1. Pulmonary tuberculosis
2. Pleural tuberculosis
3. Tuberculosis of the spine and joints (osteoarticular tuberculosis)
4. Central nervous system tuberculosis
5. Lymph node tuberculosis.

List 3 (Emergency Condition)

1. Acute adrenal insufficiency
2. Acute respiratory failure
3. Hypoglycemic coma
4. Acute liver failure
5. Diabetic, including ketoacidotic, hyperosmolar, lactacidemic coma.
6. Thyrotoxic crises.
7. Acute bleeding (esophageal, gastrointestinal, pulmonary).

List 4 (Laboratory and Instrumental Investigations)

1. Pleural fluid analysis.
2. Ascitic fluid analysis.
3. Alpha-amylase activity in blood and urine, fecal elastase-1.
4. Ferritin, serum iron, transferrin, transferrin saturation.
5. Blood proteins and their fractions, C-reactive protein.
6. Complete blood count.
7. Urinalysis.
8. Stool analysis.
9. General analysis of sternal bone marrow aspirate.

10. General sputum analysis.

11. Sugar and acetone in urine.

12. Coagulogram.

13. Markers of viral and autoimmune hepatitis.

14. Microbiological examination of biological fluids and secretions.

15. Blood hormones (TSH, T4, T3, calcitonin, ACTH, cortisol, aldosterone and renin in the blood).

16. Blood and urine metanephrines.

17. Antibodies to thyroperoxidase (ATPO), antibodies to TSH receptors, antibodies to thyroglobulin.

18. Oral glucose tolerance test, glycemic profile, C-peptide, glycosylated hemoglobin, fructosamine.

19. Blood aminotransferases.

20. Total bilirubin and its fractions.

21. Alkaline phosphatase.

22. Pulmonary function testing.

23. Methods of instrumental visualization of the thyroid gland.

24. Methods of instrumental visualization of the abdominal organs.

25. Methods of instrumental visualization of the thoracic organs.

26. Methods of instrumental visualization of the skull, and bones.

27. Endoscopic examination of the bronchi.

28. Endoscopic examination of the gastrointestinal tract.

29. Histomorphological examination of lymph node biopsy specimens.

30. Interferon-gamma release assay.

31. Tuberculin skin test.

32. Multiphase fractional bile analysis and gastric and esophageal pH monitoring.

List 5 (Medical Procedures)

1. Administer medications (intravenous bolus injection, intravenous infusion, and intramuscular injection).

2. Perform thyroid gland palpation**.**

Know the Clinical Pharmacology of the Major Drug Classes

1. Antibacterial

2. Antimycobacterial

3. α- and β adrenergic stimulants

4. Antileukotriene

5. Glucocorticoids

6. Expectorants

7. Hemostatics

8. Antisecretory, prokinetics

9. Oral hypoglycemic agents and drugs of insulin, thyroxine, imidazole derivatives

10. Iron preparations

11. Cholinolytics.

Be Able to Complete Medical Documentation

1. Inpatient medical record (Form No. 003/o).

2. Hospital discharge summary.

3. Medication order sheet (Form No. 003-4/o).

4. Referral for assessment of daily functioning

5. Medical death certificate (Form No. 106/o)

6. Sick leave certificate.

7. Prescriptions for medicines covered in all sections of the discipline.

LIST OF PRACTICAL WORK AND TASKS FOR THE FINAL TEST.
Phthisiology

1. Standard diagnostic algorithm for the evaluation of patients with cough and/or other symptoms suggestive of tuberculosis.

2. Management of newly diagnosed tuberculosis cases and previously treated tuberculosis cases.

3. Tuberculosis contact investigation, screening, and tuberculosis preventive treatment.

4. Diagnosis and treatment of tuberculosis in hiv-positive individuals.

5. Risk assessment when selecting outpatient or inpatient models of tuberculosis care.

6. Selection and appropriate use of respiratory personal protective equipment (PPE).

List of Theoretical Questions for the Final Control.

Module 2 (Year 5). Internal Medicine (Cardiology, Rheumatology, Nephrology), Including Clinical Immunology and Allergology

1. Define the term "immunity", describe the factors of innate immunity: cellular and humoral.

2. Define the term "immunity", describe the factors of acquired (specific) immunity.

3. Monocyte-macrophage system: functions, features, role in implementation of immune response. Modern aspects of phagocytosis. What is antigen presentation.

4. What is the major histocompatibility complex (MHC, HLA): structure, properties, function. Participation in immunity. Susceptibility to diseases depending on the HLA-phenotype.

5. Populations (T- and B-lymphocytes) and subpopulations (T-helper types 1 and 2, T-regulatory, T-cytotoxic cells) of lymphocytes, their function. The main clusters of T-cell differentiation.

6. What is a B-cell immune response? The main clusters of B-cell differentiation. Function of B-lymphocytes.

7. Structural components of immune complexes. What is antigen, antibody, complement. Lessons of immunoglobulins. Dynamics of immunoglobulin levels during immune response.

8. Cytokines are mediators of the immune system. Interleukins, growth factors, tumor necrosis factors, interferons and adhesion molecules classification, functions and participation in immune processes.

9. Name and describe methods of immunological research to determine quantitative and qualitative indicators of immunity.

10. Features of the immunological history. Clinical methods of evaluating the immune system. Instrumental methods of assessing the immune system. Flow cytometry, determination of immune cells using anti- CD - anti-erythrocyte diagnostic centers. IFA. PCR.

11. Immunogram, main indicators.

12. Describe the features of the Masteringment of antiviral immune protection, indicate the changes in the immunogram during acute viral infections.

13. Describe the features of the Masteringment of antibacterial immune protection, indicate the changes in the immunogram during acute bacterial infections.

14. Describe the features of the Masteringment of antifungal immune protection, indicate the changes in the immunogram during fungal infections.

15. Basic principles of classification of congenital (primary) immunodeficiencies.

16. Types of congenital and acquired immunodeficiencies of the B-cell link: mechanisms of Masteringment, features of the clinical course, immunoDiagnosis. and treatment.

17. Types of congenital and acquired immunodeficiencies immunodeficiencies of the T-cell link: mechanisms of Masteringment, features of the clinical course, immunoDiagnosis. and treatment.

18. Types of congenital and acquired immunodeficiencies and combined immunodeficiencies: mechanisms of Masteringment, features of the clinical course, immunoDiagnosis. and treatment.

19. Congenital immunodeficiencies and acquired immunodeficiencies caused by a violation of the phagocytic link of immunity: mechanisms of Masteringment, features of the clinical course, immunoDiagnosis. and treatment.

20. Congenital immunodeficiencies caused by deficiency of complement proteins (congenital deficiency of C1-inhibitor complement): mechanisms of Masteringment, features of the clinical course, immunoDiagnosis. and treatment.

21. Stresses, disorders of neurohumoral and immune regulation. Syndrome of rapid, chronic fatigue. Immunogram. Immunotherapy.

22. Basic principles of prescribing immunotropic therapy in the complex treatment of immune-dependent diseases. Immunocorrective drugs; blockers of mediators of immune reactions; replacement therapy; cytokine therapy , anti-receptor drugs, etc.

23. Mechanisms of disruption of immunological tolerance, the role of genetic factors. Laboratory criteria of immunodiagnosis autoimmune diseases.

24. Modern approaches to the use of biological drugs (monoclonal antibodies) in the treatment of patients with autoimmune pathology.

25. Immune changes in cancer patients. Modern approaches to immunotherapy of patients with oncological diseases.

26. Transplantation immunology. Immunological indications and contraindications for transplantation of organs and tissues. Selection of the donor-recipient pair.

27. Indications for prescribing immunosuppressive therapy in the post-transplantation period. Peculiarities of pre- and post-transplantation immunological monitoring. Prevention of complications, treatment.

28. Immunological forms of infertility, diagnosis, the role of the immune system in miscarriage, methods of immunocorrection .

29. Definition of allergy. The role of genetic factors and the environment in the immunopathogenesis of allergies. Modern ideas about allergies. Classification of allergens.

30. Allergy diagnosis methods: ZAC, skin scarification and prick tests, intradermal test. ImmunoCAP, ISAC multicomponent study, ALEX 2.

31. Principles of antiallergic therapy. Allergen-specific immunotherapy, mechanism of action, indications and contraindications, prognosis of effectiveness.

32. Cell-mediated allergic diseases: immunopathogenesis, clinic, immunodiagnosis, immunotherapy.

33. Concept and differential diagnosis between allergic and pseudoallergic mechanisms of allergic disease. Principles of pseudoallergy treatment.

34. Drug allergy. Anaphylaxis. Clinical forms. Immunopathogenesis, clinic, allergy diagnosis, treatment, allergy prophylaxis.

35. Atherosclerosis. Definition. The role of dyslipidemia, general and local inflammation, vascular wall injury, and platelets in disease Masteringment. Risk factors. Cardiovascular risk stratification. Clinical manifestations depending on the predominant localization of atherosclerotic lesions (aorta, coronary, mesenteric, and renal arteries, arteries of the lower extremities). Diagnosis. Differential diagnosis. Complications. Treatment. Primary and secondary prevention. Prognosis and work capacity.

36. Essential hypertension. Definition. The role of central and renal blood pressure regulatory mechanisms, endothelial function, and other factors in pathogenesis. Classification. Clinical manifestations and investigation results. Target organ damage. Differential diagnosis. Cardiovascular risk stratification. Complications. Non-pharmacological and pharmacological treatment. Complicated and uncomplicated hypertensive crises: features of therapeutic management. Primary and secondary prevention. Prognosis and work capacity.

37. Secondary hypertension. Definition. The main causes and diagnosis of renal (renovascular, renoparenchymal), endocrine (Cushing's syndrome and disease, phaeochromocytoma, primary aldosteronism, hyper- and hypothyroidism), and hemodynamic (coarctation of the aorta) arterial hypertension. Hypertension in obstructive sleep apnea syndrome and pregnancy. The significance of laboratory

and instrumental methods of examination investigations for differential diagnosis and verification of the diagnosis. Treatment, including surgical treatment. Primary and secondary prevention. Prognosis and work capacity.

38. Coronary artery disease (CAD). Chronic coronary syndromes. CAD: definition, Etiology, pathogenesis, and classification. Chronic coronary syndromes. Canadian Cardiovascular Society classification of angina. Ischemia with non-obstructive coronary arteries (INOCA) and angina with non-obstructive coronary arteries (ANOCA). Silent myocardial ischemia. Cardiosclerosis. Clinical manifestations of chronic coronary syndromes. Significance of Diagnosis. Differential diagnosis. Treatment, including disease-modifying therapy. Myocardial revascularization. Primary and secondary prevention. Prognosis and work capacity.

39. Acute coronary syndromes. Definition and classification of acute coronary syndromes, unstable angina, and acute myocardial infarction (AMI). Clinical manifestations and diagnostic approach. The role of Diagnosis. Diagnostic criteria and differential diagnosis. Complications of AMI (acute left ventricular failure, cardiac arrhythmias and conduction disorders, myocardial rupture, acute ventricular aneurysm, Dressler syndrome, etc.). Emergency care and treatment. Prognosis-modifying therapy. Rehabilitation. Primary and secondary prevention. Prognosis and work capacity.

40. Cardiac arrhythmias. Definition. Etiology. Classification. Electrophysiological mechanisms of arrhythmias (extrasystole, atrial fibrillation and flutter, supraventricular and ventricular tachycardias, ventricular fibrillation). Clinical manifestations. Diagnosis. (ECG criteria for arrhythmias, Holter monitoring) and differential diagnosis. Complications. Pharmacological and non-pharmacological methods of treatment. Emergency medical care for paroxysmal cardiac arrhythmias and sudden cardiac death. Primary and secondary prevention. Prognosis and work capacity.

41. Cardiac conduction disorders. Definition. Etiology. Classification. Clinical manifestations and ECG diagnosis of sinoatrial, atrioventricular, and bundle branch blocks. Management of acute and chronic cardiac conduction disorders.

Emergency care for Morgagni-Adams-Stokes syndrome. Indications and principles of cardiac pacing (temporary, permanent). Primary and secondary prevention. Prognosis and work capacity.

42. Cor pulmonale. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Investigation results based on Etiology. Differential diagnosis. Principles of differentiated treatment. Primary and secondary prevention. Prognosis and work capacity.

43. Pulmonary embolism (PE). Definition. Risk factors. Pathogenesis of hemodynamic disturbances. Classification. Clinical manifestations. Diagnosis (clinical assessment of the probability of pulmonary embolism, laboratory and instrumental investigations). Diagnostic algorithms. Differential diagnosis. Early mortality risk stratification. Management strategy and treatment of patients with acute PE. Long-term treatment and prevention of recurrence. Primary and secondary prevention. Prognosis and work capacity.

44. Congenital heart disease in adults. Definition. Atrial and ventricular septal defects, patent ductus arteriosus, coarctation of the aorta. Mechanisms of hemodynamic disorders, and the significance of pulmonary hypertension Masteringment. Clinical manifestations. Diagnostic work-up. Differential diagnosis. Complications. Eisenmenger syndrome. Treatment (pharmacological therapy, surgical and catheter interventions). Prevention of complications. Prognosis and work capacity.

45. Endocarditis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Features of the clinical course depending on the pathogen. Diagnostic criteria. The diagnostic value of laboratory and echocardiographic investigations. Differential diagnosis. Complications (heart failure, embolism, abscess, etc.). Treatment. Antibiotic therapy regimens. Indications for surgical treatment. Primary and secondary prevention. Prognosis and work capacity.

46. Valvular heart disease. Mitral stenosis, mitral regurgitation, aortic stenosis, aortic regurgitation, and tricuspid regurgitation. Etiology, mechanisms of hemodynamic disorders. Classification. Multiple and mixed valvular heart disease.

Clinical manifestations. The significance of non-invasive and invasive methods of examination. Differential diagnosis. Complications. Treatment. Indications for interventional procedures and surgical treatment. Primary and secondary prevention. Prognosis and work capacity.

47. Myocarditis and cardiomyopathy. Definition. Classification. Etiology and pathogenesis. of myocarditis and main phenotypes of cardiomyopathy ((dilated, hypertrophic, etc.). Clinical manifestations. Diagnosis. and diagnostic criteria. Differential diagnosis. Complications. Treatment of myocarditis and various cardiomyopathy phenotypes. Primary and secondary prevention. Prognosis and work capacity.

48. Pericarditis. Definition. Etiology and pathogenesis. Classification. Features of clinical manifestations, course, and Diagnosis. of various forms of pericarditis. Differential diagnosis. Cardiac tamponade. Indications for pericardial puncture, its diagnostic and therapeutic significance. Differentiated therapy of various forms depending on etiological factors. Primary and secondary prevention. Prognosis and work capacity.

49. Acute heart failure. Definition. Etiology and pathogenesis. of central and peripheral hemodynamic disorders. Classification. Clinical manifestations. Diagnosis. Management at the pre-hospital and hospital stages, and pre-discharge. Emergency medical care of acute decompensated heart failure, acute pulmonary edema, isolated right ventricular failure and cardiogenic shock.

50. Chronic heart failure. Definition. Etiology and pathogenesis. : the role of neurohumoral activation and cardiac remodeling. Classification. Clinical manifestations. Diagnosis. and differential diagnosis. Non-pharmacological and pharmacological treatment of various chronic heart failure phenotypes, including guideline-directed medical therapy (GDMT). Primary and secondary prevention. Prognosis and work capacity.

51. Acute rheumatic fever. Definition. The role of streptococcal infection and immunological reactivity in the Masteringment of acute rheumatic fever. Classification. Clinical manifestations (carditis, polyarthritis, chorea, erythema

marginatum, subcutaneous rheumatic nodules, etc.). Diagnosis, diagnostic criteria. Differential diagnosis. Complications. Treatment. Primary and secondary prevention. Prognosis and work capacity. Chronic rheumatic heart disease as a consequence of previous acute rheumatic fever.

52. Systemic lupus erythematosus. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Classification criteria. Diagnostic algorithm, Diagnosis. Differential diagnosis. Complications. Non-pharmacological and pharmacological treatment, including pulse therapy. Prevention. Prognosis and work capacity.

53. Systemic sclerosis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Classification criteria. Diagnosis. Differential diagnosis. Complications. Treatment. Prevention. Prognosis and work capacity.

54. Dermatomyositis and polymyositis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Classification criteria. Diagnosis. Differential diagnosis. Complications. Treatment. Prevention. Prognosis and work capacity.

55. Systemic vasculitis. Definition. Etiology and pathogenesis. Classification. Polyarteritis nodosa, IgA vasculitis, and hypersensitivity vasculitis. Clinical manifestations. Diagnostic criteria. Diagnosis. Differential diagnosis. Treatment. Prevention. Prognosis and work capacity.

56. Rheumatoid arthritis. Definition. Etiology and pathogenesis. The role of immune status disorders in the Masteringment of the disease. Classification. Clinical manifestations. Diagnosis, radiographic stages. Classification criteria. Assessment of functional status. Differential diagnosis. Complications. Patient management algorithm. Treatment: disease-modifying antirheumatic drugs (DMARDs) and symptomatic treatment. Prevention. Prognosis and work capacity.

57. Osteoarthritis/osteoarthrosis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis, diagnostic criteria. Differential diagnosis. Non-pharmacological and pharmacological treatment, including

symptom-modifying drugs. Primary and secondary prevention. Prognosis and work capacity.

58. Gout. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis, diagnostic criteria for gouty arthritis. Diagnosis. Differential diagnosis. Non-pharmacological and pharmacological treatment, including urate-lowering therapy. Primary and secondary prevention. Prognosis and work capacity.

59. Axial spondyloarthritis, including ankylosing spondyloarthritis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Classification criteria. Diagnosis. Differential diagnosis. Non-pharmacological and pharmacological treatment. Prevention. Prognosis and work capacity.

60. Reactive arthritis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis, diagnostic criteria. Differential diagnosis. Complications. Treatment. Primary and secondary prevention. Prognosis and work capacity.

61. Glomerulonephritis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations and characteristics of specific morphological variants. Diagnosis. Differential diagnosis. Complications. Treatment based on morphological variant and clinical course. Primary and secondary prevention. Prognosis and work capacity.

62. Renal amyloidosis. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Complications. Treatment Primary and secondary prevention. Prognosis and work capacity.

63. Pyelonephritis. Definition. Etiology and pathogenesis. The role of infection in Masteringment. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Complications. Treatment. Primary and secondary prevention. Prognosis and work capacity.

64. Tubulointerstitial nephritis. Definition. Etiology and pathogenesis. Clinical manifestations. Diagnosis. Differential diagnosis. Complications. Treatment. Primary and secondary prevention. Prognosis and work capacity.

65. Acute kidney injury. Definition. Etiology and pathogenesis. Classification. Clinical manifestations. Diagnosis, diagnostic criteria. Differential diagnosis. Complications. Treatment of acute kidney injury and its complications. Renal replacement therapy: hemodialysis, hemofiltration, hemodiafiltration. Indications and contraindications for renal replacement therapy, complications. Primary and secondary prevention. Prognosis and work capacity.

66. Chronic Kidney Disease. Definition. Etiology and pathogenesis. of organ and system disorders. Classification. Clinical manifestations. Diagnosis, diagnostic criteria. Differential diagnosis. Complications. Treatment depending on the stage and renoprotection. Renal replacement therapy: hemodialysis, hemofiltration, hemodiafiltration, peritoneal dialysis, kidney transplantation. Indications and contraindications for renal replacement therapy, complications. Primary and secondary prevention. Prognosis and work capacity.

List of Practical Tasks and Assignments for the Final Control. Module 2 (Year 5). Internal Medicine (Cardiology, Rheumatology, Nephrology), Including Clinical Immunology and Allergology

List of typical professional tasks and skills assessed during the final control:

• Work with the patient:

- Elicit complaints and obtain the history of the present illness and the past medical history.
- Collect information on the patient's general condition (level of consciousness and body constitution) and assess the patient's general appearance (inspection of the skin and subcutaneous adipose tissue, palpation of the lymph nodes, thyroid gland, and mammary glands). Examine the musculoskeletal system (inspection and palpation).

- Examine the respiratory system (inspection and palpation of the chest, percussion and auscultation of the lungs).
- Examine the cardiovascular system (inspection and palpation of the precordial area and superficial blood vessels, percussion of the cardiac borders, and auscultation of the heart and blood vessels).
- Examine the digestive system (inspection of the abdomen, palpation and percussion of the intestines, stomach, liver, and spleen, and palpation of the pancreas).
- Examine the urinary system (inspection of the lumbar region and palpation of the kidneys).

- Establish a preliminary diagnosis (List 2).
- Prescribe and justify laboratory and/or instrumental investigations for patients with diseases (List 4).
- Interpret the results of laboratory and instrumental investigations (List 4).
- Perform the differential diagnosis of diseases (List 2).
- Establish a clinical diagnosis of diseases (List 2).
- Determine the appropriate patient management regimen and diet for patients with diseases (List 2).
- Determine the principles and nature of treatment (conservative, interventional, or surgical) for diseases (List 2).
- Diagnose emergency conditions and provide emergency medical care (List 3).
- Perform medical procedures (List 5).
- Determine the strategy for secondary prevention in patients requiring dispensary follow-up.
- Maintain medical records.

List 2 (Diseases)

Diseases of the Cardiovascular System

1. Atherosclerosis
2. Essential hypertension
3. Secondary hypertension
4. Coronary artery disease
5. Cardiac arrhythmias
6. Cardiac conduction disorders
7. Cor pulmonale
8. Pulmonary embolism
9. Congenital heart disease (atrial and ventricular septal defects, patent ductus arteriosus, coarctation of the aorta)
10. Endocarditis
11. Valvular heart disease (mitral stenosis, mitral regurgitation, aortic stenosis, aortic regurgitation, and tricuspid regurgitation).
12. Myocarditis and cardiomyopathy
13. Pericarditis
14. Acute and chronic heart failure

Diseases of the Musculoskeletal System and Connective Tissue

1. Ankylosing spondyloarthritis
2. Acute rheumatic fever
3. Chronic rheumatic heart disease
4. Dermatomyositis and poliomyositis
5. Osteoarthritis/osteoarthrosis
6. Systemic lupus erythematosus
7. Systemic scleroderma
8. Gout
9. Reactive arthritis
10. Rheumatoid arthritis
11. Systemic vasculitis (polyarteritis nodosa, hemorrhagic and hypersensitive vasculitis).

Diseases of the Genitourinary System

1. Pyelonephritis

2. Tubulointerstitial nephritis

3. Acute and chronic glomerulonephritis

4. Renal amyloidosis

5. Acute kidney injury

6. Chronic kidney disease.

Immunodeficiency and immune-dependent diseases

1. Congenital (Bruton's disease, Wiskot-Aldridge syndrome) and acquired immunodeficiency states

2. Bronchial asthma

3. Allergodermatoses (dermatitis, toxicoderma, eczema)

4. Immune conflict during pregnancy.

List 3 (Emergency Condition)

1.Hypertensive crises

2. Acute kidney injury

3. Acute coronary syndrome

4. Acute heart failure

5. Sudden cardiac arrest

6. Acute anaphylactic reactions

7. Management of patients with acute/paroxysmal cardiac rhythm disorders (paroxysmal tachycardia and atrial fibrillation/ atrial flutter)

8. Pulmonary embolism

9. Shocks.

List 4 (Laboratory and Instrumental Investigations)

1. Ascitic fluid analysis.
2. Synovial fluid analysis.
3. Nechiporenko urine test.
4. Zimnitsky urine test.
5. Blood proteins and protein fractions, C-reactive protein (CRP).
6. Complete blood count (CBC).

7. Urinalysis, urine microalbumin test.

8. Blood and urine metanephrines.

9. Coagulation profile (coagulogram).

10. Blood lipids, lipoproteins, and lipoprotein fractions.

11. Blood and urine creatinine and urea, glomerular filtration rate.

12. Blood uric acid.

13. Blood electrolytes.

14. D-dimer and biochemical markers of myocardial necrosis.

15. General immunological profile of blood.

16. Histomorphological examination of biopsy specimens of parenchymal organs.

17. Histomorphological examination of muscle and skin biopsy specimens.

18. Serological tests for autoimmune diseases.

19. Microbiological examination of biological fluids and secretions.

20. Standard 12-lead electrocardiography.

21. Stress testing for the diagnosis of myocardial ischemia.

22. Echocardiography and Doppler ultrasonography.

23. Methods of instrumental visualization of the thyroid gland and adrenal glands.

24. Contrast angiography.

25. Methods of instrumental visualization of the genitourinary system.

26. Methods of instrumental visualization of the thoracic organs.

27. Methods of instrumental visualization of the spine, bones, and joints.

List 5 (Medical Procedures)

1. Measure blood pressure

2. Perform standard 12-lead ECG recording

3. Perform cardiopulmonary resuscitation (including rescue breaths and chest compressions).

Know the Clinical Pharmacology of the Major Drug Classes

1. α and β- agonists
2. Antiaggregants
3. Antianginal
4. Antiarrhythmic
5. Anticoagulants
6. Antiallergic
7. Antibacterial
8. Antihypertensive
9. Mineralocorticoid receptor antagonists
10. Glucocorticoids and immunosuppressive drugs, cytostatics
11. Diuretics
12. Nnonsteroidal anti-inflammatory drugs.

Be Able to Complete Medical Documentation

1. Inpatient medical record (Form No. 003/o).
2. Hospital discharge summary.
3. Medication order sheet (Form No. 003-4/o).
4. Referral for assessment of daily functioning
5. Medical death certificate (Form No. 106/o)
6. Sick leave certificate.
7. Prescriptions for medicines covered in all sections of the discipline.

List of practical skills in clinical immunology and allergology, which the student should learn

1. Conduct surveys and physical examinations of patients with immunodeficiency diseases (collect immunological history, determine hereditary predisposition to the Masteringment of immunodeficiencies, evaluate the data of physical research methods, etc.).

2. Mastering the skills of determining the necessary range of immunological laboratory tests for the examination of patients with immune-dependent pathology.

3. Identify the presence of the main clinical symptoms and syndromes of immune disorders. Justify and formulate a diagnosis in case of major immunodeficiencies based on the analysis of laboratory and instrumental examination data.

4. Identify clinical signs of decompensation of systemic and local immunity.

5. To know the basic principles of prescribing immunotropic therapy in the complex treatment of immune-dependent diseases.

6. Conduct a survey and physical examination of patients with allergic pathology (be able to collect an allergic history, determine the presence of a genetic predisposition to the formation of allergic pathology). Draw up an examination plan for patients with allergic diseases.

7. Master the skills of performing skin allergy tests (pre -tests) and evaluation of data from modern laboratory allergy tests.

8. Carry out a differential diagnosis, justify and formulate a diagnosis for the main allergic diseases. Prescribe treatment, determine prognosis, carry out primary and secondary prevention of allergic diseases.

9. Provide emergency care for acute allergic conditions.

10. Master the skills of prescribing antiallergic drugs, know the recipe of the main antiallergic drugs.

11. Mastering the skills of evaluating the laboratory results of studies according to the determined immunological criteria of changes in the main autoimmune diseases.

12. Apply in practice the recommendations for prescribing immunosuppressive therapy with an assessment of its effectiveness in autoimmune diseases.

13. Interpret the data of laboratory tests when selecting a donor-recipient pair, evaluate changes in the immunogram to diagnose the Masteringment of hyperacute, acute or chronic rejection crises and/or infectious complications in patients after transplantation.

14. Know the effect and features of prescribing the main drugs of immunosuppressive therapy and evaluate their effectiveness in transplantation, autoimmune diseases.

15. Interpret the indicators of the immunogram in cancer patients with the assessment of antiblastoma and problastoma factors. To evaluate the results of determination of tumor-associated antigens for early diagnosis of tumors and detection of metastasis.

16. Provide emergency care for acute allergic or pseudoallergic pathology.

17. Assign and evaluate the effectiveness of allergen-specific immunotherapy in the treatment of allergic rhinitis.

List of Theoretical Questions for the Final Control.

Module 3 (6). Internal Medicine, Including Phthisiology, Endocrinology, Emergency Conditions in Neurology, and Clinical Medical Practice (Professional Training) in Internal Medicine

- Management of patients with arterial hypertension: algorythms and standards of diagnosis and treatment.
- Management of patients with chronic chest pain: algorithms and standards of diagnosis and treatment.
- Management of patients with acute chest pain: algorithms and standards of diagnosis and treatment.
- Management of patients with cardiac arrhythmias: algorithms and standards of diagnosis and treatment.
- Management of patients with cardiac conduction disorder: algorithms and standards of diagnosis and treatment.

- Management of patients with shortness of breath: algorithms and standards of diagnosis and treatment.
- Management of patients with edema: algorithms and standards of diagnosis and treatment.
- Management of patients with pulmonary hypertension: algorithms and standards of diagnosis and treatment.
- Management of patients with a heart murmurs: algorithms and standards of diagnosis and treatment.
- Management of patients with a chronic heart failure: algorithms and standards of diagnosis and treatment.
- Management of patients with back and limbs pain: algorithms and standards of diagnosis and treatment.
- Management of patients with an articular syndrome: algorithms and standards of diagnosis and treatment.
- Management of patients with purpura: algorithms and standards of diagnosis and treatment.
- Management of patients with fever: algorithms and standards of diagnosis and treatment.
- Management of patients with weight loss: algorithms and standards of diagnosis and treatment.
- Management of patients with dysphagia and heartburn: algorithms and standards of diagnosis and treatment.
- Management of patients with dyspepsia: algorithms and standards of diagnosis and treatment.
- Management of patients with chronic abdominal pain: algorithms and standards of diagnosis and treatment.
- Management of patients with chronic diarrhea: algorithms and standards of diagnosis and treatment.

- Management of patients with constipation: algorithms and standards of diagnosis and treatment.
- Management of patients with jaundice: algorithms and standards of diagnosis and treatment.
- Management of patients with hepatomegaly and hepatosplenomegaly: algorithms and standards of diagnosis and treatment.
- Management of patients with portal hypertension and ascitis: algorithms and standards of diagnosis and treatment.
- Management of patients with pulmonary infiltrate: algorithms and standards of diagnosis and treatment.
- Management of patients with chronic cough: algorithms and standards of diagnosis and treatment.
- Management of patients with bronchial obstructive syndrome: algorithms and standards of diagnosis and treatment.
- Management of patients with cyanosis: algorithms and standards of diagnosis and treatment.
- Management of patients with hemoptysis: algorithms and standards of diagnosis and treatment.
- Management of patients with pleural effusion: algorithms and standards of diagnosis and treatment.
- Management of patients with anemia: algorithms and standards of diagnosis and treatment.
- Management of patients with bleeding: algorithms and standards of diagnosis and treatment.
- Management of patients with leukocytosis and lymphadenopathy: algorithms and standards of diagnosis and treatment.
- Management of patients with urinary syndrome: algorithms and standards of diagnosis and treatment.

- Management of patients with nephrotic syndrome: algorithms and standards of diagnosis and treatment.
- Management of patients with chronic kidney disease: algorithms and standards of diagnosis and treatment.
- Management of sudden cardiac arrest
- Diagnostic and emergency care standards in patients with hypertencive crises in the pre-hospital and hospital care.
- Diagnostic and emergency care standards in patients with acute coronary syndrome in the pre-hospital and hospital care.
- Diagnostic and emergency care standards in patients with pulmonary embolism in the pre-hospital and hospital care.
- Diagnostic and emergency care standards in patients with acute heart failure in the pre-hospital and hospital care.
- Diagnostic and emergency care standards in patients with shock in the pre-hospital and hospital care.
- Diagnostic and emergency care standards in patients with acute/paroxysmal cardiac rhythm and conduction disorders in the pre-hospital and hospital care.
- Diagnostic and emergency care standards in patients with acute respiratory failure in the pre-hospital and hospital care.
- Diagnostic and emergency care standards in patients with melena and hematemesis in the pre-hospital and hospital care.
- Diagnostic and emergency care standards in patients with oligoanuria in the pre-hospital and hospital care.
- Management of patients with type 1 diabetes: algorithms and standards of diagnosis and treatment.
- Management of patients with type 2 diabetes: algorithms and standards of diagnosis and treatment.

- Management of patients with chronic complications of diabetes: algorithms and standards of diagnosis and treatment diabetic neuropathy, diabetic nephropathy, retinopathy, diabetic foot syndrome.
- Management of patients with hypothyroidism and thyroiditis: algorithms and standards of diagnosis and treatment.
- Management of patients with thyrotoxicosis syndrome: algorithms and standards of diagnosis and treatment.
- Management of patients with thyroid cancer: algorithms and standards of diagnosis and treatment.
- Diagnostic and emergency care standards in patients with coma (including hypoglycemic, diabetic hyperglycemic кetoacidotic, diabetic nonкetotic hyperosmolar, hyperlactacidemic, hepatic and uremic) in the pre-hospital and hospital care.
- Protocols of diagnosis and pre-hospital and hospital care in patients with thyrotoxic crisis.
- Protocols of diagnosis and pre-hospital and hospital care in patients with acute adrenal insufficiency.
- Standard approaches to TB diagnosis and detecting drug resistance.
- Standard treatment regimens for drug-susceptible and drug-resistant tuberculosis.
- Diagnosis of extrapulmonary tuberculosis, including pleural tuberculosis, tuberculosis of the spine and joints, central nervous system tuberculosis, lymph node tuberculosis, and renal tuberculosis.
- Diagnosis, treatment, and prevention of tuberculosis in people living with HIV.
- Diagnosis of tuberculosis infection.
- Tuberculosis risk assessment and tuberculosis preventive treatment in patients preparing for solid organ or hematopoietic stem cell transplantation, or receiving tumor necrosis factor (TNF) inhibitors.

- Differential diagnosis of tuberculosis, community-acquired pneumonia, nontuberculous mycobacterial (NTM) disease, and invasive fungal infections.
- TB prevention.
- Management of patients with an acute cerebrovascular disorder: algorithms and standards of a diagnosis and treatment of transient ischemic attacks, acute ischemic and hemorrhagic strokes.
- Management of patients with a status epilepticus: algorithms and standards of a diagnosis and treatment.
- Management of patients with infectious and infectious-allergic diseases of central and peripheral nervous system: algorithms and standards of a diagnosis and treatment of meningitis, encephalitis, myelitis, poliomyelitis, neuroborreliosis.
- Management of patients with infectious-allergic diseases of nervous system: algorithms and standards of a diagnosis and treatment of Guillain–Barré syndrome, post-diphtheritic polyneuropathy, chronic demyelinating polyneuropathy.
- Management of patients with headache and prosopalgias: algorithms and standards of a diagnosis and treatment.
- Management of patients with vertebrogenic and non-vertebrogenic pain syndromes: algorithms and standards of a diagnosis and treatment.
- Differential diagnosis of arterial hypertension based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of cardiac arrhythmias based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of cardiac conduction disorders based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of dyspnea based on the results of clinical, laboratory and instrumental examination.

- Differential diagnosis of chest pain based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of edema based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of pulmonary hypertension based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of heart murmur based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of pain in the back and limbs based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of articular syndrome based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of purpura based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of dysphagia and heartburn based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of dyspepsia based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of chronic abdominal pain based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of chronic diarrhea based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of constipations based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of jaundice based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of pulmonary infiltrate based on the results of clinical, laboratory and instrumental examination.

- Differential diagnosis of portal hypertension based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of chronic cough based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of bronchial obstructive syndrome based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of cyanosis based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of hemoptysis based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of pleural effusion based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of anemias based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of lymphadenopathy and leukocytosis based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of urinary syndrome based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of nephrotic syndrome based on the results of clinical, laboratory and instrumental examination.
- Differential diagnosis of chronic kidney disease based on the results of clinical, laboratory and instrumental examination.

List of Practical Tasks and Assignments for the Final Control. Module 3 (6th courses). Internal Medicine, Including Phthisiology, Endocrinology, Emergency Conditions in Neurology, and Clinical Medical Practice (Professional Training) in Internal Medicine

List of typical professional tasks and skills assessed during the final control:

• Work with the patient:

- Elicit complaints and obtain the history of the present illness and the past medical history.
- Identify the leading clinical symptom or syndrome (List 1).
- Collect information on the patient's general condition (level of consciousness and body constitution) and assess the patient's general appearance (inspection of the skin and subcutaneous adipose tissue, palpation of the lymph nodes, thyroid gland, and mammary glands). Examine the musculoskeletal system (inspection and palpation).
- Examine the respiratory system (inspection and palpation of the chest, percussion and auscultation of the lungs).
- Examine the cardiovascular system (inspection and palpation of the precordial area and superficial blood vessels, percussion of the cardiac borders, and auscultation of the heart and blood vessels).
- Examine the digestive system (inspection of the abdomen, palpation and percussion of the intestines, stomach, liver, and spleen, and palpation of the pancreas).
- Examine the urinary system (inspection of the lumbar region and palpation of the kidneys).

- Establish a preliminary diagnosis (List 2).
- Prescribe and justify laboratory and/or instrumental investigations for patients with diseases (List 4).
- Interpret the results of laboratory and instrumental investigations (List 4).
- Perform differential diagnosis of diseases (List 2).
- Establish a clinical diagnosis (List 2).
- Determine the appropriate patient regimen and diet for patients with diseases (List 2).
- Determine the principles and nature of treatment (conservative, interventional, and surgical) for diseases (List 2).
- Diagnose emergency conditions (List 3).

- Determine the strategy for providing emergency medical care (List 3).
- Provide emergency medical care (List 3).
- Perform medical procedures (List 5).
- Determine the strategy for secondary prevention in patients requiring dispensary follow-up.
- Maintain medical records.

List 1 (Syndromes & Symptoms)

1. Anemic syndrome (acute and chronic posthemorrhagic anemias, iron-deficient, B12-deficient, foliodeficient, aplastic, hemolytic anemias).

2. Anuria and oliguria (acute kidney injury, terminal stage of chronic kidney disease).

3. Arterial hypertension (essential hypertension; secondary hypertension: renal hypertension – renovascular and renoparenchymal; endocrine hypertension – Cushing's sroyndme and Cushing's disease, phaeochromocytoma, primary aldosteronism, hyperthyroidism, hypothyroidism; coarctation of the aorta, isolated systolic and diastolic hypertension, obstructive sleep apnea syndrome, and hypertension in pregnancy).

4. Arterial hypotension (physiological (adaptive)); pathological: primary, secondary (diseases of the kidneys, gastrointestinal tract, cardiovascular and central nervous, endocrine (hypothyroidism, Addison's disease) systems, arterial hypotension caused by medications, etc.

5. Chest pain (acute coronary syndrome, angina pectoris, aortic stenosis, hypertrophic cardiomyopathy, aortitis, myocarditis, acute pericarditis, aortic dissection, pulmonary embolism, pleurisy, pneumothorax, esophagitis, gastroesophageal reflux disease, achalasia, esophageal spasm, hiatal hernia, peptic ulcers of the stomach and duodenum, pancreatitis, thoracic osteochondrosis, shingles, myositis, costochondritis, intercostal neuralgia, panic disorder).

6. Abdominal pain (functional gastrointestinal disorders (disorders of gut-brain interaction), chronic cholecystitis, Gallstone disease, chronic pancreatitis,

gastritis, duodenitis, peptic ulcer disease of the stomach and duodenum, enteritis, and colitis).

7. Pain in the back and limbs (axial spondyloarthritis, reactive arthritis, arthritis associated with inflammatory bowel disease, spinal osteochondrosis, osteoporosis, dermatomyositis/polymyositis, and neuropathies of various etiologies, including those associated with systemic vasculitis, diabetes mellitus).

8. Bronchial obstructive syndrome (chronic obstructive pulmonary disease, bronchial asthma, and tumors of the trachea and bronchi).

9. Bulbar syndrome (acute violation of cerebral circulation, acute inflammatory demyelinating polyradiculoneuropathy Guillain-Barre, post-diphtheria polyneuropathy, poliomyelitis, tick-borne encephalitis).

10. Pleural effusion (pneumonia, pulmonary tuberculosis, malignant tumors of the lungs and pleura, heart failure, acute pancreatitis, Cirrhosis, nephrotic syndrome, and systemic connective tissue diseases).

11. Fever (systemic connective tissue diseases, polyarteritis nodosa, rheumatoid arthritis, infective endocarditis, malignant neoplasms, sepsis, tuberculosis, inflammatory bowel disease, and acquired immunodeficiency syndrome; fever of unknown origin).

12. Hemorrhagic syndrome (hemorrhagic and hypersensitivity vasculitis, polyarteritis nodosa, idiopathic thrombocytopenic purpura (immune thrombocytopenia), hemophilia, aplastic anemias, acute leukemias, myelodysplastic syndromes, disseminated intravascular coagulation, and acquired coagulopathies, particularly in liver diseases).

13. Hypoglycemia (adrenal insufficiency, hypothyroidism, hypopituitarism, insulin-secreting tumors, liver and kidney failure, sepsis).

14. Hyperglycemia (diabetes mellitus, hypercorticism, thyrotoxicosis, pheochromocytoma, acromegaly).

15. Hepatomegaly and hepatosplenomegaly (diseases of the hepatic parenchyma and vascular system, including chronic hepatitis, cirrhosis and liver tumors, and Budd-Chiari syndrome; hematological and hematopoietic disorders,

including leukemias, Hodgkin's lymphoma, and polycythemia vera; right-sided heart failure, including constrictive pericarditis; storage diseases, including hemochromatosis).

16. Headache (in case of acute cerebrovascular disorders, encephalitis, meningitis, migraine).

17. Dyspepsia (uninvestigated, functional and organic).

18. Dysphagia (esophagitis, esophageal cancer, diffuse esophageal spasm, achalasia, esophageal diverticula, systemic sclerosis, and dysphagia associated with disorders of the central and peripheral nervous systems and muscles).

19. Jaundice (chronic hepatitis, cirrhosis and liver tumors, hemolytic anemias, Gallstone disease, pancreatic head cancer, cancer of the major duodenal papilla (ampulla of Vater), and benign hyperbilirubinemias).

20. Dyspnea (chronic heart failure; respiratory failure resulting from airway obstruction and diseases of the lungs and pleura; pulmonary embolism; anemias, and panic disorder).

21. Constipation (irritable bowel syndrome, colorectal cancer, anorectal diseases, hypothyroidism, neurogenic and psychogenic disorders, nutritional disorders, situational and iatrogenic constipation).

22. Dizziness (acute disorder of cerebral circulation, brainstem encephalitis)

23. Goiter (non-toxic and toxic goiter, thyroiditis, thyroid cancer).

24. Cough (chronic obstructive pulmonary disease, bronchial asthma, pulmonary tuberculosis, bronchiectasis, lung tumors, pneumoconioses, gastroesophageal reflux disease, and upper airway cough syndrome (postnasal drip syndrome)).

25. Ketosis, ketoacidosis (diabetes mellitus, hypercorticism, starvation, infectious diseases).

26. Coma (hypoxic, uraemic, hepatic, alcohol-induced, hypoglycaemic, diabetic ketoacidotic, hyperosmolar hyperglycaemic, and lactic acidosis coma).

27. Hemoptysis (bronchiectasis, malignant tumors of the bronchi and lungs, pulmonary tuberculosis, lung abscess, pneumonia, mitral stenosis, and pulmonary embolism).

28. Pulmonary infiltrate (pneumonia, pulmonary tuberculosis, pulmonary infarction, benign and malignant lung tumors, pulmonary eosinophilias, and pulmonary sarcoidosis).

29. Lymphadenopathy (Hodgkin lymphoma and non-Hodgkin lymphomas, acute leukemias and chronic lymphoid leukemia, infectious mononucleosis, reactive lymphadenitis, tuberculosis, sarcoidosis, metastatic involvement of the lymph nodes, systemic connective tissue diseases, HIV infection, and sepsis).

30. Meningeal syndrome (meningitis, acute disturbance of cerebral circulation).

31. Edema (heart failure, nephrotic syndrome, cirrhosis with portal hypertension, hypoalbuminemia of various etiologies (nutritional, malabsorption syndrome, cachexia), endocrine disorders (hypothyroidism), edema during pregnancy, drug-induced and idiopathic edema); localized edema (allergic and angiedema, venous, lymphatic, and orthostatic edema)).

32. Nephrotic syndrome (acute and chronic glomerulonephritis, renal amyloidosis, diabetic nephropathy, diabetic kidney disease, multiple myeloma).

33. Obesity (type 2 diabetes, Cushing's disease and syndrome, hypothyroidism).

34. Paresis, paralysis (acute violation of cerebral circulation, acute inflammatory demyelinating polyradiculoneuropathy Guillain-Barre, post-diphtheria polyneuropathy, myelitis, poliomyelitis, tick-borne encephalitis, neuroborreliosis, plexopathy).

35. Heartburn (esophagitis, gastroesophageal reflux disease, functional dyspepsia, chronic gastritis, and peptic ulcers of the stomach and duodenum).

36. Polyuria (diabetes mellitus, diabetes insipidus, hyperparathyroidism, primary hyperaldosteronism).

37. Portal hypertension (cirrhosis and liver tumors, Budd-Chiari syndrome, portal vein thrombosis or thrombosis of its branches; stenosis or obliteration of the inferior vena cava at or above the level of hepatic vein inflow; right ventricular heart failure, including heart failure due to constrictive pericarditis).

38. Speech disorder (aphasia) (in case of acute cerebrovascular disorder).

39. Cardiac arrhythmias (extrasystoles, atrial fibrillation and atrial flutter, paroxysmal tachycardia, ventricular fibrillation).

40. Cardiac conduction disorders (sinoatrial, atrioventricular, intraventricular blockades).

41. Radicular syndrome (vertebral radiculopathy, acute inflammatory demyelinating polyradiculoneuropathy of Guillain-Barre).

42. Sudden cardiac arrest (coronary artery disease, cardiomyopathies, cardiac arrhythmias, genetically determined arrhythmogenic syndromes (long QT syndrome, Brugada syndrome), sinus and atrioventricular node dysfunction, severe electrolyte disturbances).

43. Impairment of consciousness (in case of epilepsy, acute cerebrovascular disorder, encephalitis, meningitis).

44. Urinary syndrome (acute and chronic glomerulonephritis, chronic pyelonephritis, tubulointerstitial nephritis, dysmetabolic nephropathies, urolithiasis, diabetic kidney disease).

45. Digestive insufficiency syndrome (chronic atrophic gastritis, post-gastric surgery syndromes, chronic pancreatitis, celiac disease, food intolerance).

46. Articular syndrome (rheumatoid arthritis, osteoarthritis, reactive arthritis, gout, systemic lupus erythematosus, systemic sclerosis, dermatomyositis/polymyositis, axial spondyloarthritis, and polyarteritis nodosa).

47. Convulsions (epileptic attack) (epilepsy, acute disturbance of cerebral circulation, encephalitis).

48. Weight loss (systemic connective tissue diseases, systemic vasculitis, malignant neoplasms, nutritional and psychogenic weight loss).

49. Chronic diarrhea (chronic atrophic gastritis, post-gastrectomy conditions, Zollinger-Ellison syndrome, irritable bowel syndrome, Crohn's disease, ulcerative colitis, small intestinal bacterial overgrowth (SIBO), celiac disease, food intolerance, chronic pancreatitis, and diabetic enteropathy).

50. Cyanosis (lung diseases, including chronic obstructive pulmonary disease, and interstitial lung diseases; heart diseases, including congenital heart defects complicated by Eisenmenger syndrome, mitral stenosis, pulmonary embolism, and heart failure; dyshemoglobinemias).

51. Gastrointestinal bleeding (erosions of the gastric and duodenal mucosa, peptic ulcers of the stomach and duodenum, malignant neoplasms, ulcerative colitis, and haemorrhagic vasculitis).

52. Heart murmur (ventricular septal defect, atrial septal defect, patent ductus arteriosus, coarctation of the aorta); acquired heart valve diseases (mitral stenosis, mitral valve regurgitation, mitral valve prolapse, aortic stenosis, aortic valve regurgitation, tricuspid valve regurgitation); hypertrophic cardiomyopathy. Functional systolic murmur).

List 2 (Diseases)

Diseases of the Cardiovascular System

1. Atherosclerosis
2. Essential hypertension
3. Secondary hypertension
4. Coronary artery disease
5. Pericarditis
6. Cor pulmonale
7. Valvular heart disease: mitral, aortic and tricuspid valves, combined mitral and aortic defects
8. Congenital heart disease (atrial and ventricular septal defects, patent ductus arteriosus, coarctation of the aorta)
9. Endocarditis
10. Myocarditis and cardiomyopathies

11. Pulmonary embolism
12. Cardiac arrhythmias
13. Cardiac conduction disorders
14. Heart failure.

Respiratory Diseases

1. Chronic obstructive lung disease. Bronchitis
2. Bronchial asthma
3. Pneumonia
4. Pleuritis
5. Infectious and destructive lung diseases
6. Bronchiectasis
7. Respiratory failure
8. Pulmonary failure.

Digestive diseases

1. Esophagitis. Gastroesophageal reflux disease
2. Functional gastrointestinal disorders (disorders of gut-brain interaction)
3. Gastritis and duodenitis
4. Peptic ulcers of the stomach and duodenum. Ulcer disease
5. Enteritis, colitis
6. Malabsorption syndrome
7. Gallstone disease, chronic cholecystitis, and functional biliary disorders
8. Chronic hepatitis
9. Cirrhosis
10. Chronic pancreatitis.

Diseases of the Musculoskeletal System and Connective Tissue

1. Osteoarthritis/osteoarthrosis
2. Systemic lupus erythematosus
3. Systemic scleroderma
4. Gout
5. Reactive arthritis

6. Acute rheumatic fever

7. Chronic rheumatic heart disease

8. Rheumatoid arthritis

9. Dermatomyositis, polymyositis

10. Axial spondyloarthritis, including ankylosing spondyloarthritis

11. Systemic vasculitis (polyarteritis nodosa, hemorrhagic and hypersensitivity vasculitis).

Diseases of the Genitourinary System

1. Pyelonephritis

2. Tubulointerstitial nephritis

3. Acute and chronic glomerulonephritis

4. Dysmetabolic nephropathy

5. Renal amyloidosis

6. Nephrotic syndrome

7. Chronic kidney disease.

Diseases of the blood and hematopoietic organs

1. Anemias

2. Acute and chronic leukemias

3. Lymphomas

4. Multiple myeloma

5. Hemophilia

6. Idiopathic thrombocytopenic purpura (immune thrombocytopenia).

Diseases of the endocrine system, eating disorders and metabolic disorders

1. Hypothyroidism

2. Thyrotoxicosis

3. Endemic goiter

4. Nodular goiter, tumors of the thyroid gland

5. Obesity

6. Thyroiditis

7. Diabetes

8. Hyperinsulinism.

Diseases of the nervous system

1. Cerebrovascular diseases of the nervous system (transient ischemic attack, ischemic stroke, hemorrhagic stroke)

2. Epilepsy

3. Non-epileptic paroxysmal states

4. Infectious diseases of the nervous system (meningitis, encephalitis, myelitis, poliomyelitis, neuroborreliosis), including in the case of HIV infection

5. Infectious-allergic mononeuropathies and polyneuropathies (Guillain-Barré syndrome, post-diphtheria polyneuropathy, in case of HIV infection)

6. Migraine and other types of headache and prosopalgia (trigeminal neuralgia, pterygopalatine neuralgia, Hunt's syndrome)

7. Vertebrogenic pain syndromes (reflex, radicular) of the cervical, thoracic, and lumbosacral levels.

Tuberculosis

1. Pulmonary tuberculosis
2. Pleural tuberculosis
3. Tuberculosis of the spine and joints (osteoarticular tuberculosis)
4. Central nervous system tuberculosis
5. Lymph node tuberculosis.

List 3 (emergemcy condition)

1. Hypertensive crisis

2. Acute coronary syndrome

3. Acute heart failure

4. Acute respiratory failure

5. Acute adrenal insufficiency

6. Acute liver failure

7. Acute kidney injury

8. Sudden cardiac arrest

9. Hypoglycemic coma

10. Diabetic, including ketoacidotic, hyperosmolar, lactacidemic coma.

11. Acute bleeding (esophageal, gastrointestinal, pulmonary)

12. Acute/paroxysmal cardiac arrhythmias (paroxysmal tachycardia and atrial fibrillation/atrial flutter) and paroxysmal atrioventricular block

13. Pulmonary embolism

14. Thyrotoxic crisis

15. Shocks

16. Acute cerebral insufficiency

17. Collapse

18. Impairment of consciousness and comatose states

19. Convulsive syndrome

20. Epileptic status.

List 4 (Laboratory and Instrumental Investigations)

1. Pleural fluid analysis.
2. Ascitic fluid analysis.
3. Synovial fluid analysis.
4. Nechiporenko urine test.
5. Zimnitsky urine test.
6. Alpha-amylase activity in blood and urine, fecal elastase-1.
7. Blood proteins and protein fractions, C-reactive protein.
8. Blood lipids, lipoproteins, and lipoprotein fractions.
9. Complete blood count.
10. Urinalysis, urine microalbumin test.
11. Oral glucose tolerance test, blood glucose, glycosylated hemoglobin, fructosamine.
12. Blood hormones (TSH, T4, T3, calcitonin, ACTH, cortisol, aldosterone and renin).
13. Antibodies to thyroperoxidase, antibodies to TSH receptors, antibodies to thyroglobulin.

14. Blood and urine metanephrines.

15. Ferritin, serum iron, transferrin, transferrin saturation.

16. Blood and urine creatinine and urea, glomerular filtration rate.

17. Blood electrolytes.

18. Blood aminotransferases.

19. Total bilirubin and its fractions.

20. Markers of viral and autoimmune hepatitis.

21. Blood acid-base status parameters.

22. Coagulation profile (coagulogram).

23. Blood uric acid.

24. Alkaline phosphatase.

25. Histomorphological examination of lymph node biopsy specimens.

26. Histomorphological examination of biopsy specimens of parenchymal organs.

27. Histomorphological examination of muscle and skin biopsy specimens.

28. Histomorphological examination of mucosal biopsy specimens.

29. Pulmonary function testing.

30. Standard 12-lead electrocardiography.

31. Stress testing for the diagnosis of myocardial ischemia.

32. D-dimer, biochemical markers of myocardial necrosis.

33. Endoscopic examination of bronchi.

34. Endoscopic examination of the gastrointestinal tract.

35. Echocardiography and Doppler ultrasonography.

36. Stool analysis.

37. Sugar and acetone in urine.

38. General analysis of cerebrospinal fluid.

39. General analysis of sternal bone marrow aspirate.

40. General sputum analysis.

41. General immunological profile of blood.

42. Serological tests for autoimmune diseases.

43. Breath tests using ^{13}C-urea, ^{13}C-triglycerides, ^{13}C-starch, and ^{13}C-lactose, and hydrogen breath tests using glucose and lactulose.

44. Microbiological examination of biological fluids and secretions.

45. Methods of instrumental visualization of the thyroid gland and adrenal glands.

46. Contrast angiography.

47. Methods of instrumental visualization of the abdominal organs.

48. Methods of instrumental visualization of the thoracic organs.

49. Methods of instrumental visualization of the genitourinary system.

50. Methods of instrumental visualization of the skull, spine, bones, and joints.

51. Interferon-gamma release assay.

52. Tuberculin skin test.

53. Multiphase fractional bile analysis and gastric and esophageal pH monitoring.

List 5 (Medical Procedures)

1. Measure blood pressure
2. Perform standard 12-lead ECG recording
3. Perform cardiopulmonary resuscitation (including rescue breaths and chest compressions)
4. Perform intravenous injections
5. Perform thyroid gland palpation**.**

Know the Clinical Pharmacology of the Major Drug Classes

1. α and β-adrenostimulators
2. Antiaggregants
3. Antianginal
4. Antiarrhythmics
5. Antibacterial

6. Antimycobacterial
7. Antihypertensives
8. Anticoagulants
9. Expectorants
10. Hemostatics
11. Glucocorticoids and cytostatic immunosuppressants
12. Diuretics
13. Proton pump inhibitors
14. H2-histamine blockers
15. Nonsteroidal anti-inflammatory drugs
16. Oral hypoglycemic drugs, insulin, thyroxine, imidazole derivatives
17. Antagonists of mineralocorticoid receptors
18. Iron preparations
19. Antiepileptics
20. Cholinolytics.

Be Able to Complete Medical Documentation

1. Inpatient medical record (Form No. 003/o).
2. Hospital discharge summary.
3. Medication order sheet (Form No. 003-4/o).
4. Referral for assessment of daily functioning
5. Medical death certificate (Form No. 106/o)
6. Sick leave certificate.
7. Prescriptions for medicines covered in all sections of the discipline.

Learning Achievement Assessment Tools

Test items, questions for oral control, written assignments, case-based (clinical) tasks, control of practical skills using checklists, analysis and interpretation of laboratory and instrumental investigation results, individual assignments, results of students' self-study work.

13. Methodological Support

1. Online course on the LIKAR_NMU Distance Learning Platform
2. Course teaching materials
3. Methodical recommendations for lectures and educational video materials
4. Methodical recommendations for practical lessons for students
5. Methodical recommendations for students' independent study
6. Algorithms for performing practical skills and medical procedures
7. Standardised laboratory and instrumental investigation results
8. Simulators, models, phantoms, etc
9. Electronic learning content for the course
10. Workbooks for practical lessons topics
11. Tests, clinical case scenarios, and type A test items for current and final control of knowledge and practical skills.
12. List of theoretical questions and practical tasks for the final Control.

14. Recommended Literature

Core

1. Алергологія та клінічна імунологія: підручник / за ред. В. І. Кашкіна, Л. В. Кузнецової. — 2-ге вид., переробл. та доповн. — Київ: ВІПО, 2022. – 560 с.

2. Внутрішні хвороби. Підручник, заснований на принципах доказової медицини 2025/26/ за ред. P. Gajewski, R. Jaeschke, A. C. Свінціцького. – 2-ге вид. – Краків: Polish Institute for Evidence Based Medicine, 2025. – 1728 с.

3. Внутрішні хвороби. У 2 частинах. Частина 1. Розділи 1-8: підручник / Л.В.Глушко, С.В.Федоров, І.М. Скрипник тощо За ред. проф. Л.В.Глушка. – 2-е видання. К.: ВСВ «Медицина», 2022. – 680 с.

4. Внутрішні хвороби: у 2 частинах. Частина 2. Розділи 9-24: підручник / Л.В. Глушко, С.В. Федоров, І.М. Скрипник тощо За ред. проф. Л.В.Глушка. – 2-е видання. К.: ВСВ «Медицина», 2022. – 584 с.

5. Запобігання і подолання проявів стигматизації та дискримінації стосовно людей, які стикаються з туберкульозом (навчально-методичний посібник для студентів медичних закладів) / В.І. Петренко, Я. В. Бондаренко, К.С. Павлова, О.О. Семенова. – Київ, 2023. – 21 с.

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43. Наказ МОЗ України від 16 лютого 2022 року №302 «Про затвердження порядку організації виявлення туберкульозу та латентної туберкульозної інфекції» https://www.phc.org.ua/sites/default/files/users/user90/MOZ_nakaz_16.02.2022_302.pdf https://www.phc.org.ua/sites/default/files/users/user90/MOZ_nakaz_16.02.2022_302_Poriadok.pdf
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Appendix 1

Example

Diary
of clinical medical practice (professional training) in internal medicine

Student_____
Faculty _____ 4th year of study___group_____
Second educational level (master's) Specialty 222 Medicine
Term of practice: from_____ 20__ till_____20__.
Location of practice: _____
Hospital _____
The university supervisor _____
Clinical base supervisor_____
Student _____
Full Name

came to the institution (hospital, enterprise, organization)

Seal of the institution «_____»_____20___.

_____ _____
(signature) (position, surname, initials of the responsible person)

left the institution (hospital, enterprise, organization)

Seal of the institution «_____»_____20___.

_____ _____
(signature) (position, surname, initials of the responsible person)

Schedule of practice

Date and time	Content of work performed (titles of work)	Completed practical skills
9:00-10:00	Participation in the organizational meeting and in the round of the head of the department. Working with medical documentation.	
10:00-11:00	Participation in esophagogastroduodenoscopy, chest X-ray, etc. Performing medical procedures (intramuscular, and intravenous injections).	Interpretation of endoscopic findings. Interpretation of chest X-ray findings.
11:00-11:30	Break	
11:30-12:30	Patient care in the department (2 patients). 1. Patient M., 60 years old. Diagnosis: Bronchial asthma persistent, severe, uncontrolled course. Exacerbation of medium severity. Respiratory failure 1st degree. This is evidenced by... Examination... Treatment... 2. Patient V., 55 years old. Diagnosis: Iron deficiency anemias, of moderate severity. This is evidenced by... Examination... Treatment... etc.	Treatment of 2 patients (questioning, physical examination). Establishing a preliminary diagnosis. Making a diagnostic plan. Assessment the results of clinical, biochemical and instrumental tests. Prescription of the treatment.

Student's signature _____

The diary was approved by the clinical base supervisor_____

The diary was checked by the university supervisor_____

Date _____

Appendix 2

Example

Consolidated Digital Report on Completion of Clinical Medical Practice

(Professional Training) in Internal Medicine

Student _____ 4th year of study

_____faculty, group _____

on the clinical base _____

_____

List of skills	Number skills	Score
1. Daily management of patients in the department (patient examination, justification and establishment of a preliminary diagnosis, Masteringment of an examination and treatment plan, maintenance of medical records).	10-12	
2. Participation in the emergency medical care in case of emergencies (acute respiratory failure, severe exacerbation of bronchial asthma, biliary colic, acute liver failure, esophageal and gastrointestinal bleeding).	3-5	
3. Participation in esophagogastroduodenoscopy, chest X-ray, etc.	3-5	
4. Interpretation and evaluation of the results of general blood test, biochemistry, sputum analysis, pH-monitoring, etc.	10-12	
5. Performing of intramuscular, and intravenous injections.	8-10	
6. Interpretation of the results of spirometry.	1-3	
7. Assessment of the chest X-ray.	5-8	
8. Assessment of the results of endoscopy (bronchoscopy, gastroduodenoscopy, colonoscopy).	2-4	
9. Assessment of lung, pleural cavity, and abdominal organ ultrasound findings.	2-4	
Total/score		

Student's signature _____

The report was approved by the university supervisor_____

Date_____

Appendix 3

Example

Diary
of clinical medical practice (professional training) in internal medicine

Student_____
Faculty _____ 6th year of study____group_____
Second educational level (master's) Specialty 222 Medicine
Term of practice: from_____ 20__ till_____20__.
Location of practice: _____ _____
Hospital _____
The university supervisor _____
Clinical base supervisor _____

Student _____
Full Name

came to the institution (hospital, enterprise, organization)

Seal of the institution «_____»_____20___.

_____ _____
(signature) (position, surname, initials of the responsible person)

left the institution (hospital, enterprise, organization)

Seal of the institution «_____»_____20___.

_____ _____
(signature) (position, surname, initials of the responsible person)

Schedule of practice

Date and time	Content of work performed (titles of work)	Completed practical skills
9:00-10:00	Participation in the organizational meeting and in the round of the head of the department. Working with medical documentation.	
10:00-11:00	Participation in esophagogastroduodenoscopy, chest X-ray, etc. Performing medical procedures (blood pressure measurement, ECG recording, intravenous injections, and participation in cardiopulmonary resuscitation).	Interpretation of endoscopic findings. Interpretation of chest X-ray findings.
11:00-11:00	Break	
11:30-14:00	Patient care in the department (2 patients). 1. Patient M., 60 years old. Diagnosis: Bronchial asthma persistent, severe, uncontrolled course. Exacerbation of medium severity. Respiratory failure 1st degree. This is evidenced by... Examination... Treatment... 2. Patient V., 55 years old. Diagnosis: Iron deficiency anemias, of moderate severity. This is evidenced by... Examination... Treatment... etc.	Treatment of 2 patients (questioning, physical examination). Establishing a preliminary diagnosis. Making a diagnostic plan. Assessment the results of clinical, biochemical and instrumental tests. Prescription of the treatment.

Student's signature _____

The diary was approved by the clinical base supervisor_____

The diary was checked by the university supervisor_____

Date _____

Appendix 4

Example

Consolidated Digital Report on Completion of Clinical Medical Practice

(Professional Training) in Internal Medicine

Student _____ 6th year of study

_____faculty, group _____

on the clinical base _____ _____

_____

List of skills	Number skills	Score
1. Daily management of patients in the department (patient examination, justification and establishment of a preliminary diagnosis, Masteringment of an examination and treatment plan, maintenance of medical records).	12-14	
2. Participation in the emergency medical care in case of emergencies (acute respiratory failure, severe exacerbation of bronchial asthma, biliary colic, acute liver failure, esophageal and gastrointestinal bleeding, hypertensive emergencies, acute coronary syndrome, acute heart failure, sudden cardiac arrest, acute cardiac arrhythmias).	4-6	
3. Participation in esophagogastroduodenoscopy, chest X-ray, echocardiography, etc.	4-6	
4. Interpretation of general analysis of blood and urine, biochemical analysis of blood, analysis of sputum, coagulation, lipid profile, etc.	12-14	
5. Measurement of blood pressure and interpretation of the obtained data.	12-14	
6. Registration and interpretation of ECG, and interpretation of echocardiogram data.	6-8	
7. Administration of intravenous injections.	8-10	
8. Interpretation of the results of the study of the spirometry, esophageal and stomach pH-monitoring, etc.	3-4	
9. Interpretation of ultrasound and imaging findings of the spine, chest organs, joints, abdominal organs, etc.	8-10	
10. Assessment of the results of endoscopy (bronchoscopy, gastroduodenoscopy, colonoscopy).	3-5	
Total/score		

Student's signature _____

The report was approved by the university supervisor_____

Date_____