

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
 Petro Mohyla Black Sea National University  
 Medical Institute  
 Department of Therapeutic and Surgical Disciplines



"APPROVE"

Director

№ М

2019 year.

**CURRICULUM WORK PROGRAM**

**"INTERNAL MEDICINE, INCLUDING MEDICAL GENETICS, ENDOCRINOLOGY"**

Academic year 2020-2021

Area of knowledge 22 "Health"  
 (code and name of the field of knowledge)  
 Specialty 222 "Medicine" - the second (master's) level  
 (code and name of the specialty)

IV course

Developer  
 Head of the Department of Developer  
 Guarantor of the educational program  
 Director of the Institute  
 Chief of NMV

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 Zak M. YU.  
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### 1. Description of the discipline

Name indicator	Characteristics of the discipline	
<b>Name discipline</b>	Internal medicine, including medical genetics, endocrinology	
Branch of knowledge	22 "Health"	
Specialty	222 "Medicine"	
Specialization (if any)		
Educational program	Medicine	
Level of higher education	Master	
Discipline status	Normative	
Training course	4 year	
Academic year	2019 - 2020	
Semester numbers:	Daily form.	Extramural form
	7-th, 8-th	-
Total number of ECTS credits / hours	10 credits (5,0/5,00) 300 hours	
Course structure:	Daily form	Extramural form
	- lectures	-
	-practical training	-
	- hours of independent work of students	-
Percentage of classroom load	50%	
Language of instruction	Ukrainian	
Form of intermediate control (if any)	Certification – 7-th semester	
Form of final control	Exam – 8-th semester	

## 2. Purpose, tasks and planned learning outcomes

**The purpose** of teaching / studying the discipline "Internal Medicine, including medical genetics, endocrinology" is to master students' methods and techniques of clinical examination of the patient, features of professional communication between doctor and patient, subjective and objective manifestations of diseases (symptoms and syndromes), causes and mechanisms their origin and development (semiology) in order to establish the diagnosis, treatment tactics, preventive measures at the inpatient stage of treatment of the patient.

**Objectives of study:** the acquisition by the student of competencies, knowledge, skills and abilities to carry out professional activities in the specialty of:

- 1) mastering the basic principles of examination of the patient according to the traditions of the domestic therapeutic school;
- 2) methodically correct questioning and examination of patients with pathology of internal organs;
- 3) interpretation of the relationship of the patient's complaints and the preliminary assessment of the affected body system;
- 4) generalization of the results of questioning and examination of patients and distinguishing on their basis the main symptoms and syndromes;
- 5) analysis of the results of laboratory and instrumental studies of the affected systems;
- 6) generalization of the results of examination of the affected systems and identification of the main symptoms and syndromes of its defeat to make a correct diagnosis;
- 7) drawing up a plan for examination of the patient, interpretation of the results of laboratory and instrumental studies in the most common diseases in the clinic of internal medicine and their complications.

**Prerequisites for studying the discipline (interdisciplinary links).** Internal medicine as a discipline:

- a) is based on students' understanding of the basic principles and knowledge of theoretical medicine and previous clinical disciplines and integrates with these disciplines;
- b) creates therapeutic clinical bases for further mastering by students of clinical disciplines (internal medicine, pediatrics, surgery, obstetrics and gynecology, infectious diseases, general practice (family medicine), palliative and hospice medicine, etc.), which provides integration of teaching with basic clinical disciplines, ability to use this knowledge in the process of further training and in the professional activity of a doctor;
- c) forms the therapeutic basis of clinical thinking;
- d) provides the possibility of therapeutic analysis of clinical situations for further diagnosis, treatment, prevention of diseases.

**Expected learning outcomes. As a result of studying the discipline, students have:**

- Master the theoretical knowledge needed to detect human diseases.

- Master the practical techniques and methods of physical and laboratory-instrumental examination of patients.
- To master the general methodical approaches to clinical examination of the patient, diagnostics of separate internal diseases of the person at their typical displays.
- Formation of students' moral, ethical and deontological qualities in professional communication with the patient.
- Justify and formulate a preliminary diagnosis of the most common diseases in the clinic of internal medicine.

Make a plan for examination of the patient, interpret the results of laboratory and instrumental studies in the most common diseases in the clinic of internal medicine and their complications.

- Carry out differential diagnosis, substantiate and formulate a clinical diagnosis of major diseases in the clinic of internal medicine.
- To determine the tactics of management (recommendations regarding the regime, diet, treatment, rehabilitation measures) of the patient with the most common diseases in the internal medicine clinic.
- Prescribe non-drug and drug treatment, including prognosis-modifying, the most common diseases in the clinic of internal medicine.
- Carry out non-drug and drug primary and secondary prevention of major diseases in the clinic of internal medicine.
- To determine the prognosis and efficiency of patients with major diseases in the clinic of internal medicine.
- Diagnose and provide emergency medical care in an internal medicine clinic.
- Apply the basic algorithms of intensive care in emergencies in the clinic of internal medicine.
- Perform medical manipulations.
- Maintain medical records at the internal medicine clinic.
- Demonstrate mastery of moral and deontological principles of a medical specialist and the principles of professional subordination.

According to the requirements of the educational and professional program, students must:

**KNOW:**

- Basic rules of questioning and examination of the patient.
- Physical and instrumental methods of studying the state of the broncho-pulmonary system. Etiology, pathogenesis, clinic, diagnosis, treatment of the most common diseases of the respiratory system.

- Physical and instrumental methods of studying the state of the cardiovascular system. Etiology, pathogenesis, clinic, diagnosis, treatment of the most common diseases of the cardiovascular system.
- The main methods of research of the organs of the gastrointestinal tract and excretory system. Etiology, pathogenesis, clinic, diagnosis, treatment of the most common diseases of the gastrointestinal tract and urinary system.
- Endocrine diseases, pathology of the blood system. Etiology, pathogenesis, clinic, diagnosis and treatment of diseases.

**BE ABLE:**

- solve situational problems with the definition of causal factors, risk factors, the main link of pathogenesis, stages of development, mechanisms of development of clinical manifestations, options for completion, with typical pathological processes and the most common diseases;
- schematically reflect the mechanisms of pathogenesis and clinical manifestations of diseases;
- analyze and interpret the results of blood, urine, lipidograms, electrocardiograms, spiograms, immunograms, hormonal background;
- identify regenerative, degenerative forms and forms of pathological regeneration of "red" and "white" blood cells in peripheral blood smears; interpret their presence or absence in the blood;
- on the basis of the results of laboratory and instrumental research to assess the state of functioning of organs and systems of the body in diseases;
- to analyze different options for the development of causal relationships in the pathogenesis of diseases;
- be able to identify and record the leading clinical syndrome, its main link and clinical signs;
- make an informed decision for the appointment of laboratory and / or instrumental examination;

**HAVE OF COMPETENCE:**

- on the application of knowledge of internal medicine for the diagnosis, treatment of diseases of the internal organs, the promotion of a healthy lifestyle, as well as for the prevention of the occurrence and development of diseases;
- about the main perspective methods of research in internal medicine for early diagnosis and treatment of the most common diseases of internal organs according to unified medical protocols.

The developed program corresponds to the educational-professional program (EPP) and is focused on the formation of competencies:

general (GK) - GK1-GK10 EPP:

GK1. Ability to abstract thinking, analysis and synthesis, the ability to learn and master modern knowledge.

GK2. Ability to apply knowledge in practical situations.

GK3. Knowledge and understanding of the subject area and understanding

GK4. Ability to adapt and act in a new situation.

GK5. Ability to make an informed decision; work in a team; interpersonal skills.

GK6. Ability to communicate in the state language both orally and in writing; ability to communicate in a foreign language.

GK7. Skills in the use of information and communication technologies.

GK8. Definiteness and perseverance in terms of tasks and responsibilities.

GK9. The ability to act socially responsibly and consciously.

GK10. The desire to preserve the environment.

*professional (PC) - PC1 - PC9, PC 11, PC 13, PC 16, PC 18, PC 20 EPP:*

*- PC1. Patient interviewing skills.*

*- PC2. Ability to determine the required list of laboratory and instrumental studies and evaluate their results.*

*- PC3. Ability to establish a preliminary and clinical diagnosis of the disease.*

*- PC4. Ability to determine the required mode of work and rest in the treatment of diseases.*

*- PC5. Ability to determine the nature of nutrition in the treatment of diseases.*

*- PC6. Ability to determine the principles and nature of disease treatment.*

*- PC7. Ability to diagnose emergencies.*

*- PC8. Ability to determine the tactics of emergency medical care.*

*- PC9. Emergency care skills.*

*- PC11. Skills to perform medical manipulations.*

*- PC13. Family planning counseling skills.*

*- PC16. Ability to determine the tactics of management of persons subject to dispensary supervision.*

*- PC18. Ability to keep medical records.*

*- PC20. Ability to assess the impact of the environment, socio-economic and biological determinants on the health of the individual, family, population.*

According to the educational-professional program, the expected program learning outcomes (PRO) include skills **PRO11, PRO13-PRO18, PRO21-PRO28, PRO30, PRO 32, PRNO 33, PRO 35, PRO 41: EPP:**

- **PRO 11:** Collect data on patient complaints, medical history, life history (including occupational history), in a health care facility, its unit or at the patient's home, using the results of an interview with the patient, according to the standard patient survey scheme. Under any circumstances (in the health care facility, its unit, at the patient's home, etc.), using knowledge about the person, his organs and systems, according to certain algorithms:

- collect information about the general condition of the patient (consciousness, constitution) and appearance (examination of the skin, subcutaneous fat layer, palpation of lymph nodes, thyroid and mammary glands); assess the psychomotor and physical development of the child;
- examine the condition of the cardiovascular system (examination and palpation areas of the heart and superficial vessels, determination of percussion boundaries heart and blood vessels, auscultation of the heart and blood vessels);
- examine the condition of the respiratory organs (examination of the chest and upper respiratory tract, chest palpation, percussion and auscultation lungs);
- examine the condition of the abdominal organs (examination of the abdomen, palpation and percussion of the intestines, stomach, liver, spleen, palpation pancreas, kidneys, pelvic organs, finger rectal examination);
- examine the condition of the musculoskeletal system (examination and palpation);
- examine the state of the nervous system;
- examine the condition of the genitourinary system;
- assess the state of fetal development according to the data calculation of fetal weight and auscultation of its heartbeat.

- **PRO 13.** In the conditions of a health care institution, its subdivision and among the attached population:

- Be able to identify and record the leading clinical symptom or syndrome (according to list 1) by making an informed decision, using preliminary data of the patient's anamnesis, physical data examination of the patient, knowledge about the person, his organs and systems, adhering to the relevant ethical and legal norms.
- Be able to establish the most probable or syndromic diagnosis disease (according to list 2) by taking a reasonable solutions, by comparison with standards, using previous patient history and examination data patient, based on the leading clinical symptom or syndrome, using knowledge about man, his organs and systems, adhering to the relevant ethical and legal norms.

- **PRO 14.** In the conditions of a health care institution, its subdivision:

- Assign a laboratory and / or instrumental examination of the patient (according to list 4) by making an informed decision, on the basis of the most probable or syndromic diagnosis, according to standard schemes, using knowledge about man, his organs and systems, adhering to the relevant ethical and legal norms.

- Carry out differential diagnosis of diseases (according to list 2) by making an informed decision, according to a certain algorithm, using the most probable or syndromic diagnosis, data laboratory and instrumental examination of the patient, knowledge of man, his organs and systems, adhering to the relevant ethical and legal norms.
- Establish a preliminary clinical diagnosis (according to list 2) by making an informed decision and logical analysis, using the most probable or syndromic diagnosis, data laboratory and instrumental examination of the patient, conclusions differential diagnosis, knowledge of man, his organs and system, adhering to the relevant ethical and legal norms.
- **PRO 15.** To determine the necessary mode of work and rest in the treatment of the disease (according to list 2), in a health care facility, at the patient's home and at the stages of medical evacuation, including in the field, based on a previous clinical diagnosis , using knowledge about a person, his organs and systems, adhering to the relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes.
- **PRO 16.** Determine the necessary medical nutrition in the treatment of the disease (according to list 2), in a health care facility, at the patient's home and at the stages of medical evacuation, including in the field on the basis of a previous clinical diagnosis, using knowledge about a person, his organs and systems, adhering to the relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes.
- **PRO 17.** To determine the nature of treatment (conservative, operative) of the disease (according to list 2), in a health care facility, at home of the patient and at the stages of medical evacuation, including in the field on the basis of a previous clinical diagnosis, using knowledge about a person, his organs and systems, adhering to the relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes. Determine the principles of treatment of the disease (according to list 2), in a health care facility, at the patient's home and at the stages of medical evacuation, including field conditions, based on a preliminary clinical diagnosis, using knowledge about the person, his organs and systems , adhering to the relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes.
- **PRO 18.** Establish a diagnosis (according to list 3) by making an informed decision and assessing the human condition, under any circumstances (at home, on the street, health care facilities, its units), including in an emergency , in the field, in conditions of lack of information and limited time, using standard methods of physical examination and possible anamnesis, knowledge about the person, his organs and systems, adhering to the relevant ethical and legal norms.
- **PRO 21.** Organize medical and evacuation measures among the population and servicemen, in emergency situations, including in the field, during the detailed stages of medical evacuation, taking into account the existing system of medical and evacuation support.
- **PRO 22.** Perform medical manipulations (according to list 5) in a medical institution, at home or at work on the basis of previous clinical diagnosis and / or indicators of the patient's condition, using knowledge about the person, his organs and systems, adhering to relevant ethical and legal norms, by making an informed decision and using standard techniques.
- **PRO 24.** In a medical institution on the basis of anamnestic data, general examination and gynecological examination of a woman, using knowledge of a woman's reproductive organs,



adhering to the relevant ethical and legal norms, by making an informed decision, using a standard procedure:

- evaluate the patient and medical eligibility criteria method of contraception;
- determine the plan of examination of the patient before choosing a method contraception;
- provide family planning counseling;
- select a modern method of contraception for different categories people.

- **PRO 25.** To form, in the conditions of a health care institution, its subdivision on production, using the generalized procedure of an assessment of a state of human health, knowledge of the person, its bodies and systems, adhering to the corresponding ethical and legal norms, by acceptance of the reasonable decision, among the fixed contingent of the population:

dispensary groups of patients;

groups of healthy people subject to dispensary supervision (newborns, children, adolescents, pregnant women, representatives of professions that must undergo a mandatory dispensary examination).

- **PRO 26.** Implement a system of anti-epidemic and preventive measures in a health care facility, its unit on the basis of data on the health of certain populations and the presence of environmental impact, using existing methods, within the primary health care. sanitary assistance to the population, regarding:

- organization of nutrition, water supply;
- mode of activity and rest;
- formation of a favorable production environment;
- primary prevention of diseases and injuries;
- vaccine prophylaxis;
- prevention of bad habits;
- prevention of unwanted pregnancies; promoting a healthy lifestyle.

- **PRO 27.** Implement a system of primary prevention measures, based on data on the health status of the population served and the presence of the determinants of health, in the health care facility and outside it using existing methods, in within the framework of primary health care to the population:

- sanitary and educational measures to prevent the occurrence of infectious and non-infectious diseases, injuries and the promotion of a healthy lifestyle;
- organization of rational nutrition, safe social and living conditions, water supply;

mode of activity and rest.

- **PRO 28.** Organize secondary and tertiary prevention measures among the assigned population, using a generalized procedure for assessing human health (screening, preventive medical examination, seeking medical care), knowledge about the person, his organs and systems,

adhering to the relevant ethical and legal norms, by making an informed decision, in the conditions of a health care institution, in particular:

to form groups of dispensary supervision;

to organize medical and health-improving measures differentiated from the group of medical examination.

- **PRO 30.** Carry out in the conditions of a health care institution, its subdivision:

- detection and early diagnosis of infectious diseases (according to list2);

\* primary anti-epidemic measures in the center of an infectious disease.

- **PRO 32.** In the health care institution, or at the patient's home on the basis of the received data on the state of health of the patient, by means of standard schemes, using knowledge of the person, its bodies and systems, adhering to the corresponding ethical and legal norms, by acceptance reasonable decision:

- determine the tactics of examination and secondary prevention of patients that subject to dispensary supervision;

- determine the tactics of examination and primary prevention of healthy people persons subject to dispensary supervision;

- calculate and prescribe the necessary food for children the first year of life.

- **PRO 33.** To determine the presence and degree of restrictions on life, type, degree and duration of disability with the issuance of relevant documents in a health care facility on the basis of data on the disease and its course, features of professional activity.

- **PRO 35.** On the territory of service according to standard methods of descriptive, analytical epidemiological and medical-statistical researches:

- conduct screening to identify the most important non-infectious diseases;
- evaluate in the dynamics and in comparison with the average static data on morbidity, including chronic non-communicable diseases, disability, mortality, integrated health indicators; identify risk factors for the occurrence and course of diseases; to form risk groups of the population.

- **PRO 41.** In the conditions of a health care institution or its subdivision according to standard methods:

- select and use unified clinical protocols on the provision of medical care, developed on the basis of evidence medicine;
- participate in the development of local protocols for medical care assistance;
- to control the quality of medical care on the basis of statistical data, expert evaluation and sociological data research using indicators of structure, process and performance results;
- identify factors that hinder the improvement of quality and safety medical care.

### 3. The program of the discipline

The educational process is organized according to the European Credit Transfer and Accumulation System (ECTS).

The curriculum consists of two blocks:

#### **BLOCK 1. DISEASES OF THE DIGESTIVE OR RESPIRATORY SYSTEM**

SECTIONS:

1. Basics of diagnosis, treatment and prevention of major diseases of the digestive system (87 / 3,5).
2. Basics of diagnosis, treatment and prevention of major respiratory diseases (61 / 1.5).

#### **BLOCK 2. ENDOCRINE AND HEMATOLOGICAL PATHOLOGY, GENERAL ISSUES OF CARDIOLOGY, MEDICAL GENETICS**

SECTIONS:

3. Basics of diagnosis, treatment and prevention of major endocrine diseases (60 / 2,0).
4. Basics of diagnosis, treatment and prevention of major diseases of the blood and blood-forming organs (25 / 1,0).
5. General questions of cardiology of medicine (27 / 1,0 including, examination 4 hours).
6. Medical genetics (40 / 1.0 incl., Exam 4 years).

#### **BLOCK 1. DISEASES OF THE DIGESTIVE OR RESPIRATORY SYSTEM**

##### **SECTION 1. FUNDAMENTALS OF DIAGNOSIS, TREATMENT AND PREVENTION OF MAJOR DISEASES OF THE DIGESTIVE ORGANS**

##### **Topic 1. Gastroesophageal reflux disease**

**Definition.** Etiology, pathogenesis. Classification. Erosive and non-erosive GERD. Clinical manifestations depending on the variant and stage. Data of laboratory and instrumental research methods. Diagnosis criteria, differential diagnosis. Complication. Differentiated therapy. Primary and secondary prevention.

##### **Topic 2. Dyspepsia. Chronic gastritis**

**Determination of dyspepsia.** Etiology and pathogenesis. The role of *N. rulari* in the occurrence of gastroduodenal pathology. Classification. Unexplored and functional dyspepsia. Criteria for diagnosis. Differential diagnosis. Modern approaches to the treatment of functional dyspepsia. Primary and secondary prevention. Forecast and efficiency.

Definition, etiology and pathogenesis of chronic gastritis. The role of *N. rulari* in the occurrence of chronic gastritis. Classification. Clinical manifestations, data of laboratory and instrumental research methods. The value of endoscopic (with morphology) research. Differential diagnosis. Modern approaches to the treatment of various types of chronic gastritis. Primary and secondary prevention. Forecast and efficiency.

**Topic 3. Peptic ulcer of the stomach and duodenum** **Definition.** The main causes of peptic ulcers (*H. pylori*, medications, etc.). Classification. Clinical manifestations. Complications (perforation, penetration, bleeding, stenosis, malignancy). The value of instrumental and

laboratory diagnostic methods. Methods of diagnosis of Hp infection. Differential diagnosis. Tactics of patient management. Eradication therapy, control of eradication efficiency. Drug therapy of Hp-negative ulcers. Indications for surgical treatment. Primary and secondary prevention. Forecast and efficiency.

**Topic 4. Celiac disease and other enteropathies**

**Definition.** Etiology, pathogenesis. The role of intolerance to food components, immune factors and enzymopathies (lactose intolerance, fructose, galactose, etc.). Malabsorption and maldigestion syndromes. Diagnosis criteria, differential diagnosis. Complication. Differentiated therapy. Primary and secondary prevention. Forecast and efficiency.

**Topic 5. Inflammatory bowel disease. 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. Laboratory and instrumental diagnostics. Diagnosis criteria, differential diagnosis. Intestinal and extraintestinal complications and diseases associated with inflammatory bowel disease (toxic dilatation, perforation, sclerosing cholangitis, spondylitis, arthritis, dermatoses, uveitis, etc.). Treatment. Primary and secondary prevention. Forecast and efficiency.

Irritable bowel syndrome, definition. Etiology and pathogenesis. Classification. Clinical manifestations of different variants. Roman diagnostic criteria. Differential diagnosis. Treatment of various forms. Primary and secondary prevention. Forecast and efficiency.

**Topic 6. Gallstone disease, chronic cholecystitis and functional disorders of the biliary tract**

**Definition.** Etiology, pathogenesis. Significance of infection, motility disorders and dyscholia in the development of chronic cholecystitis, cholangitis and gallstone disease. Classification. Features of the clinical course. Laboratory and instrumental diagnostic methods. Differential diagnosis. Complications of gallstone disease. Treatment. Indications for surgical treatment. Primary and secondary prevention. Forecast and efficiency.

**Topic 7. Chronic hepatitis**

Definition. Classification. The role of persistence of the virus, toxic and medicinal agents, immune disorders and alcohol. Methods of diagnosis of viral infection. Autoimmune, toxic (drug-induced) and chronic viral hepatitis. Alcoholic liver disease. Basic clinical and biochemical syndromes. Features of the clinical course and diagnosis of individual forms. Differential diagnosis. Complication. Features of treatment of various forms. Primary and secondary prevention. Forecast and efficiency.

**Topic 8. Cirrhosis of the liver**

**Definition.** Significance of viral infection, nutritional factors, alcohol, toxic substances, genetically determined metabolic defects and immune disorders. Classification. Features of clinical manifestations and diagnosis of different options. Differential diagnosis. Liver failure and other complications. Differentiated therapy. Urgent therapy for complications. Primary and secondary prevention. Forecast and efficiency.

**Topic 9. Chronic pancreatitis**

**Definition.** Significance of various etiological factors. Classification. Features of the clinical course, diagnosis and differential diagnosis depending on the form and location of the pathological process. Complication. Research methods in the diagnosis of pancreatitis. Differentiated treatment. Primary and secondary prevention. Forecast and efficiency.

## SECTION 2. FUNDAMENTALS OF DIAGNOSIS, TREATMENT AND PREVENTION OF MAJOR DISEASES OF THE RESPIRATORY ORGANS.

### **Topic 1. Chronic obstructive pulmonary disease**

**Definition.** Importance of smoking, environmental and occupational factors, the role of exacerbations in the development and progression of chronic obstructive pulmonary disease. Classification. Clinical manifestations, data of laboratory and instrumental research methods depending on the stage and clinical course. Differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and efficiency.

### **Topic 2. Bronchial asthma**

Definition. Etiology, features of pathogenesis. Classification. Clinical manifestations, data of laboratory and instrumental research methods. Differential diagnosis. Complication. Treatment. Emergency aid. Primary and secondary prevention. Forecast and efficiency.

### **Topic 3. Pneumonia**

Definition. Etiology. Classification. Clinical manifestations and features of the course depending on the pathogen. Data of laboratory and instrumental research methods. Differential diagnosis. Complications (acute respiratory distress syndrome, destruction of lung tissue, acute respiratory failure and others). Differentiated treatment. Primary and secondary prevention. Forecast and efficiency.

### **Topic 4. Pleurisy**

Definition. Etiological factors. Classification. Clinical manifestations, data of laboratory and instrumental research methods. Differential diagnosis. Complication. Indications for pleural puncture and drainage of the pleural cavity. Treatment. Primary and secondary prevention. Forecast and efficiency.

### **Topic 5. Infectious and destructive lung diseases**

**Definition.** Factors that contribute to the development of bronchiectasis, abscess and lung gangrene. Clinical manifestations, data of laboratory and instrumental research methods. Differential diagnosis. Complication. Treatment. Indications for surgical treatment. Primary and secondary prevention. Forecast and efficiency.

### **Topic 6. Respiratory failure**

Definition. Classification. Causes. Features of the clinical course. Diagnosis, study of the function of external respiration, arterial and venous blood gases, indicators of acid-base status of blood. Therapeutic tactics. Primary and secondary prevention. Forecast and efficiency.

## **BLOCK 2. ENDOCRINE AND HEMATOLOGICAL PATHOLOGY, GENERAL ISSUES OF CARDIOLOGY, MEDICAL GENETICS**

### SECTION 3. FUNDAMENTALS OF DIAGNOSIS, TREATMENT AND PREVENTION OF ENDOCRINE DISEASES

#### **Topic 1. Diabetes mellitus, classification, etiology, pathogenesis, clinic, diagnosis.**

Determination of diabetes mellitus. Epidemiology of diabetes in Ukraine and the world, prognosis, prevalence of diabetes in different age groups. Etiology and pathogenesis of diabetes mellitus. Type 1 diabetes: the role of viral infection and autoimmune processes, genetic

predisposition. Type 2 diabetes: the role of genetic predisposition, obesity, external factors. Insulin resistance and impaired insulin secretion. Classification of glycemic disorders (WHO, 1999), clinical types of diabetes mellitus. Characteristics of lesions of internal organs in diabetes mellitus: cardiovascular system, hepatobiliary system, urinary organs, diabetic osteoarthropathy. Diagnosis of diabetes. Criteria for the diagnosis of diabetes mellitus and other categories of hyperglycemia (WHO, 1999). Indications and rules for glucose tolerance test. Diagnostic value of glycated hemoglobin, fructosamine, C-peptide, glucosuria, ketonuria.

**Topic 2. Type 1 and type 2 diabetes, modern methods of therapy.**

General principles of diabetes therapy. Criteria for compensation of carbohydrate metabolism in patients with type 1 diabetes. Insulin therapy. Characteristics of the main insulin preparations, including domestic production. Indications for their use. Classification of ultrashort, short, intermediate and long-acting insulin preparations, insulin analogues. Calculation of daily insulin requirements. Insulin dose adjustment with bread units. Insulin therapy regimen: traditional, intensified and pump insulin therapy. Cell therapy. Complications of insulin therapy: hypoglycemic conditions, insulin allergy, post-injection lipodystrophy, insulin resistance, chronic insulin overdose (Somogyi syndrome), insulin edema. Spa treatment. Protocols for the care of patients with type 1 diabetes mellitus.

Algorithm for the treatment of type 2 diabetes. The main methods of treatment of type 2 diabetes: nutrition, dosed exercise, drug therapy, teaching the patient self-control. Diet therapy for diabetes. Rational nutrition: physiology, energy value, restriction of refined carbohydrates, consumption of dietary fiber, trace elements, vitamins. Dosed physical activity and rules of its appointment. Drug therapy: insulin sensitizers (metformin, thiazolidinediones), insulin secretagogues (sulfonylurea derivatives, alumina), incretin drugs (glucagon-like peptide analogs (GPP-1), inhibitors,  $\alpha$  inhibitors) renal glucose reabsorption), insulin therapy, protocols for the provision of medical care to patients with type 2 diabetes mellitus.

**Topic 3. Acute and chronic complications of diabetes. Features of the course and treatment of diabetes mellitus in surgical patients during pregnancy.**

Ketoacidotic conditions with diabetic (hyperketonemia) coma. Etiology, pathogenesis, clinic, diagnosis, differential diagnosis, treatment. Hyperosmolar (non-cytotoxic) diabetic coma. Lactic acidosis and coma. Hypoglycemic coma, hypoglycemic states. Etiology, pathogenesis, clinic, diagnosis, treatment.

Chronic complications of diabetes. Microvascular lesions (diabetic retinopathy, nephropathy, neuropathy); macrovascular lesions (coronary heart disease, cerebrovascular disorders, diabetic foot). Classification, diagnosis and treatment. Principles of treatment of pregnant women with diabetes. Features of urgent and planned surgical interventions in patients with diabetes mellitus.

**Topic 4. Iodine deficiency diseases of the thyroid gland. Signs of endemic terrain according to the WHO. Clinic, diagnosis, prevention and treatment. Hypothyroidism and thyroiditis. Classification, diagnosis, clinic, treatment.**

Definition of "iodine deficiency". Manifestations of iodine deficiency. Determination of iodine deficiency areas by the prevalence of goiter in different age groups and data on ioduria. Determination of the size of the thyroid gland. The concept of simple non-toxic and nodular forms of goiter. Influence of exogenous environmental factors and man-made catastrophes at nuclear power plants on the condition of the thyroid gland and the prevalence of its pathology.

Iodine prophylaxis: mass, group, individual. The importance of iodized salt in the prevention of iodine deficiency diseases. Restrictions on the use of drugs based on potassium iodide.

Hypothyroidism, etiology, pathogenesis, clinic, diagnosis. Hypothyroidism is primary, central, peripheral, subclinical, transient. Timely diagnosis of congenital hypothyroidism. Age features of hypothyroidism. Hypothyroidism on the background of autoimmune polyendocrinopathy. Subclinical Hypothyroidism. Treatment of hypothyroidism. Pregnancy and Hypothyroidism. Medical and social examination of patients with hypothyroidism. Thyroiditis. Clinic, diagnosis and treatment.

**Topic 5. Thyrotoxicosis. Clinical forms. Diagnosis, treatment. Thyroid cancer. Classification, clinic, diagnosis, treatment. Diseases of the thyroid gland.**

Diseases accompanied by thyrotoxicosis. Etiology, pathogenesis, clinical manifestations of diffuse toxic goiter, thyrotoxic and endocrine ophthalmopathy. Age features of toxic goiter in children and the elderly. Clinical differences of nodular toxic goiter. Rationale for the diagnosis of thyrotoxicosis. Medical, surgical treatment of toxic goiter, use of <sup>131</sup>-iodine for therapeutic purposes. Complications of goiter treatment. Medical and social examination of patients with toxic goiter.

Nodular forms of goiter. Monitoring with nodes in the thyroid gland.

Pathomorphological classification of thyroid tumors. Rationale for the diagnosis of thyroid cancer. The role of the Chernobyl accident in the development of thyroid cancer. Modern scheme of treatment, rehabilitation and dispensary observation of patients with thyroid cancer. Anatomical and physiological data. Diseases of the thyroid gland. Hyperparathyroidism. Etiology. Pathogenesis. Classification. Clinic, clinical forms of hyperparathyroidism. Diagnosis. Differential diagnosis. Treatment. Indications for surgical treatment. Postoperative period and rehabilitation of patients. Drug therapy. Hypoparathyroidism. Etiology. Pathogenesis. Classification. Clinic. Diagnosis. Differential diagnosis. Forecast. Prevention. Treatment. Clinical forms.

**Topic 6. Diseases of the adrenal glands. Chronic insufficiency of the adrenal cortex. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment. Hormonally active tumors of the adrenal glands.**

Hormones of the cortex and cerebral layer of the adrenal glands. Definition, prevalence of acute and chronic adrenal insufficiency. Chronic adrenal insufficiency (Addison's disease). Etiology, pathogenesis, clinic, diagnosis, prevention and treatment. Acute adrenal insufficiency. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment. Classification of adrenal tumors. Itsenko-Cushing's syndrome (corticosteroma, glucosteroma). Clinic, diagnosis and differential diagnosis, treatment. Androsteroma, corticosteroma. Clinic, diagnosis and differential diagnosis, treatment. Primary hyperaldosteronism (Conn's syndrome). Clinic, diagnosis and differential diagnosis, treatment. Pheochromocytoma. Clinic, diagnosis and differential diagnosis, treatment. Determination of congenital hyperplasia of the adrenal cortex. Clinical forms, diagnosis, treatment.

**Topic 7. Diseases of the hypothalamic-pituitary system. Adiposity. Diseases of the gonads.**

Classification of hypothalamic-pituitary diseases. Acromegaly. Etiology and pathogenesis. Clinic. Diagnosis and differential diagnosis. Treatment. Itsenko-Cushing's disease. Etiology and

pathogenesis. Classification. Clinic. Diagnosis and differential diagnosis. Treatment. Hyperprolactinemia syndrome. Classification. Etiology and pathogenesis. Clinic. Diagnosis, differential diagnosis. Treatment. Hypopituitarism. Etiology and pathogenesis. Clinic. Diagnosis and differential diagnosis. Treatment. Diabetes mellitus. Etiology and pathogenesis. Clinic. Diagnosis and differential diagnosis. Treatment. Somatotropic insufficiency. Hypopituitarism. Classification. Etiology and pathogenesis. Clinic. Diagnosis, differential diagnosis. Treatment. Adiposity. Etiology and pathogenesis. Classification. Clinic. Diagnosis. Treatment. Obesity in children and adolescents.

Gonads in men and women. Hormones. Congenital disorders of sexual differentiation. Agenesis of the gonads. Shereshevsky - Turner syndrome. Hermaphroditism syndrome. Cryptorchidism. Mono- and anorchism syndrome. Klinefelter's syndrome. Sexual development disorders in boys and girls. Climax in women and men.

#### SECTION 4. FUNDAMENTALS OF DIAGNOSIS, TREATMENT AND PREVENTION OF MAJOR DISEASES OF BLOOD AND BLOOD-FORMING ORGANS.

##### **Topic 1. Hemophilia and thrombocytopenic purpura**

Definition. Etiology and pathogenesis, main clinical syndromes. Criteria for diagnosis. Differential diagnosis. Treatment. Prevention of bleeding. Primary and secondary prevention. Forecast and efficiency. Topic 2. Anemia (posthemorrhagic, iron deficiency, B12-deficient, folate-deficient, aplastic, hemolytic)

**Topic 2. Anemia** (posthemorrhagic, iron deficiency, B12-deficient, folate-deficient, aplastic, hemolytic)

Definition. Etiological factors and pathogenesis. Mechanisms of intravascular and intracellular hemolysis. Features of clinic and laboratory diagnostics of various forms. Differential diagnosis. Complication. Treatment. Transfusion of blood components and blood substitutes. Primary and secondary prevention. Forecast and efficiency.

##### **Topic 3. Acute leukemia**

Definition. Modern views on the etiology and pathogenesis. Classification. The main clinical and hematological syndromes. Clinical manifestations. Criteria for diagnosis. Differential diagnosis. Complication. Principles of treatment. Bone marrow transplantation. Primary and secondary prevention. Forecast and efficiency.

##### **Topic 4. Chronic leukemias**

Definition of chronic myeloid leukemia, chronic lymphoid leukemia, myeloma, true polycythemia. Modern views on the etiology and pathogenesis. Classification. The main clinical manifestations and clinical and hematological syndromes. Criteria for diagnosis. Differential diagnosis. Complication. Principles of treatment. Bone marrow transplantation. Primary and secondary prevention. Forecast and efficiency.



## SECTION 5. GENERAL ISSUES OF INTERNAL MEDICINE.

### **Topic 1. Principles of evidence-based medicine**

Definition of the concept. The role of evidence-based medicine in modern clinical practice. Components of evidence-based medicine. Basic concepts of clinical trials. Medical and ethical aspects of evidence-based medicine.

### **Topic 2. Diagnosis and treatment of diseases of the internal organs in the elderly**

Features of metabolism in old age. Frequency of comorbid pathology in the elderly. Features of the effect of drugs on the body of the elderly. Features of diagnosis and treatment of diseases of internal organs in old age.

### **Topic 3. Obesity and its consequences**

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

## SECTION 6. MEDICAL GENETICS

### **Topic 1. The subject and objectives of medical genetics.**

The role of heredity in human pathology. Clinical and genealogical method. Cytogenetic and molecular genetic methods. Biochemical methods. Morphogenetic variants of development. Developmental defects.

### **Topic 2. General characteristics of monogenic pathology.**

Clinic and genetics of some forms of monogenic diseases. Hereditary metabolic diseases. Principles of treatment of hereditary diseases, rehabilitation and social adaptation.

### **Topic 3. Hereditary lung diseases. Hereditary nephropathy. Systemic skeletal dysplasia.**

Cystic fibrosis. Hypothyroidism. Vitamin D-resistant rickets. Systemic skeletal dysplasia. Hereditary cystic kidney disease. Hereditary nephropathy. Secondary nephropathy associated with inherited metabolic diseases. Alport syndrome. Cystinuria. Glycinuria. Xanthinuria. De Toni-Debre-Fanconi syndrome. Chronic tubular acidosis. Fructose intolerance. Cystinosis. Oxalose.

### **Topic 4. Chromosomal diseases.**

Etiology and cytogenetics of chromosomal diseases. Classification of chromosomal diseases. Chromosomal aberrations and genomic mutations. Partial trisomies and monosomies. Complete and mosaic forms. Single parent disomies. Chromosomal imprinting. Age of parents and frequency of chromosomal diseases in children.

### **Topic 5. General characteristics of mitochondrial pathology.**

General characteristics of mitochondrial pathology. Classification of mitochondrial diseases. Mitochondrial heredity Mitochondrial diseases caused by mutations in mitochondrial DNA. Diseases caused by deletions of mitochondrial DNA. Diseases caused by point mutations in mitochondrial DNA. Clinic, genetics, diagnosis, therapy of Leber's syndromes, NAPR, MERRF, MELAS

**Topic 6. Medical and genetic counseling. Prenatal diagnosis. Screening programs.**

The severity of hereditary pathology. Ethnic, geographical, social factors that cause differences in the prevalence of hereditary pathology. Genetic and demographic processes and the prevalence of hereditary diseases. Types of prevention of hereditary diseases: primary, secondary and tertiary prevention. Prevention levels: pregametic, presygotic, prenatal and postnatal.

**Topic 7. Orphan diseases.**

The concept of orphan diseases. Register of orphan diseases. State programs for the treatment of orphan diseases. Primary immunodeficiencies, Gaucher disease, Pompe disease, Fabry disease, tyrosinemia, mucopolysaccharidosis, pulmonary arterial hypertension, bullous epidermolysis. Methods of diagnosis and treatment of organ diseases.

**STRUCTURE OF THE COURSE "INTERNAL MEDICINE, INCLUDING MEDICAL GENETICS, ENDOCRINOLOGY"**

Names of sections of the discipline and topics	Number of hours				
	Daily form				
	Total	Including			
		L	P	Ind.	Ind.w.
1	2	3	4	5	6
<b>Block 1. Diseases of the digestive system and respiratory system.</b>					
<i>Contents 1. Basics of diagnosis, treatment and prevention of major diseases of the digestive system</i>					
Topic 1. Gastroesophageal reflux disease	8	2	4		2
Topic 2. Dyspepsia. Chronic gastritis	10	2	6		2
Topic 3. Peptic ulcer of the stomach and duodenum	10	2	6		2
Topic 4. Celiac disease and other enteropathies	6	-	4		2
Topic 5. Inflammatory bowel disease. Irritable bowel syndrome	10	2	6		2

Topic 6. Gallstone disease, chronic cholecystitis and functional biliary disorders	8	2	4		2
Topic 7. Chronic hepatitis	10	2	6		2
Topic 8. Cirrhosis of the liver	12	2	4		6
Topic 9. Chronic pancreatitis	11	2	6		3
Curation of patients. Preparing and writing a medical history	2				2
Total under section 2 hours / ECTS credits	87/3,5	16	46		25
<i>Content section 2. Basics of diagnosis, treatment and prevention of major respiratory diseases</i>					
Topic 1. Chronic obstructive pulmonary disease	12	2	6		4
Topic 2. Bronchial asthma	12	2	6		4
Topic 3. Pneumonia	12	2	6		4
Topic 4. Pleurisy	8	-	4		4
Topic 5. Infectious and destructive lung diseases	8	-	4		4
Topic 6. Respiratory failure	9	-	4		5
Total under section 2 hours / ECTS credits	61/1,5	6	30		25
<b><i>Together on the content block 1.</i></b>	<b>148 / 5,0</b>	<b>22</b>	<b>76</b>		<b>50</b>
<b>Block 2. Endocrine and hematological pathology, general issues of cardiology, medical genetics</b>					
<i>Content section 3. Basics of diagnosis, treatment and prevention of major endocrine diseases</i>					
Topic 1. Diabetes mellitus, classification, etiology, pathogenesis, clinic, diagnosis	9	2	4		3
Topic 2. Acute and chronic complications of diabetes. Features of the course and treatment of diabetes mellitus in surgical patients during pregnancy	7		4		3
Topic 3. Type 1 and type 2 diabetes, modern methods of therapy	11	2	6		3
Topic 4. Iodine deficiency diseases of the thyroid gland. Signs of endemic terrain according to the WHO. Clinic, diagnosis, prevention and treatment. Hypothyroidism and	7	1	4		2

thyroiditis. Classification, diagnosis, clinic, treatment					
Topic 5. Thyrotoxicosis. Clinical forms. Diagnosis, treatment. Thyroid cancer. Classification, clinic, diagnosis, treatment. Diseases of the parathyroid glands	7	1	4		2
Topic 6. Diseases of the adrenal glands. Chronic insufficiency of the adrenal cortex. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment. Hormonally active tumors of the adrenal glands	8	2	4		2
Topic 7. Diseases of the hypothalamic-pituitary system. Adiposity. Diseases of the gonads	8	2	4		2
Preparing and writing a medical history	3				3
Total under section 1 hours / ECTS credits	60/2	10	30		20
<i>Content section 4. Basics of diagnosis, treatment and prevention of major diseases of the blood and blood-forming organs</i>					
Topic 1. Hemophilia and thrombocytopenic purpura	5		4		1
Topic 2. Anemia	8	2	4		2
Topic 3. Acute leukemia	7	2	4		1
Topic 4. Chronic leukemias	5		4		1
Total for section 4 hours / ECTS credits	25/1	4	16		5
<i>Content section 5. General issues of internal medicine</i>					
Topic 1. Principles of evidence-based medicine. The role of evidence-based medicine in modern clinical practice.	11	2	4		5
Topic 2. Diagnosis and treatment of diseases of the internal organs in the elderly	9	2	2		5
Topic 3. Obesity and its consequences	7		2		5
Total under section 5 hours / ECTS credits	27/1	4	8		15
<i>Semantic section 6. Medical genetics</i>					
Topic 1. The subject and objectives of medical genetics. The role of heredity in human pathology. Clinical and genealogical	7	-	6		1

method. Cytogenetic and molecular genetic methods. Biochemical methods. Morphogenetic variants of development. Developmental defects.					
Topic 2. General characteristics of monogenic pathology. Clinic and genetics of some forms of monogenic diseases. Hereditary metabolic diseases. Principles of treatment of hereditary diseases, rehabilitation and social adaptation.	5	-	4		1
Topic 3. Hereditary lung diseases. Hereditary hepatitis. Systemic skeletal dysplasia.	10	-	2		8
Topic 4. General characteristics of chromosomal diseases. Clinic of the main forms of chromosomal diseases. Levels and ways of prevention of hereditary diseases.	3	-	2		1
Topic 5. General characteristics of mitochondrial pathology.	9	-	2		7
Topic 6. Medical and genetic counseling. Prenatal diagnosis. Screening programs.	3	-	2		1
Topic 7. Orphan diseases	3	-	2		1
Total under section 6 hours / ECTS credits	40/1	-	20		20
Together on the content block 2.	152 / 5,0	18	74		60
ALL HOURS FROM ECTS DISCIPLINE / CREDITS	300/10	40	150		110

#### 4. The content of the discipline

##### 4.1. LECTURE PLAN

<b>BLOCK 1. Diseases of the digestive system and respiratory system.</b>		
№3/II	Name topics	Number of hours
1.	Gastroesophageal reflux disease	2
2.	Dyspepsia and chronic gastritis	2

3.	Peptic ulcer of the stomach and duodenum.	2
4.	Inflammatory bowel disease. Irritable bowel syndrome	2
5.	Gallstone disease, chronic cholecystitis and functional disorders of the biliary tract	2
6.	Chronic hepatitis	2
7.	Cirrhosis of the liver	2
8.	Chronic pancreatitis	2
9.	Chronic obstructive pulmonary disease	2
10.	Bronchial asthma	2
11.	Pneumonia and pleural diseases	2
TOTAL LECTURES OF BLOCK 1		22
<b>BLOCK 2. Endocrine and hematological pathology, general issues of cardiology, medical genetics</b>		
12.	Diabetes mellitus: modern classification, etiology, pathogenesis, clinic, diagnosis. Complications of diabetes	2
13	The latest methods of treatment of patients with diabetes. Oral hypoglycemic drugs, modern insulin preparations and its analogues.	2
14.	Diseases of the thyroid and parathyroid glands. Iodine deficiency conditions. Hypothyroidism and thyrotoxicosis: clinic, classification, diagnosis, treatment. Thyroid cancer.	2
15.	Diseases of the adrenal glands. Chronic adrenal insufficiency iron. Hormonally active tumors.	2
16.	Diseases of the hypothalamic-pituitary system and gonads. Adiposity.	2
17.	Anemia	2
18.	Acute and chronic leukemias	2
19.	Principles of evidence-based medicine. The role of evidence-based medicine in modern clinical practice.	2
20.	Diagnosis and treatment of diseases of the internal organs in the elderly	2
TOTAL LECTURES OF BLOCK 2		18

**TOTAL LECTURES FOR TWO BLOCKS: 40**

**4.2. PLAN OF PRACTICAL LESSONS**

№ 3/II	Name topics	Number of hours
<b><u>BLOCK 1.</u> Diseases of the digestive system and respiratory system.</b>		

Contents section 1. Fundamentals of diagnosis, treatment and prevention of major digestive diseases		
1	Gastroesophageal reflux disease	4
2	Dyspepsia. Chronic gastritis	6
3	Peptic ulcer of the stomach and duodenum	6
4	Celiac disease and other enteropathies	4
5	Inflammatory bowel disease. Irritable bowel syndrome	6
6	Gallstone disease, chronic cholecystitis and functional biliary disorders	4
7	Chronic hepatitis	6
8	Cirrhosis of the liver	4
9	Chronic pancreatitis	6
Contents section 2. Fundamentals of diagnosis, treatment and prevention of major respiratory diseases		
10	Chronic obstructive pulmonary disease	6
11	Bronchial asthma	6
12	Pneumonia	6
13	Pleurisy	4
14	Infectious and destructive lung diseases	4
15	Respiratory failure	4
	<b>TOTAL BLOCK 1</b>	<b>76</b>
<b><u>BLOCK 2. Endocrine and hematological pathology, general issues of cardiology, medical genetics</u></b>		
Contents section 3. Fundamentals of diagnosis, treatment and prevention of major endocrine diseases		
16	Diabetes mellitus, classification, etiology, pathogenesis, clinic, diagnosis	4
17	Acute and chronic complications of diabetes. Features of the course and treatment of diabetes mellitus in surgical patients during pregnancy	4
18	Type 1 and type 2 diabetes, modern methods of therapy	6
19	Iodine deficiency diseases of the thyroid gland. Signs of endemic terrain according to the WHO. Clinic, diagnosis, prevention and	4

	treatment. Hypothyroidism and thyroiditis. Classification, diagnosis, clinic, treatment	
20	Thyrotoxicosis. Clinical forms. Diagnosis, treatment. Thyroid cancer. Classification, clinic, diagnosis, treatment. Diseases of the parathyroid glands	4
21	Diseases of the adrenal glands. Chronic insufficiency of the adrenal cortex. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment. Hormonally active tumors of the adrenal glands	4
22	Diseases of the hypothalamic-pituitary system. Adiposity. Diseases of the gonads	4
23	Preparing and writing a medical history	
Contents section 4. Fundamentals of diagnosis, treatment and prevention of major diseases of the blood and blood-forming organs		
24	Hemophilia and thrombocytopenic purpura	4
25	Anemia	4
26	Acute leukemia	4
27	Chronic leukemia	4
Content section 5. General issues of internal medicine		
28	Principles of evidence-based medicine. The role of evidence-based medicine in modern clinical practice.	4
29	Diagnosis and treatment of diseases of the internal organs in the elderly	2
30	Obesity and its consequences	2
Semantic section 6. Medical genetics		
31	Subject and tasks of medical genetics. The role of heredity in human pathology. Clinical and genealogical method. Cytogenetic and molecular genetic methods. Biochemical methods. Morphogenetic variants of development. Developmental defects.	6
32	General characteristics of monogenic pathology. Clinic and genetics of some forms of monogenic diseases. Hereditary metabolic diseases. Principles of treatment of hereditary diseases, rehabilitation and social adaptation.	4
33	Hereditary lung diseases. Hereditary hepatosis. Systemic skeletal dysplasia.	2



34	General characteristics of chromosomal diseases. Clinic of the main forms of chromosomal diseases. Levels and ways of prevention of hereditary diseases.	2
35	General characteristics of mitochondrial pathology.	2
36	Medical and genetic counseling. Prenatal diagnosis. Screening programs.	2
37	Orphan diseases	2
<b>BLOCK 2</b>		<b>74</b>
<b>TOTAL</b>		<b>150</b>

### 4.3 INDEPENDENT WORK PLAN

#### 4.3. THEMATIC PLAN OF INDEPENDENT WORK OF STUDENTS

№ з/п	Topic	Number of hours
<b>TOTAL NUMBER OF HOURS OF INDEPENDENT WORK</b>		
<b>UNIT 1. DISEASES OF THE DIGESTIVE OR RESPIRATORY SYSTEM</b>		
1	Preparation for practical classes - theoretical training and development of practical skills	20
2	Preparing and writing a medical history	10
3	Preparation for the final modular control	10
4	Individual work: <ul style="list-style-type: none"> <li>• Report of the abstract in a practical lesson.</li> <li>• Report at clinical conferences of departments.</li> <li>• Report the history of the disease in a practical lesson</li> <li>• Writing abstracts, articles</li> </ul>	10
<b>Together with BLOCK 1</b>		<b>50 hours.</b>

<b>TOTAL NUMBER OF HOURS OF INDEPENDENT WORK</b>		
<b>BLOCK 2. FUNDAMENTALS OF DIAGNOSIS, TREATMENT AND PREVENTION OF PATHOLOGY OF INTERNAL ORGANS</b>		
1	Preparation for practical classes - theoretical training and development of practical skills	37
2	Preparing and writing a medical history	5
3	Preparation for the final modular control	5
4	Individual work: <ul style="list-style-type: none"> <li>• Report of the abstract in a practical lesson.</li> <li>• Report at clinical conferences of departments.</li> <li>• Report the history of the disease in a practical lesson</li> <li>• Writing abstracts, articles</li> </ul>	13
<b>Together of UNIT 2</b>		<b>60 hours.</b>

***TOTAL HOURS OF INDEPENDENT WORK ON THE DISCIPLINE: 110 hours.***

#### **UNIT 1**

- Chronic obstructive pulmonary disease. Definition. The importance of smoking, environmental, occupational factors and infection in the development of chronic obstructive pulmonary disease. Classification. Clinical manifestations, data of laboratory and instrumental research methods depending on the stage (severity). Differential diagnosis. Complication. Treatment. Primary and secondary prevention. Immunoprophylaxis. Forecast and efficiency.
- Bronchial asthma. Definition. Etiology, features of pathogenesis. Classification. Clinical manifestations, data of laboratory and instrumental research methods. Differential diagnosis. Complication. Treatment. Emergency care for asthma attacks. Primary and secondary prevention. Forecast and efficiency.
- Pneumonia. Definition. Etiology. Classification. Clinical manifestations and features of the course depending on the pathogen. Data of laboratory and instrumental research methods. Differential diagnosis. Complications (acute respiratory distress syndrome, destruction of lung tissue, acute respiratory failure and others). Differentiated treatment. Primary and secondary prevention. Forecast and efficiency.
- Pleurisy. Definition. Etiological factors. Classification. Clinical manifestations, data of laboratory and instrumental research methods. Differential diagnosis. Complication.

Indications for pleural puncture and drainage of the pleural cavity. Treatment. Primary and secondary prevention. Forecast and efficiency.

- Infectious and destructive lung diseases. Definition. Factors that contribute to the development of bronchiectasis, abscess and lung gangrene. Clinical manifestations, data of laboratory and instrumental research methods. Differential diagnosis. Complication. Treatment. Indications for surgical treatment. Primary and secondary prevention. Forecast and efficiency.
- Respiratory failure. Definition. Classification. Causes. Features of the clinical course of different forms. Diagnosis, study of the function of external respiration, arterial and venous blood gases, indicators of acid-base status of blood. Differential diagnosis. Therapeutic tactics. Primary and secondary prevention. Forecast and efficiency.
- Gastroesophageal reflux disease. Definition. Etiology, pathogenesis. Classification. Erosive and non-erosive GERD. Clinical manifestations depending on the variant and stage. Data of laboratory and instrumental research methods. Diagnosis criteria, differential diagnosis. Complication. Differentiated therapy. Primary and secondary prevention.
- Dyspepsia. Definition of dyspepsia. Etiology and pathogenesis. The role of *N. rulari* in the occurrence of gastroduodenal pathology. Classification. Unexplored and functional dyspepsia. Criteria for diagnosis. Differential diagnosis. Modern approaches to the treatment of functional dyspepsia. Primary and secondary prevention. Forecast and efficiency.
- Chronic gastritis Definition, etiology and pathogenesis of chronic gastritis. The role of *N. rulari* in the occurrence of chronic gastritis. Classification. Clinical manifestations, data of laboratory and instrumental research methods. The value of endoscopic (with morphology) research. Modern approaches to the treatment of various types of chronic gastritis. Primary and secondary prevention. Forecast and efficiency.
- Peptic ulcer of the stomach and duodenum. Definition. The main causes of peptic ulcers (*H. pylori*, medications, etc.). Classification. Clinical manifestations. Complications (perforation, penetration, bleeding, stenosis, malignancy). The value of instrumental and laboratory diagnostic methods. Methods of diagnosis of *Hp* infection. Tactics of patient management. Eradication therapy, control of eradication efficiency. Drug therapy of *Hp*-negative ulcers. Indications for surgical treatment. Primary and secondary prevention. Forecast and efficiency.
- Celiac disease and other enteropathies. Definition. Etiology, pathogenesis. The role of intolerance to food components, immune factors and enzymopathies (lactose intolerance, fructose, galactose, etc.). Malabsorption and maldigestion syndromes. Diagnosis criteria, differential diagnosis. Complication. Differentiated therapy. Primary and secondary prevention. Forecast and efficiency.
- Inflammatory bowel disease. Nonspecific 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. Laboratory and instrumental diagnostics. Diagnosis criteria, differential diagnosis. Intestinal and extraintestinal complications and diseases associated with inflammatory bowel disease (toxic dilatation, perforation, sclerosing cholangitis, spondylitis, arthritis, dermatoses, uveitis, etc.). Treatment. Primary and secondary prevention. Forecast and efficiency.

- Irritable bowel syndrome, definition .. Etiology and pathogenesis. Classification. Clinical manifestations of different variants. Roman diagnostic criteria. Differential diagnosis. Treatment of various forms. Primary and secondary
- Gallstone disease, chronic cholecystitis and functional biliary disorders. Definition. Etiology, pathogenesis. Significance of infection, motility disorders and dyscholia in the development of chronic cholecystitis, cholangitis and gallstone disease. Classification. Features of the clinical course. Laboratory and instrumental diagnostic methods. Differential diagnosis. Complications of gallstone disease. Treatment. Indications for surgical treatment. Primary and secondary prevention. Forecast and efficiency.
- Chronic hepatitis. Definition. Classification. The role of persistence of the virus, toxic and medicinal agents, immune disorders and alcohol. Methods of diagnosis of viral infection. Autoimmune hepatitis, chronic viral, toxic (drug) hepatitis. Alcoholic liver disease. Basic clinical and biochemical syndromes. Features of the clinical course and diagnosis of individual forms. Differential diagnosis. Complication. Features of treatment of various forms. Primary and secondary prevention. Forecast and efficiency.
- Cirrhosis of the liver. Definition. Significance of viral infection, nutritional factors, alcohol, toxic substances and immune disorders. Classification. Features of clinical manifestations and diagnosis of different options. Differential diagnosis. Liver failure and other complications. Differentiated therapy. Urgent therapy for complications. Primary and secondary prevention. Forecast and efficiency.
- Chronic pancreatitis. Definition. Significance of various etiological factors. Classification. Features of the clinical course, diagnosis and differential diagnosis depending on the form and location of the pathological process. Complication. Research methods in the diagnosis of pancreatitis. Differentiated treatment. Primary and secondary prevention. Forecast and efficiency.

## UNIT 2

- Diabetes mellitus, classification, etiology, pathogenesis, clinic, diagnosis: algorithms and diagnostic protocols.
- Type 1 and type 2 diabetes, modern methods of therapy: algorithms and treatment protocols.
- Acute and chronic complications of diabetes. Features of the course and treatment of diabetes mellitus in surgical patients during pregnancy: algorithms and protocols for the treatment of hypoglycemic coma, diabetic ketoacidotic coma, diabetic neuropathy, diabetic nephropathy, retinopathy, diabetic foot syndrome.
- Iodine deficiency diseases of the thyroid gland. Signs of endemic terrain according to the WHO. Clinic, diagnosis, prevention and treatment. Hypothyroidism and thyroiditis.
- Thyrotoxicosis. Clinical forms. Diagnosis, treatment. Thyroid cancer. Classification, clinic, diagnosis, treatment. Diseases of the thyroid gland: algorithms for diagnosis and treatment of thyrotoxicosis, thyroid cancer, hyperparathyroidism and hypoparathyroidism.
- Diseases of the adrenal glands. Chronic insufficiency of the adrenal cortex. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment. Hormonally active tumors of the adrenal glands: algorithms for the diagnosis and treatment of chronic adrenal insufficiency, Itsenko-Cushing syndrome, pheochromocytoma.

- Diseases of the hypothalamic-pituitary system. Adiposity. Diseases of the gonads: algorithms for the diagnosis and treatment of somatotrophic insufficiency, Itsenko-Cushing's disease, acromegaly, hyperprolactinemia, diabetes mellitus, hypopituitarism, obesity, gonadal diseases.
- Hemophilia and thrombocytopenic purpura. Definition. Etiology and pathogenesis, main clinical syndromes. Criteria for diagnosis. Differential diagnosis. Treatment. Prevention of bleeding. Primary and secondary prevention. Forecast and efficiency.
- Anemia (posthemorrhagic, iron deficiency, B12-deficient, folate-deficient, aplastic, hemolytic).
- Definition. Etiological factors and pathogenesis. Mechanisms of intravascular and intracellular hemolysis. Features of clinic and laboratory diagnostics of various forms. Differential diagnosis. Complication. Treatment of various forms of anemia. Transfusion of blood components and blood substitutes. Primary and secondary prevention. Forecast and efficiency.
- Acute leukemia. Definition. Modern views on the etiology and pathogenesis. Classification. The main clinical and hematological syndromes. Clinical manifestations. Criteria for diagnosis. Differential diagnosis. Complication. Principles of treatment. Supportive therapy. Bone marrow transplantation. Primary and secondary prevention. Forecast and efficiency.
- Chronic leukemias. Definition of chronic myeloid leukemia, chronic lymphoid leukemia, myeloma, true polycythemia. Modern views on the etiology and pathogenesis. Classification. The main clinical manifestations and clinical and hematological syndromes. Criteria for diagnosis. Differential diagnosis. Complication. Principles of treatment. Bone marrow transplantation. Primary and secondary prevention. Forecast and efficiency.
- Principles of evidence-based medicine. Definition of the concept. The role of evidence-based medicine in modern clinical practice. Components of evidence-based medicine. Basic concepts of clinical trials. Medical and ethical aspects of evidence-based medicine.
- Diagnosis and treatment of diseases of the internal organs in the elderly. Features of metabolism in old age. Frequency of comorbid pathology in the elderly. Features of the effect of drugs on the body of the elderly. Features of diagnosis and treatment of diseases of internal organs in old age.
- Obesity and its consequences. The urgency of the problem. Methods of calculating overweight (body mass index) and determining obesity. Classification of obesity. The main medical consequences of obesity are metabolic syndrome, diabetes, cardiovascular diseases and diseases of the gastrointestinal tract. Modern approaches to medical and non-medical treatment.

### **Individual tasks**

Selection and review of scientific literature on the subject of the program of internal medicine of the student's choice with the writing of an abstract and its public defense.

Selection and review of scientific literature on the subject of research work of the department with the preparation of a scientific report at a meeting of the SNT or at student conferences.

Scientific research on the topic of research work of the department with the publication of results in scientific journals.

At the request of the student during the study of relevant topics, he can perform individual work, which is carried out in extracurricular activities and if it is successfully completed, it is additionally evaluated by the teacher.

The list and content of individual tasks can be determined in each case depending on the logistics of the departments.

Approximate list of individual tasks:

1. Carrying out interrogation of the indicative patient, his general inspection and inspection of the head, neck, extremities with allocation of the main symptoms and syndromes of the disease.
2. Carrying out of researches of function of external respiration at indicative patients, processing of the received data and the report at employment
3. ECG registration, participation in instrumental studies of the cardiovascular system in demonstrative patients with data processing and report in class
4. Carrying out of physical and instrumental inspection of the demonstrative patient with preparation of the review of scientific literature concerning the investigated case
5. Work with the literature and other sources of information and preparation of an abstract report on modern methods of examination of patients in the clinic of internal medicine
6. Work with the literature and other sources of information and preparation of an abstract report on the features of the syndrome diagnosis of a disease with a typical course, selected at the request of the student

### **Tasks for independent work**

The basic list of types of independent work of students, developed in accordance with the structure of the discipline, is presented in the section "Independent work". Mandatory type of independent work of students is the supervision of patients and writing a detailed history of the disease, which is provided in the study of the relevant tasks for independent work are:

1. Weekly observation of a patient (questioning, physical examination, evaluation of the results of instrumental and laboratory examinations) with pathology of the cardiovascular system with writing a medical history and presenting a clinical case in practice
2. Weekly observation of the patient (questioning, physical examination, evaluation of the results of instrumental and laboratory examinations) with pathology of the broncho-pulmonary system with writing a medical history and presenting a clinical case in practice
3. Weekly observation of the patient (questioning, physical examination, evaluation of the results of instrumental and laboratory examinations) with pathology of the digestive system with writing a medical history and presenting a clinical case in practice
4. Weekly observation of the patient (questioning, physical examination, evaluation of the results of instrumental and laboratory examinations) with pathology of the urinary system with writing a medical history and presenting a clinical case in practice

5. Weekly observation of the patient (questioning, physical examination, evaluation of the results of instrumental and laboratory examinations) with pathology of the endocrine system with writing a medical history and presenting a clinical case in practice

6. Weekly observation of the patient (questioning, physical examination, evaluation of the results of instrumental and laboratory examinations) with pathology of the hematopoietic system with writing a medical history and presenting a clinical case in practice

The student independently chooses the disease for which he will conduct curation (questioning, examination) of the patient.

**Typical test problems to be solved in practical classes:**

1. In the sputum with bronchitis can be found:
  - A. coral-like elastic fibers
  - B. eosinophils
  - C. cylindrical ciliated epithelium
  - D. necrotic scraps with carbon pigment
  - E. all these elements
2. Ehrlich's notebook includes:
  - A. cholesterol crystals
  - B. amorphous lime
  - C. Mycobacterium tuberculosis
  - D. calcified elastic fibers
  - E. all these elements
3. Cholesterol crystals in sputum are detected when:
  - A. bronchitis
  - B. lobar pneumonia
  - C. bronchial asthma
  - D. decay of the primary tuberculosis center
  - E. all these diseases
4. In the sputum in acute bronchitis can be found:
  - A. calcified elastic fibers
  - B. Dietrich's plugs
  - C. caseous necrosis
  - D. groups of cylindrical ciliated epithelium
  - E. Mycobacterium tuberculosis

5. Hematoidin crystals in sputum are detected when:
- A. bronchopneumonia
  - B. lung gangrene
  - C. bronchitis
  - D. bronchial asthma
  - E. lobar pneumonia
6. With histoplasmosis of the lungs in the sputum can be detected:
- A. broad septate mycelium
  - B. are intracellularly gram-positive oval or round, budding cells with an unpainted area around them
  - C. pseudomycelium
  - D. chains of large spores
  - E. groups of small mosaic-arranged spores
7. Pneumomycosis can include:
- A. favus
  - B. candidiasis
  - C. epidermophytia
  - D. rubromycosis
  - E. all listed
8. Normally in a healthy person the number of respiratory movements per minute:
- A. 10 - 12
  - B. 12 - 16
  - C. 16 - 20
  - D. 20 - 25
  - E. 25 - 30
9. What percussion sound over the lungs is normal:
- A. Box
  - B. Blunt
  - C. Clear pulmonary
  - D. Blunt-tympanitis
  - E. Blunt



10. Hard breathing is:

- A. Physiologically enhanced vesicular respiration
- B. Pathologically enhanced vesicular respiration
- C. Physiologically enhanced bronchial respiration
- D. Pathologically enhanced bronchial respiration
- E. Stenotic respiration

#### **4.4. Ensuring the educational process**

1. Multimedia projectors, computers, screens for multimedia presentations, lecture presentations.

2. Demonstration screens, laptops, files in Power Point and Word with tasks "Step-2" for practical and final classes.

3. Exam tickets.

When studying the discipline, all types of teaching methods recommended for high school are used, namely:

– by sources of knowledge: verbal (explanation, lecture, conversation, discussion); visual (demonstration); practical (practical work, mastering practical skills), on which special emphasis is placed on the study of the discipline;

– by the logic of the educational process: analytical (selection of individual symptoms of the disease), synthetic (clarification of the relationship of symptoms and selection of disease syndromes), their combination - analytical-synthetic, as well as inductive method (mainly in the study of block 1), deductive (in the study block 2), their combination - a translational method (in the study of both modules);

– by the level of independent mental activity: problem, partial-search, research.

Combining and generalizing the above teaching methods, when studying the discipline it is advisable to implement such methods of organizing classes as:

- method of clinical cases,
- problem-research method,
- method of individual educational and research tasks,
- method of competing groups,
- method of training technologies,
- method of conducting scientific conferences with the use of interactive, interdisciplinary and information and computer technologies

Types of educational activities of the student, according to the curriculum, are lectures, practical classes, independent work of students.

Lecture and practical stages of students' learning are formed in such a sequence, if possible, that the topics of lectures precede practical classes.

Practical classes lasting 2 academic hours (80 minutes) are held in a therapeutic clinic (therapeutic department) and consist of four structural parts:

- 1) mastering the theoretical part of the topic,
- 2) demonstration by the teacher of methods of research of the thematic patient,
- 3) the work of students to practice practical skills at the patient's bedside under the supervision of a teacher,
- 4) solving situational problems and test-control of mastering the material.

When conducting practical classes, the main place is occupied by mastering practical skills in physical examination of the patient and working directly with patients.

On the basis of mastering clinical methods of examination of the patient, the ability to synthesize and interpret, evaluate and analyze them, the student develops clinical thinking and skills of syndrome diagnosis, which is the main task of propaedeutic therapy.

Independent work of students occupies an important place in the study of the discipline. In addition to traditional pre-classroom training on theoretical issues of propaedeutics of internal medicine, it includes students' work in therapeutic departments, clinical laboratories and functional diagnostics departments in extracurricular activities, the effectiveness of which should be ensured by teachers and support staff of propaedeutics of internal medicine. Independent work includes curation of patients with writing a medical history, which involves questioning and complete physical examination of the patient to determine the leading syndromes, the appointment of diagnostic manipulations and participation in the algorithm of medical care for this patient.

### **Methodical support**

- Work program of the discipline;
- Plans of lectures, practical classes and independent work of students;
- Abstracts of lectures on the discipline;
- Methodical developments for the teacher;
- Methodical instructions for practical classes for students;
- Methodical materials that provide independent work of students;
- Test and control tasks for practical classes;
- Questions and tasks to control the assimilation of the section;
- List of questions and practical skills for the exam.

## **5. Final control**

### **List of final control (exam) questions**

#### **List of questions to master BLOCK № 1:**

#### **"Diseases of the digestive system and respiratory system":**

1. Gastroesophageal reflux disease. Definition. Etiology, pathogenesis. Classification. Erosive and non-erosive GERD. Clinical manifestations depending on the variant and stage. Data of laboratory and instrumental research methods. Diagnosis criteria, differential diagnosis. Complication. Differentiated therapy. Primary and secondary prevention.
2. Dyspepsia. Chronic gastritis. Determination of dyspepsia. Etiology and pathogenesis. The role of *N. rulari* in the occurrence of gastroduodenal pathology. Classification. Unexplored and functional dyspepsia. Criteria for diagnosis. Differential diagnosis. Modern approaches to the treatment of functional dyspepsia. Primary and secondary prevention. Forecast and efficiency.
3. Peptic ulcer of the stomach and duodenum. Definition. The main causes of peptic ulcers (*H. pylori*, medications, etc.). Classification. Clinical manifestations. Complications (perforation, penetration, bleeding, stenosis, malignancy). The value of instrumental and laboratory diagnostic methods. Methods of diagnosis of *Hp* infection. Differential diagnosis. Tactics of patient management. Eradication therapy, control of eradication efficiency. Drug therapy of *Hp*-negative ulcers. Indications for surgical treatment. Primary and secondary prevention. Forecast and efficiency.
4. Celiac disease and other enteropathies. Definition. Etiology, pathogenesis. The role of intolerance to food components, immune factors and enzymopathies (lactose intolerance, fructose, galactose, etc.). Malabsorption and maldigestion syndromes. Diagnosis criteria, differential diagnosis. Complication. Differentiated therapy. Primary and secondary prevention. Forecast and efficiency.
5. Inflammatory bowel disease. 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. Laboratory and instrumental diagnostics. Diagnosis criteria, differential diagnosis.
6. Gallstone disease, chronic cholecystitis and functional disorders of the biliary tract. Definition. Etiology, pathogenesis. Significance of infection, motility disorders and dyscholia in the development of chronic cholecystitis, cholangitis and gallstone disease. Classification. Features of the clinical course. Laboratory and instrumental diagnostic methods. Differential diagnosis. Complications of gallstone disease. Treatment. Indications for surgical treatment. Primary and secondary prevention. Forecast and efficiency.
7. Chronic hepatitis. Definition. Classification. The role of persistence of the virus, toxic and medicinal agents, immune disorders and alcohol. Methods of diagnosis of viral infection. Autoimmune, toxic (drug-induced) and chronic viral hepatitis. Alcoholic liver disease. Basic clinical and biochemical syndromes. Features of the clinical course and diagnosis of individual forms. Differential diagnosis. Complication. Features of treatment of various forms. Primary and secondary prevention. Forecast and efficiency.

8. Cirrhosis of the liver. Definition. Significance of viral infection, nutritional factors, alcohol, toxic substances, genetically determined metabolic defects and immune disorders. Classification. Features of clinical manifestations and diagnosis of different options. Differential diagnosis. Liver failure and other complications. Differentiated therapy. Urgent therapy for complications. Primary and secondary prevention. Forecast and efficiency.

9. Chronic pancreatitis. Definition. Significance of various etiological factors. Classification. Features of the clinical course, diagnosis and differential diagnosis depending on the form and location of the pathological process. Complication. Research methods in the diagnosis of pancreatitis. Differentiated treatment. Primary and secondary prevention. Forecast and efficiency.

10. Chronic obstructive pulmonary disease. Definition. The importance of smoking, environmental and occupational factors, the role of exacerbations in the development and progression of chronic obstructive pulmonary disease. Classification. Clinical manifestations, data of laboratory and instrumental research methods depending on the stage and clinical course. Differential diagnosis. Complication. Treatment. Primary and secondary prevention. Forecast and efficiency.

11. Bronchial asthma. Definition. Etiology, features of pathogenesis. Classification. Clinical manifestations, data of laboratory and instrumental research methods. Differential diagnosis. Complication. Treatment. Emergency aid. Primary and secondary prevention. Forecast and efficiency.

12. Pneumonia. Definition. Etiology. Classification. Clinical manifestations and features of the course depending on the pathogen. Data of laboratory and instrumental research methods. Differential diagnosis. Complications (acute respiratory distress syndrome, destruction of lung tissue, acute respiratory failure and others). Differentiated treatment. Primary and secondary prevention. Forecast and efficiency.

13. Pleurisy. Definition. Etiological factors. Classification. Clinical manifestations, data of laboratory and instrumental research methods. Differential diagnosis. Complication. Indications for pleural puncture and drainage of the pleural cavity. Treatment. Primary and secondary prevention. Forecast and efficiency.

14. Infectious and destructive lung diseases. Definition. Factors that contribute to the development of bronchiectasis, abscess and lung gangrene. Clinical manifestations, data of laboratory and instrumental research methods. Differential diagnosis. Complication. Treatment. Indications for surgical treatment. Primary and secondary prevention. Forecast and efficiency.

15. Respiratory failure. Definition. Classification. Causes. Features of the clinical course. Diagnosis, study of the function of external respiration, arterial and venous blood gases, indicators of acid-base status of blood. Therapeutic tactics. Primary and secondary prevention. Forecast and efficiency.

## **BLOCK 2. ENDOCRINE AND HEMATOLOGICAL PATHOLOGY, GENERAL ISSUES OF CARDIOLOGY, MEDICAL GENETICS**

1. Diabetes mellitus, classification, etiology, pathogenesis, clinic, diagnosis. Definition of diabetes mellitus. Classification of glycemic disorders (WHO, 1999), clinical types of diabetes mellitus. Characteristics of lesions of internal organs in diabetes mellitus: cardiovascular system,

hepatobiliary system, urinary organs, diabetic osteoarthropathy. Diagnosis of diabetes. Criteria for the diagnosis of diabetes mellitus and other categories of hyperglycemia (WHO, 1999). Indications and rules for glucose tolerance test. Diagnostic value of determination of glycated hemoglobin, fructosamine, C-peptide, glucosuria, ketonuria.

2. Diabetes mellitus type 1 and type 2, modern methods of therapy. Complications of insulin therapy: hypoglycemic conditions, insulin allergy, post-injection lipodystrophy, insulin resistance, chronic insulin overdose (Somogy syndrome), insulin edema. Spa treatment. Protocols for the care of patients with type 1 diabetes mellitus.

3. Acute and chronic complications of diabetes. Features of the course and treatment of diabetes mellitus in surgical patients during pregnancy.

4. Iodine deficiency diseases of the thyroid gland. Signs of endemic terrain according to the WHO. Clinic, diagnosis, prevention and treatment. Hypothyroidism and thyroiditis. Classification, diagnosis, clinic, treatment.

Topic 5. Thyrotoxicosis. Clinical forms. Diagnosis, treatment. Thyroid cancer. Classification, clinic, diagnosis, treatment. Diseases of the thyroid gland.

6. Diseases of the adrenal glands. Chronic insufficiency of the adrenal cortex. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment. Hormonally active tumors of the adrenal glands.

7. Diseases of the hypothalamic-pituitary system. Adiposity. Diseases of the gonads.

Classification of hypothalamic-pituitary diseases. Acromegaly. Etiology and pathogenesis. Clinic. Diagnosis and differential diagnosis. Treatment. Itsenko-Cushing's disease. Etiology and pathogenesis. Classification. Clinic. Diagnosis and differential diagnosis. Treatment.

8.. Hemophilia and thrombocytopenic purpura. Definition. Etiology and pathogenesis, main clinical syndromes. Criteria for diagnosis. Differential diagnosis. Treatment. Prevention of bleeding. Primary and secondary prevention. Forecast and efficiency.

9. Anemia (posthemorrhagic, iron deficiency, B12-deficient, folate-deficient, aplastic, hemolytic). Definition. Etiological factors and pathogenesis. Mechanisms of intravascular and intracellular hemolysis. Features of clinic and laboratory diagnostics of various forms. Differential diagnosis. Complication. Treatment. Transfusion of blood components and blood substitutes. Primary and secondary prevention. Forecast and efficiency.

10. Acute leukemia. Definition. Modern views on the etiology and pathogenesis. Classification. The main clinical and hematological syndromes. Clinical manifestations. Criteria for diagnosis. Differential diagnosis. Complication. Principles of treatment. Bone marrow transplantation. Primary and secondary prevention. Forecast and efficiency.

11. Chronic leukemias. Definition of chronic myeloid leukemia, chronic lymphoid leukemia, myeloma, true polycythemia. Modern views on the etiology and pathogenesis. Classification. The main clinical manifestations and clinical and hematological syndromes. Criteria for diagnosis. Differential diagnosis. Complication. Principles of treatment. Bone marrow transplantation. Primary and secondary prevention. Forecast and efficiency.

12. Principles of evidence-based medicine. Definition of the concept. The role of evidence-based medicine in modern clinical practice. Components of evidence-based medicine. Basic concepts of clinical trials. Medical and ethical aspects of evidence-based medicine.

13. Diagnosis and treatment of diseases of internal organs in the elderly. Features of metabolism in old age. Frequency of comorbid pathology in the elderly. Features of the effect of drugs on the body of the elderly. Features of diagnosis and treatment of diseases of internal organs in old age.

14. Obesity and its consequences. The urgency of the problem. Methods of calculating overweight (body mass index) and determining obesity. Classification of obesity. The main medical consequences of obesity are metabolic syndrome, diabetes, cardiovascular diseases and diseases of the gastrointestinal tract. Modern approaches to medical and non-medical treatment.

15. Subject and tasks of medical genetics. The role of heredity in human pathology. Clinical and genealogical method. Cytogenetic and molecular genetic methods. Biochemical methods. Morphogenetic variants of development. Developmental defects.

16. . General characteristics of monogenic pathology. Clinic and genetics of some forms of monogenic diseases. Hereditary metabolic diseases. Principles of treatment of hereditary diseases, rehabilitation and social adaptation.

17. Hereditary lung diseases. Hereditary nephropathy. Systemic skeletal dysplasia. Cystic fibrosis. Hypothyroidism. Vitamin D-resistant rickets. Systemic skeletal dysplasia. Hereditary cystic kidney disease. Hereditary nephropathy. Secondary nephropathy associated with inherited metabolic diseases. Alport syndrome. Cystinuria. Glycinuria. Xanthinuria. De Toni-Debre-Fanconi syndrome. Chronic tubular acidosis. Fructose intolerance. Cystinosis. Oxalose.

18. Chromosomal diseases. Etiology and cytogenetics of chromosomal diseases. Classification of chromosomal diseases. Chromosomal aberrations and genomic mutations. Partial trisomies and monosomies. Complete and mosaic forms. Single parent disomies. Chromosomal imprinting. Age of parents and frequency of chromosomal diseases in children.

19. General characteristics of mitochondrial pathology. Classification of mitochondrial diseases. Mitochondrial heredity Mitochondrial diseases caused by mutations in mitochondrial DNA. Diseases caused by deletions of mitochondrial DNA. Diseases caused by point mutations in mitochondrial DNA. Clinic, genetics, diagnosis, therapy of Leber syndromes, NAPR, MERRF, MELAS. Pathology associated with defects in intergenomic communication - multiple mitochondrial DNA deletion syndromes, mitochondrial DNA deletion syndrome. Mitochondrial diseases caused by mutations in nuclear DNA.

20. Medical and genetic counseling. Prenatal diagnosis. Screening programs. The severity of hereditary pathology. Ethnic, geographical, social factors that cause differences in the prevalence of hereditary pathology. Genetic and demographic processes and the prevalence of hereditary diseases. Types of prevention of hereditary diseases: primary, secondary and tertiary prevention. Prevention levels: pregametic, presygotic, prenatal and postnatal.

21. Orphan diseases. The concept of orphan diseases. Register of orphan diseases. State programs for the treatment of orphan diseases. Primary immunodeficiencies, Gaucher disease, Pompe disease, Fabry disease, tyrosinemia, mucopolysaccharidosis, pulmonary arterial hypertension, bullous epidermolysis. Methods of diagnosis and treatment of organ diseases.

Sets of practical tasks are formed directly from the list of practical skills that the student must master while studying each of the two modules of the discipline, which are standardized by the method of practical work.

**The list of practical skills that the student must learn when studying block 1:**

1. To interrogate the patient. Make a conclusion about the obtained anamnestic data. Identify the main symptoms and syndromes.
2. Conduct a general examination of the indicative patient. Identify the leading symptoms.
3. Examine the head and neck of a demonstrative patient. Determine the clinical significance of symptoms.
4. Examine the torso and limbs of the demonstrative patient. Determine the clinical significance of symptoms.
5. Examine the chest of a patient with broncho-pulmonary pathology, assess static and dynamic signs.
6. Examine the atrial area, determine the clinical significance of symptoms.
7. Examine the abdomen, determine the clinical significance of symptoms.
8. Conduct a palpation of the chest to determine the clinical significance of symptoms.
9. Conduct a palpation of the lymph nodes, evaluate the results.
10. Conduct a palpation examination of the thyroid gland, evaluate the data obtained.
11. Conduct a palpation of the pulse, determine the clinical significance of symptoms.
12. Conduct a palpation of the atrial area, determine the clinical significance of symptoms.
13. Conduct a superficial palpation of the abdomen, determine the clinical significance of symptoms.
14. Conduct a palpation of the sigmoid colon, determine the clinical significance of symptoms.
15. Conduct a palpation of the cecum, determine the clinical significance of symptoms.
16. Conduct a palpation of the ascending colon to determine the clinical significance of symptoms.
17. Conduct a palpation of the descending part of the colon, to determine the clinical significance of symptoms.
18. Conduct a palpation of the transverse colon, determine the clinical significance of symptoms.
19. Conduct a palpation of the liver, determine the clinical significance of symptoms.
20. To carry out palpatory research of a spleen, to define diagnostic value of symptoms.

21. Conduct palpation and percussion examination of the kidneys, determine the diagnostic value of symptoms.
22. Determine the lower limit of the stomach, evaluate the data obtained.
23. To determine the presence of fluid in the abdominal cavity, to give a clinical assessment.
24. Measure blood pressure in the upper extremities, evaluate the data obtained.
25. Measure blood pressure in the lower extremities, evaluate the data obtained.
26. Carry out a comparative percussion of the lungs and determine the clinical significance of symptoms.
27. Carry out topographic percussion of the lungs and determine the diagnostic value of symptoms.
28. Conduct a percussion examination of the heart, determine the limits of relative dullness of the heart, give a clinical assessment.
29. Conduct a percussion examination of the heart, determine the limits of absolute dullness of the heart, give a clinical assessment.
30. The method of percussion to determine the boundaries of the liver, to assess the diagnostic value of symptoms.
31. Percussion method to determine the boundaries of the spleen, to give a clinical assessment.
32. Carry out auscultation of the lungs, determine the quantitative and qualitative changes in respiration, give a clinical assessment.
33. To carry out auscultation of lungs, to define additional respiratory noises, to give a clinical assessment.
34. Conduct a study of bronchophonia, give a clinical assessment.
35. Auscultate the arteries, determine the diagnostic value of symptoms.
36. Carry out auscultation of the heart, determine changes in its tones, give a clinical assessment.
37. Carry out auscultation of the heart, determine the diagnostic value of heart murmurs.
38. Analyze the ECG of a patient with impaired automaticity of the heart.
39. Analyze the ECG of a patient with impaired cardiac excitability. Carry out differential diagnosis of extrasystoles.
40. Analyze the ECG of a patient with impaired cardiac conduction.
41. Analyze the ECG of a patient with a combined violation of excitability and conduction of the heart.
42. Analyze the FCG of a patient with heart disease.

**The list of practical skills that a student must learn when studying block № 2:**



1. Conduct a physical examination of a patient with mitral heart disease. Identify the leading symptoms and syndromes.
2. Conduct a physical examination of a patient with aortic heart disease. Identify the leading symptoms and syndromes.
3. Conduct a physical examination of a patient with hypertension. Identify the leading symptoms and syndromes.
4. To interrogate a patient with coronary heart disease (stable angina pectoris), to detail the pain syndrome, to determine the functional class of the patient.
5. Conduct a general examination and physical examination of a patient with acute myocardial infarction. Identify the main symptoms and syndromes.
6. Evaluate the ECG of a patient with acute myocardial infarction, determine the nature and location of heart muscle damage.
7. Conduct a physical examination of a patient with heart failure. Identify the main symptoms and syndromes, establish the functional class of the patient.
8. To interrogate and examine a patient with obstructive pulmonary disease. Identify the main symptoms and syndromes, taking into account the data of spirometry to establish the stage of the disease.
9. Conduct palpation, chest percussion and lung auscultation in a patient with obstructive pulmonary disease. Identify the main symptoms and syndromes.
10. Conduct an interrogation and physical examination of a patient with pneumonia. Identify the main symptoms and syndromes.
11. To interrogate and physically examine a patient with pleurisy. Determine the nature of pleurisy, the main symptoms and syndromes.
12. Conduct questioning, examination and palpation of the abdomen in a patient with chronic gastritis. Identify the leading syndromes.
13. Analyze the results of intragastric pH-metry in a patient with chronic gastritis. Assess the acid-forming function of the stomach.
14. Conduct questioning, examination and palpation of the abdomen in a patient with peptic ulcer of the stomach / duodenum. Identify the main syndromes, recognize the possible location of the ulcer.
15. Conduct questioning, examination and palpation of the abdomen in a patient with chronic cholecystitis. Check the main symptoms characteristic of gallbladder damage. Identify the main syndromes.
16. Conduct questioning, examination and palpation of the abdomen in a patient with chronic cholangitis. Identify the main syndromes.
17. Evaluate the data of multi-moment duodenal sounding of a patient with biliary tract disease. Identify the main symptoms and location of the lesion.

18. Conduct questioning and examination of a patient with hepatitis (or cirrhosis of the liver). Identify the main symptoms and syndromes.

19. Conduct a physical examination of a patient with hepatitis (or cirrhosis of the liver). Identify the main syndromes based on biochemical blood tests and urine tests.

20. Conduct a physical examination of a patient with kidney disease (pyelonephritis or glomerulonephritis). Identify the main syndromes.

21. To analyze the general clinical analysis of urine of a patient with kidney disease, urine analysis by the methods of Zymnitsky and Nechyporenko. Identify the main symptoms and syndromes. To draw a conclusion about the nature of kidney damage.

22. Conduct a physical examination of a patient with anemia. Identify the main symptoms and syndromes, taking into account the general blood test to determine the nature of anemia.

23. Conduct questioning and general examination of a patient with diabetes, examine the pulse in the vessels of the upper and lower extremities, measure blood pressure. Identify the main symptoms and syndromes.

24. Work with the patient:

- Collect complaints, medical history, life history;
  - Collect information about the general condition of the patient (consciousness, constitution, fatness) and evaluate the appearance (examination of the skin, subcutaneous fat, palpation of lymph nodes, thyroid and mammary glands), examine the condition of the musculoskeletal system, joints;
  - Examine the condition of the respiratory organs (chest examination, chest palpation, percussion and lung auscultation);
  - Examine the state of the circulatory system (examination and palpation of the heart and blood vessels, percussion of the heart and auscultation of the heart and blood vessels);
  - Examine the condition of the digestive organs (examination, percussion, superficial and deep palpation);
  - Examine the condition of the urinary system (examination of the lumbar region, palpation of the kidneys).
- Make a preliminary diagnosis of the disease (List 1).
  - Assign and justify laboratory and / or instrumental examination of a patient with diseases (List 1).
  - Interpret the results of laboratory and instrumental research (List 2)
  - Carry out differential diagnosis of diseases (List 1).
  - Make a clinical diagnosis of the disease (List 1).
  - Determine the necessary regime and diet of a patient with diseases (List 1).
  - Determine the principles and nature of treatment (conservative, operative) of diseases (List1).

- Diagnose and provide emergency care (List 3)
- Perform medical manipulations (List 4)
- To determine the tactics of secondary prevention of patients who are subject to dispensary supervision.
- Keep medical records.

### **List 1 (diseases) Diseases of the hematopoietic organs**

1. Anemia.
2. Acute and chronic leukemias.
3. Myeloma.
5. Hemophilia.
6. Thrombocytopenic purpura.

### **Respiratory diseases**

1. Chronic obstructive pulmonary disease.
2. Bronchial asthma.
3. Pneumonia.
4. Pleurisy.
5. Infectious and destructive lung diseases.
6. Respiratory failure.

### **Diseases of the digestive system**

1. Gastroesophageal reflux disease.
2. Functional disorders of the stomach, gallbladder, biliary tract and intestine.
3. Chronic gastritis and duodenitis.
4. Peptic ulcer of the stomach and duodenum.
5. Celiac disease and other enteropathies.
6. Nonspecific ulcerative colitis, Crohn's disease.
7. Gallstone disease; chronic cholecystitis.
8. Chronic hepatitis.
9. Cirrhosis of the liver.

10. Chronic pancreatitis.

### **Diseases of the endocrine system**

1. Diabetes mellitus, type 1.
2. Diabetes mellitus, type 2.
3. Iodine deficiency diseases of the thyroid gland.
4. Hypothyroidism.
5. Thyroiditis.
6. Thyrotoxicosis.
7. Thyroid cancer.
8. Itsenko-Cushing's syndrome and disease.
9. Pheochromocytoma.
10. Aldosteroma.
11. Metabolic syndrome.
12. Somatotropic insufficiency.
13. Acromegaly.
14. Hyperprolactinemia.
15. Diabetes mellitus.
16. Hypopituitarism.
17. Obesity.
18. Diseases of the gonads.

### **List 2 (Laboratory and instrumental research methods)**

1. Analysis of pleural fluid
2. Analysis of ascitic fluid
3. Analysis of urine for diastase
4. Biochemical parameters of serum iron metabolism.
5. Acute phase indicators of blood, total blood protein and its fractions.
6. Examination of bile
7. pH-metry of the stomach and esophagus
8. Respiratory tests with <sup>13</sup>C-urea, <sup>13</sup>C-triglycerides, <sup>13</sup>C-starch, <sup>13</sup>C-lactose and respiratory hydrogen tests with glucose and lactulose

9. General blood test.
10. General analysis of urine.
11. General analysis of sternal punctate
12. General analysis of sputum
13. Blood electrolytes
14. Ketone bodies of blood and urine, ioduria.
15. Coagulogram
16. Coprocytogram
17. Markers of viral hepatitis
18. Microbiological study of biological fluids and secretions
19. Metanephrines in urine
20. Indicators of acid-base status of blood.
21. The level of TSH, T4, T3, antibodies to thyroperoxidase (ATPO), antibodies to TSH receptors, antibodies to thyroglobulin
22. Levels of ACTH, cortisol, aldosterone and renin
23. Glucose tolerance test, glycemic profile, C-peptide, glycated hemoglobin, fructosamine
24. Blood transaminases, total bilirubin and its fractions, alkaline phosphatase
25. Alpha-amylase of blood
26. Fecal elastase-1
27. Study of the function of external respiration
28. Sonography, scanning, computed tomography and magnetic resonance imaging of the thyroid gland and adrenal glands
29. Radiation examination of the abdominal cavity
30. Radiation examination of the thoracic cavity
31. Radiation examination of the skull and bones
32. Endoscopic examination of the bronchi
33. Endoscopic examination of the digestive tract
34. Cytological examination of a lymph node biopsy.

### **List 3 (EMERGENCY STATES)**

1. Addisonic crisis

2. Hypoglycemic coma
3. Acute respiratory failure
4. Acute hepatic encephalopathy
5. Diabetic ketoacidotic coma
6. Bile colic
7. Severe exacerbation of bronchial asthma
8. Thyrotoxic crisis
9. Esophageal and gastrointestinal bleeding

**List 4 (MEDICAL MANIPULATIONS)**

- 1) Inject drugs (subcutaneous, intramuscular, intravenous jet and drip).
- 2) Determine the blood type.

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

1. Antibacterial
2.  $\alpha$  and  $\beta$ -adrenostimulants
3. expectorants
4. Hemostatics
5. Proton pump inhibitors
6. H<sub>2</sub>-histamine blockers
7. Oral hypoglycemic agents and preparations of insulin, thyroxine, imidazole derivatives
8. Iron supplements
9. Cholinolytics

**ABILITY TO PREPARE MEDICAL DOCUMENTATION**

1. Medical card of an inpatient
2. Extract from the medical card of an inpatient
3. Procedural sheet (form B №28)
4. Referral to MSEC
5. Medical death certificate
6. Leaflet of incapacity for work

7. Sanatorium-resort map
8. Recipes for all sections of the discipline.

**"0" version of the exam ticket**

**Petro Mohyla Black Sea National University**  
 Educational qualification level - master  
 Area of knowledge: 22 Health  
 specialty 222 Medicine  
 Course - **INTERNAL MEDICINE, INCLUDING MEDINA GENETICS,  
 ENDOCRINOLOGY**  
**Option № 0**

1. Gastroesophageal reflux disease. Definition. Etiology, pathogenesis. Classification. Erosive and non-erosive GERD. Clinical manifestations depending on the variant and stage. Data of laboratory and instrumental research methods. Diagnosis criteria, differential diagnosis. Complications, treatment. - **maximum number of points - 20.**
2. Diabetes mellitus: etiology, clinical picture, unified protocols for hypoglycemic coma. - **maximum number of points - 20.**
3. **Practical skill:** algorithm of registration and analysis of an ECG. - **maximum number of points - 20.**
4. **Situational task:** A 50-year-old man has a fever of up to 40 ° C, chills, cough with viscous mucous sputum, which contains blood impurities, chest pain when coughing and deep breathing, severe blush on the right cheek, herpetic rash on the lips. Shallow breathing, its frequency is 28 / min. The right side of the chest lags behind when breathing. Bronchial respiration is heard above the lower part of the right lung. In the blood erythrocytes 5.2 · 10<sup>12</sup> / l, leukocytes 16.0 · 10<sup>9</sup> / l, fibrinogen 8 g / l, C-reactive protein ++. Preliminary diagnosis? With what diseases it is necessary to carry out differential diagnosis. What is the treatment for this disease? - **maximum number of points - 20.**

Approved at the meeting of the Department of "therapeutic and surgical disciplines", the protocol № \_\_\_ from "\_\_\_" \_\_\_\_\_ 2020.

**Head of Department  
 Examiner**

**Professor Zak M.Yu.  
 Professor Zak M.Yu.**

**An example of the final control work on block 1**

Solving problems Step-2

1. A 36-year-old man has a dry cough, mucous sputum, fever up to 37.6 ° C, sweating, general weakness. Ill for 3 years. Smokes for 6 years. Above the lungs a clear pulmonary percussion sound, scattered dry rales. In the blood hemoglobin 148 g / l, erythrocytes 4.6 · 10<sup>12</sup> / l, leukocytes 9.2 · 10<sup>9</sup> / l, lymphocytes 30%. On the review roentgenogram of strengthening of a pulmonary drawing from both parties. What is the most likely diagnosis of the patient?  
 A. Pneumonia  
 B. Bronchitis

- S. Pleurisy
- D. Bronchial asthma
- E. Pleurisy

2. Patient N., 38 years old, feels well, asthma attacks occur 1-2 times a week. Constantly uses servant, keeps records in the diary of peak flowmetry. During the last week the indicators of POSHVID in the morning are 280 l / min. (normal - 545 l / min.), POSHVID in the evening - 550 l / min. The best indicators POSHVID on average 425 l / min. What is the most likely diagnosis of the patient?

- A. Pneumonia
- B. Bronchitis
- S. Pleurisy
- D. Bronchial asthma
- E. Pleurisy

3. A 42-year-old man has a rise in body temperature to 40 ° C, chills, cough with viscous mucous sputum, which contains blood impurities, chest pain when coughing and deep breathing, pronounced blush on the right cheek, herpetic rash on lips. Shallow breathing, its frequency is 28 / min. The right side of the chest lags behind when breathing. Bronchial respiration is heard above the lower part of the right lung. In the blood erythrocytes  $5.2 \cdot 10^{12} / l$ , leukocytes  $16.0 \cdot 10^9 / l$ , fibrinogen 8 g / l, C-reactive protein ++. What examination should be performed on the patient to confirm the diagnosis?

- A. Spirometry
- B. Bacteriological examination of sputum
- C. X-ray examination
- D. ECG
- E. Answers B and C.

**And so 30 problems with the subsequent analysis of typical errors.**

### **An example of the final control work on block 2**

#### **Solving problems Step-2**

1 As a result of which pathological conditions can chronic heart failure develop?

- A. Ventricular tachycardia
- B. Ventricular fibrillation
- C. Myocardial infarction



- D. Acute myocarditis
- E. All these diseases

2 As a result of which pathological conditions can develop right ventricular failure?

- A. In the presence of mitral heart disease
- B. With a pulmonary heart
- C. In the presence of pulmonary artery thrombosis,
- D. With diffuse changes in the myocardium and myocardial infarction of the right ventricle
- E. With all these diseases

3 As a result of which pathological conditions can develop left ventricular failure?

- A. In patients with myocardial infarction
- B. In ischemic heart disease, atherosclerotic cardiosclerosis
- C. With hypertension
- D. At defects of aortic valves
- E. With all these diseases

4 Hypertrophy and tonogenic dilatation of the heart to maintain normal blood circulation is called:

- A. The state of cardiac compensation
- B. State of cardiac decompensation
- C. The state of cardiac subcompensation
- D. The state of cardiac hypocompensation
- E. Condition of cardiac hypercompensation

**And so 30 problems with the subsequent analysis of typical errors.**

## **6. Evaluation criteria and tools for diagnosing learning outcomes**

### **TEACHING METHODS**

a) lectures, b) practical classes, c) independent work of students, d) consultations.

Thematic plans of lectures, practical classes and VTS reveal the problematic issues of the relevant sections of internal medicine. Didactic tools (multimedia presentations, slides, educational films, demonstration of thematic patients) are used as much as possible in the lecture course. Lecture and practical stages of students' learning are composed, mainly, in such a way

that lectures or preceded by appropriate practical classes, and when rotating thematic sections, are read in one block.

Practical classes are held on the clinical base of the department. Methods of organizing practical classes in internal medicine requires:

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

To implement this, it is necessary at the first lesson of the relevant section to provide the student with a detailed plan of work in the clinic and provide conditions for its implementation.

This plan should include:

- research that the student must master (or get acquainted with);
- algorithms (protocols) of examinations, diagnosis, treatment, prevention in accordance with the standards of evidence-based medicine;
- patient supervision to be performed by the student during the cycle;

- reports of the patient's medical history in the study group, at clinical rounds, practical conferences.

**Patient supervision involves:**

1. clarification of the patient's complaints, medical history and life, conducting surveys of organs and systems;
2. conducting a physical examination of the patient and determining the main symptoms of the disease;
3. analysis of laboratory and instrumental examination data;
4. formulation of the diagnosis;
5. appointment of treatment;
6. determination of primary and secondary prevention measures;

report of the results of examination of the patient by a team of students in the study group, analysis under the guidance of the teacher of the correctness of diagnosis, differential diagnosis, scheduled examination, treatment tactics, assessment of prognosis and performance, prevention.

In practical classes, students are encouraged to keep protocols in which it is necessary to enter brief information about the patients examined during the practical lesson, diagnosis, examination plan and prescribed treatment.

VTS and individual work of students is 30-56% in the curriculum. It includes:

- pre-classroom and extracurricular training of students on the course of the discipline;

- work of students in departments on the clinical base of the department, including in laboratories and departments (offices) of functional diagnostics, interpretation of data of laboratory and instrumental methods of research at internal pathology in extracurricular time;
- mastering practical skills by working with patients;
- individual VTS (speech at the scientific-practical conference of the clinic, writing articles, report of the abstract at the practical lesson, participation in the work of the student group, competitions in the discipline, etc.);
- work in a computer class in preparation for the Step-2 exam;
- elaboration of topics that are not included in the classroom plan.

Teachers of the department provide the opportunity to perform VTS. During practical classes and monitor and evaluate its implementation. Topics submitted for self-study are evaluated during the final control.

### **METHODS OF CONTROL**

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

1. control of the initial level of knowledge by means of tests;
2. survey of students on the topic of the lesson;
3. management of 1-2 patients with diseases and conditions corresponding to the subject of the lesson, followed by discussion of the correctness of diagnosis, differential diagnosis and treatment with the use of evidence-based medicine and in accordance with National and European guidelines and protocols;
4. consideration of the results of additional research methods (laboratory and instrumental), which are used in the diagnosis and differential diagnosis, consideration of which is provided by the topic of practical training;
5. control of the final level of knowledge on the test tasks made in the format of Step-2.

Assimilation of the topic (current control) is controlled in the practical lesson in accordance with specific goals, the assimilation of content sections - in the practical final lessons. It is recommended to use the following tools to assess the level of preparation of students: computer tests, problem solving, laboratory research and interpretation and evaluation of their results, analysis and evaluation of instrumental research and parameters that characterize the functions of the human body, control of practical skills.

**The current control** is carried out by the teacher of the academic group after the students have mastered each topic of the discipline and grades are set using a 200-point scale of the university, which corresponds to the 200-point scale of ECTS.

**Final lesson (SO)** - is conducted after the logically completed part of the discipline, consisting of a set of educational elements of the work program, which combines all types of training (theoretical, practical, etc.), elements of educational and professional program (academic

discipline, all types of practices , certification), implemented by appropriate forms of the educational process. The department provides information for preparation for the software on the information stand and on the website of the department the following materials:

- basic and anchor test tasks LII "Step-2";
- list of theoretical questions (including questions on independent work);
- list of practical skills;
- a list of drugs, prescriptions of which must be prescribed by the student;
- list of medical records;
- criteria for assessing the knowledge and skills of students;
- schedule of students completing missed classes during the semester.

### **Conducting the final lesson:**

1. Solving a package of test tasks on the content of educational material, which includes the following:

- basic test tasks in the discipline, which cover the content of the educational material of the final lesson in the amount of 30 tests that correspond to the database "Step-2". Evaluation criterion - 70.0% of correctly solved tasks; "Passed" or "did not pass");

2. Assessment of the development of practical skills (assessment criteria - "performed" or "failed").

3. During the assessment of the student's knowledge on theoretical issues, as well as questions for independent work, which are included in this final lesson, the student is given a grade on a multi-point scale, as well as a grade on IPA.

4. Tasks for practical and professional training that reflect the skills and abilities during the supervision of thematic patients, evaluation of laboratory and instrumental research methods and the choice of treatment tactics, which are defined in the list of work program of the discipline.

5. Tasks for diagnosis and care in emergencies.

The final lesson is accepted by the teacher of the academic group. Forms of software should be standardized and include control of all types of training (theoretical, practical, independent, etc.), solving test tasks "Step-2", provided by the work program of the discipline. At the beginning of the lesson students solve test tasks "Step-2" in the amount **of 30 tasks**, then at the patient's bedside the group teacher takes practical skills, which are assessed "completed", "failed", then students write written work, each ticket contains 5 theoretical questions, which include questions made for independent work, followed by an oral interview with the student, followed by a grade for the software.

**The final semester control is** carried out after the completion of the study of the discipline in the form of a final control work (PKR).

**PKR** is conducted by the teacher of the academic group at the last lesson. Students who have scored at least 70 points in the autumn semester and 40 points in the spring semester are admitted to the RCC. The maximum score in the autumn semester is 120, in the spring - 80. At the RCC in the autumn semester, a student can get from 50 to 80 points, in the spring - from 30 to 40 (see table below).

**Assessment of individual student tasks.** At the meeting of the department the list of individual tasks was approved (participation with reports in student conferences, profile olympiads, preparation of analytical reviews with presentations with check on

plagiarism) and a certain number of points for their performance, which can be added as incentives (**not more than 10**). Points for individual tasks are awarded to the student only once as a commission (commission - head of the department, head teacher, group teacher) only if they are successfully completed and defended. In no case may the total amount of points for IPA exceed 120 points.

**Assessment of students' independent work.** Assimilation of topics that are submitted only for independent work is checked during the final classes and final tests.

In order to assess the learning outcomes of the discipline, **the final control is conducted in the form of an exam, which is recommended for academic disciplines, which is part of the integrated test exams EDKI and "Step-2"**. Only students who have passed both final tests (according to blocks 1 and 2) in the discipline are admitted to the exam.

The exam in the discipline "Internal Medicine, including medical genetics, endocrinology" is a process during which the results obtained for the 4th year are checked:

- level of theoretical knowledge;
- development of creative thinking;
- skills of independent work;
- competencies - the ability to synthesize the acquired knowledge and apply them in solving practical problems.

The department provides the following materials for preparation for the exam on the information stand and on the website of the department:

- basic and anchor test tasks "Step";
- list of theoretical questions (including questions on independent work);
- list of practical skills;
- a list of drugs, prescriptions of which must be prescribed by the student;
- criteria for assessing the knowledge and skills of students;
- schedule of students completing missed classes during the semester.

### **Conducting an exam.**

1. Assessment of theoretical knowledge on the tickets drawn up at the department, which contain two theoretical questions from the sections of the discipline, which were studied during the academic year.
2. Assessment of practical skills acquisition.
3. Evaluation of the solution of the situational problem.

Distribution of points in the assessment - see above in the example of the exam ticket. The maximum score on the exam is 80 points, the exam is considered passed if at least 50 points are scored (see the table below).

### Distribution of points received by students

As mentioned above, each block (semester) uses a 200-point scale.

**In the first block (in the autumn semester)** on the current control the maximum sum of points makes 120, the minimum - 70.

This semester 38 practical classes (76 academic hours).

Current control is carried out in 37 practical classes.

Accordingly, **the maximum score** for each current practical lesson is: 120 points: 37 lessons = **3.24 points**. **The minimum** score is 70 points: 37 classes = **1.89 points**.

A score lower than 1.89 points means "unsatisfactory", the lesson is not credited and must be practiced in the prescribed manner.

Final control (RCC) is carried out at the last, 38th, practical lesson. According to the RCC for block 1, a student can get a maximum of 80 points. PKR is considered credited if the student scored at least 50 points.

**In the second block (in the spring semester)**, the maximum amount is under current control

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points is 80, the minimum - 40.

This semester 37 practical classes (74 academic hours).

Current control is carried out in 36 practical classes.

That is, the **maximum** score for each current practical lesson is: 80 points: 36 lessons = **2, 22 points**, the **minimum** - 40 points: 36 lessons = **1.11 points**.

A score lower than 1.11 points means "unsatisfactory", the lesson is not credited and is subject to practice in the prescribed manner.

PKR on block 2 is carried out on the last, 37th, practical employment. In this case, the student can get a maximum of 40 points. The minimum positive score is 30 points.

At the exam, the maximum positive grade is 80 points, the minimum - 50.

### Assessment of student performance

Type of activity (task)	Maximum number of points
<b>block 1</b>	
Practical classes from 1 to 37	3,24 points for each lesson
Total for 37 classes	120
Final control work on block 1 (practical lesson 38)	80

Together for block 1	200
<b>block 2</b>	
Practical classes from 1 to 36	2,22 points for each lesson
A total of 36 lessons	80
Final control work on block 2 (practical lesson 37)	40
Together for block 2	120
Examination	80
Together for block 2 and the exam	200

### Criteria for assessing knowledge

With a score of 3.24 points in the autumn semester (2.22 points in the spring semester), 71-80 points on the RCC in the autumn semester (38-40 points in the spring semester) and 71-80 points on the exam (A on the ECTS scale and 5 on a national scale) **the student's response is evaluated if it demonstrates a deep knowledge of all theoretical positions and the ability to apply theoretical material for practical analysis and has no inaccuracies.**

A score of 2.6 points in the fall semester (1.7 points in the spring semester), 61-70 points on the RCC in the fall semester (35-37 points on the RCC in the spring semester) and 61-70 points on the exam (B and C for ECTS scale and 4 on the national scale) **the answer is evaluated if it shows knowledge of all theoretical provisions, the ability to apply them in practice, but some fundamental inaccuracies are allowed.**

A score of 1.89 points in the fall semester (1.11 points in the spring semester), 50-60 points on the RCC in the fall semester (30-34 points on the RCC in the spring semester) and 50-60 points on the exam (D and E for ECTS scale and 3 on the national scale) **the student's answer is evaluated provided that he knows the main theoretical principles and can use them in practice.**

## 7. RECOMMENDED LITERATURE

### 7.1. Basic

1. Internal Medicine: General Practitioner's Guide: A Textbook. / A.C. Svintsitsky, O.O. Абрагамович, П.М. Воднар and others; For order. prof. A.S. Svintsitsky. -VSV "Medicine", 2014. - 1272 p. + 16s. colors. incl.
2. Gastroenterology. Textbook: In 2 T. -Vol.1 / ed. Prof. NV Kharchenko., O.Ya. Babaka. -Kirovograd: Polyum, 2016. - 488 p.
3. Gastroenterology. Textbook: In 2 T. -Vol.2 / ed. Prof. NV Kharchenko., O.Ya. Babaka. -Kirovograd: Polyum, 2017. - 432 p.

4. Endocrinology: a textbook (PM Bodnar, GP Mikhalchyshyn, YI Komisarenko, etc.), ed. Professor P.M. Bodnara, - Type. 4, reworked. and ext. - Vinnytsia: Nova Kniga, 2017. - 456 p.
5. Order of the Ministry of Health of Ukraine dated 27.06.2013 № 555 "On approval and implementation of medical and technological documents for the standardization of medical care for chronic obstructive pulmonary disease." Unified clinical protocol of primary, secondary (specialized) and tertiary (highly specialized) medical care and medical rehabilitation "Chronic obstructive pulmonary disease".
6. Order of the Ministry of Health of Ukraine dated 08.10.2013 № 868 "On approval and implementation of medical and technological documents for the standardization of medical care for bronchial asthma." Unified clinical protocol of primary, secondary (specialized) medical care "Bronchial asthma".
7. Order of the Ministry of Health of Ukraine dated 08.10.2013 № 866 "On approval and implementation of medical and technological documents for the standardization of medical care for non-Hodgkin's lymphoma and Hodgkin's lymphoma." Unified clinical protocol of primary, secondary (specialized), tertiary (highly specialized) medical care "Non-Hodgkin's lymphoma and Hodgkin's lymphoma".
8. Order of the Ministry of Health of Ukraine dated 31.10.2013 № 943 "On approval and implementation of medical and technological documents for the standardization of medical care for gastroesophageal reflux disease." Unified clinical protocol of primary, secondary (specialized) medical care "Gastroesophageal reflux disease".
9. Order of the Ministry of Health of Ukraine dated 15.01.2014 №34 "On approval and implementation of medical and technological documents for standardization of emergency medical care". Unified clinical protocol of emergency medical care "Acute poisoning", "Hemophilia", "Hypertensive crisis", "Hyperthermia", "Hypovolemic shock", "Acute respiratory failure", "Sudden cardiac death", "Pulmonary artery thromboembolism".
10. Order of the Ministry of Health of Ukraine dated 03.09.2014 № 613 "On approval and implementation of medical and technological documents for standardization of medical care for peptic ulcer of the stomach and duodenum." Unified clinical protocol of primary, secondary (specialized) medical care "Peptic ulcer of the stomach and duodenum in adults".
11. Order of the Ministry of Health of Ukraine dated 06.11.2014 № 826 "On approval and implementation of medical and technological documents for the standardization of medical care for chronic non-infectious hepatitis." Unified clinical protocol of primary, secondary (specialized) medical care "Non-alcoholic steatohepatitis".
12. Order of the Ministry of Health of Ukraine №1021 dated 29.12.2014 "Unified clinical protocol of primary, emergency, secondary (specialized) and tertiary (highly specialized) medical care" Type 1 diabetes mellitus in young people and adults".
13. Order of the Ministry of Health of Ukraine dated 8.06.2015 №327 "On approval and implementation of medical and technological documents for the standardization of medical care for cough". Unified clinical protocol of primary care "Cough in adults".



14. Order of the Ministry of Health of Ukraine dated 02.11.2015 № 709 "On approval and implementation of medical and technological documents for the standardization of medical care for iron deficiency anemia." Unified clinical protocol of primary and secondary (specialized) medical care "Iron deficiency anemia".
15. Order of the Ministry of Health of Ukraine dated 02.11.2015 № 710 "On approval and implementation of medical and technological documents for standardization of medical care for multiple myeloma. Unified clinical protocol of primary, secondary (specialized), tertiary (highly specialized) medical care "Multiple myeloma".
16. Order of the Ministry of Health of Ukraine dated 02.11.2015 № 711 "On approval and implementation of medical and technological documents for the standardization of medical care for chronic myeloid leukemia." Unified clinical protocol of primary, secondary (specialized), tertiary (highly specialized) medical care "Chronic myeloid leukemia".
17. Order of the Ministry of Health of Ukraine dated 11.02.2016 № 90 "On approval and implementation of medical and technological documents for the standardization of medical care for inflammatory bowel disease." Unified clinical protocol of primary, secondary (specialized), tertiary (highly specialized) medical care "Inflammatory bowel disease (Crohn's disease, ulcerative colitis)".
18. Order of the Ministry of Health of Ukraine dated 12.05.2016 № 439 "On approval and implementation of medical and technological documents for the standardization of medical care for chronic lymphoid leukemia". Unified clinical protocol of primary, secondary (specialized), tertiary (highly specialized) medical care "Chronic lymphoid leukemia".
19. Order of the Ministry of Health of Ukraine dated 21.06.2016 №613 "On approval and implementation of medical and technological documents for the standardization of medical care for viral hepatitis B". Unified clinical protocol of primary, secondary (specialized) medical, tertiary (highly specialized) care "Viral hepatitis B in adults".
20. Order of the Ministry of Health of Ukraine dated 18.07.2016 №729 "On approval and implementation of medical and technological documents for standardization of medical care for viral hepatitis C". Unified clinical protocol of primary, secondary (specialized) medical, tertiary (highly specialized) care "Viral hepatitis C in adults".
21. Unified protocol for providing medical care to adult patients with community-acquired pneumonia. Nosocomial pneumonia in adults: etiology, pathogenesis, classification, diagnosis, antibacterial therapy and prevention - Kyiv, National Academy of Medical Sciences of Ukraine - 2016.
22. Endocrinology: a textbook (PN Bodnar, GP Mikhalchishin, YI Komissarenko, etc.), ed. Professor P.N. Bodnara, - Ed. 2, reworked. and add. - Vinnytsia: Nova Kniga, 2016. - 488 p.
23. Davidson's Principles and Practice of Medicine 23rd Edition. Editors: Stuart Ralston, Ian Penman, Mark Strachan Richard Hobson. Elsevier. - 2018. - 1440p.
24. Endocrinology: textbook / Ed. by prof. Petro M. Bodnar.- 4th ed. updated - Vinnitsa: Nova Knyha, 2017. - 328 p.

25. Principles and Practice of Infectious Diseases. 2-Volume set / J.E. Bennett, R. Dolin, M.J. Blaser - 8th edition: Saunders Publisher, 2014.
26. USMLE Step 2 CK Lecture Notes 2017: Internal Medicine (Kaplan Test Prep). - 2016. - Published by Kaplan Medical. - 474 pages.

27.

## 7.2.Auxiliary

1. Adapted evidence-based clinical guideline "Viral hepatitis C in adults", Kyiv - 2016.
2. Adapted evidence-based clinical guideline "Viral hepatitis B (chronic)", Kyiv - 2016.
3. Adapted evidence-based clinical guideline "Viral hepatitis B. WHO position", Kyiv - 2016.
4. Algorithms in the practice of gastroenterologist // Edited by O. Babak. - Kyiv: LLC "Library of Health of Ukraine", 2015. - 162 p.
5. Internal Medicine. In 3 vols. Vol. 1 / Ed. prof. K.M. Amosova. - К.: Медицина, 2008. - 1056 с.
6. Internal Medicine. In 3 vols. Vol. 2 / AS Svintsytsky, LF Konoplyova, YI Feshchenko, etc.; For order. prof. K.M. Amosova. - К.: Медицина, 2009. - 1088 с.
7. WHO. Newsletter No. 387 February 2016  
<http://www.who.int/mediacentre/factsheets/fs387/>
8. Diagnosis and treatment of diseases of the blood system: Manual [for students. and interns]: to the 170th anniversary of the Nat. honey. Bogomolets University / AS Svintsytsky, SA Guseva, SV Skrypnychenko, IO Rodionova. - К.: Медкнига, 2011. - 335 с.
9. Zak KP, Tronko MD, Popova VV, Butenko AK Diabetes, immunity and cytokines. Kyiv: Book-plus, 2014. - 500 p.
10. Classifications of diseases of the digestive system: a handbook / edited by NV Харченко / О.Я. Babak, О.А. Голубовська, Н.Б. Hubergritz, А.Е. Dorofeev, TD Zvyagintseva, IM Skripnik, S.M. Weaver, G.D. Fadeenko, NV Харченко, М.Б. Shcherbinina - Kirovograd: PE "Polyum", 2015. - 54 p.
11. Clinical and radiological atlas for the diagnosis of lung diseases: a textbook / L.D. Todoriko, IO Semyaniv, A.V. Boyko, VP Шаповалов. - Chernivtsi: Medical University, 2014. - 342 p.
12. Order of the Ministry of Health of Ukraine dated 03.08.2012 № 600 "On approval and implementation of medical and technological documents for standardization of medical care for dyspepsia." Unified clinical protocol of primary care "Dyspepsia".
13. Order of the Ministry of Health of Ukraine №1118 dated 21.12.2012 "Unified clinical protocol of primary and secondary (specialized) medical care" Type 2 diabetes mellitus".
14. Fundamentals of nephrology / ed. М.О.Колесника. - Kyiv: Health of Ukraine Library, 2013. - 340 p.

15. Workshop on internal medicine: textbook. pos. / К.М. Amosova, Л.Ф. Konoplyova, Л.Л. Sidorova, Г.В. Mostbauer et al. - Kyiv: Ukrainian Medical Bulletin, 2012. - 416 p.
16. Standards for providing medical care to patients with pathological conditions of the thyroid and parathyroid glands under the influence of negative environmental factors (third edition, extended) / Ed. O.B. Kaminsky. - Kharkiv: Uright, 2017. - 312p.
17. Todoriko LD Basic syndromes and methods of examination in pulmonology and tuberculosis: a textbook / L.D. Todoriko, A.V. Voyko. - Київ: Медкнига, 2013. - 432 с.
18. Tronko ND, Sokolova LK, Kovzun EI, Pasteur IP Insulin therapy: yesterday, today, tomorrow. - К.: Медкнига, 2014. - 192с.
19. 100 selected lectures on endocrinology. / Ed. Yu.I. Karachenцева, A.B. Казакова, H.A. Kravchun, IM Ilyina. - X: 2014. - 948 с.
20. International Textbook of Diabetes Mellitus, 2 Volume Set. Ed. by R.A. Defronzo, E. Ferrannini, P. Zimmet, G. Alberti. 4th Edition, 2015. - 1228p.
21. Harrison's Endocrinology. Ed. by J. Larry Jameson, Mc Graw - Hill., New York, Chicago, Toronto. e.a. 4rd edition, 2016. - 608 p.
22. Williams Textbook of Endocrinology. Ed. by Henry M. Kronenberg, Shlomo Melmed, Kenneth S. Polonsky, P. Reed Larsen. Saunders. 13 edition, 2015. - 1936p.

### 7.3. Information resources

1. <https://www.aasld.org/>
2. <http://www.acc.org/guidelines#sort=%40foriginalz32xpostedz32xdate86069%20descending>
3. <https://www.asn-online.org/education/training/fellows/educational-resources.aspx#Guidelines>
4. [www.brit-thoracic.org.uk/standards-of-care/guidelines](http://www.brit-thoracic.org.uk/standards-of-care/guidelines)
5. <https://cprguidelines.eu/>
6. <https://www.diabetes.org>
7. <https://www.escardio.org/Guidelines/Clinical-Practice-Guidelines>
8. <http://www.eagen.org/>
9. <http://www.ers-education.org/guidelines.aspx>
10. <http://www.enp-era-edta.org/#/44/page/home>
11. [https://www.eular.org/recommendations\\_management.cfm](https://www.eular.org/recommendations_management.cfm)
12. <http://www.european-renal-best-practice.org>
13. <http://www.esmo.org/Guidelines/Haematological-Malignancies>
14. <https://ehaweb.org/organization/committees/swg-unit/scientific-working-groups/structure-and-guidelines/>
15. <http://www.gastro.org/guidelines>
16. [www.ginasthma.org](http://www.ginasthma.org)
17. <http://goldcopd.org>

18. <http://inephrology.kiev.ua/>
19. [http://www.ifp.kiev.ua/index\\_ukr.htm](http://www.ifp.kiev.ua/index_ukr.htm)
20. <http://kdigo.org/home/guidelines/>
21. <http://mtd.dec.gov.ua/index.php/uk/>
22. <https://www.nice.org.uk>
23. <http://www.oxfordmedicaleducation.com/>
24. [http://professional.heart.org/professional/GuidelinesStatements/UCM\\_316885\\_Guidelines-Statements.jsp](http://professional.heart.org/professional/GuidelinesStatements/UCM_316885_Guidelines-Statements.jsp)
25. <https://www.rheumatology.org/Practice-Quality/Clinical-Support/Clinical-Practice-Guidelines><https://www.thoracic.org/statements/>
26. <http://www.strazhesko.org.ua/advice>
27. <https://www.thyroid.org>
28. <https://www.ueg.eu/guidelines/>
29. <http://ukrgastro.com.ua/>
30. Вебсайт Центру громадського здоров'я МОЗ України: <http://phc.org.ua/>
31. [Електронний ресурс]. – режим доступу <https://www.cdc.gov/>
32. Global AIDS Update [Electronic resource] / UNAIDS, 2016. – Access mode: [http://www.unaids.org/sites/default/files/media\\_asset/global-AIDS-update2016\\_en.pdf](http://www.unaids.org/sites/default/files/media_asset/global-AIDS-update2016_en.pdf)