

**MINISTRY OF HEALTHCARE OF THE REPUBLIC OF BELARUS**  
Educational Institution  
**BELARUSIAN STATE MEDICAL UNIVERSITY**

**APPROVED**

by Vice Rector for Academic Affairs  
of the Educational Institution  
«Belarusian State Medical University»

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04.05.2026



**STATE EXAMINATION PROGRAM**

**«INTERNAL DISEASES»**

in the specialty 1-79 01 01 «General Medicine»

for sub-residency «General Clinical Practice»

The program of the state examination is developed on the basis of:

- the higher education standard in the specialty 1-79 01 01 «General Medicine», approved and put into effect by the Resolution of the Ministry of Education of the Republic of Belarus, dated 30.08.2013 № 88;
- curriculum in the academic discipline «Internal Diseases» in the specialty 1-79 01 01 «General Medicine», approved 26.06.2024, registration # UD-0911-01-20/2425/edu;
- curriculum in the educational discipline «Internal Diseases for the specialty 1-79 01 01 «General Medicine» Sub-Residency «General Clinical Practice», approved 12.08.2023, registration # L.01/2324/edu.sub;
- curriculum in the educational discipline «Infectious Diseases» in the specialty 1-79 01 01 «General Medicine», approved 12.08.2023, registration # UD-L.05/2324/edu;
- curriculum in the educational discipline «Clinical Immunology, Allergology» in the specialty 1-79 01 01 «General Medicine», approved 09.07.2018, registration # UD-L.617/1819/edu;
- curriculum in the educational discipline «Clinical Pharmacology» in the specialty 1-79 01 01 «General Medicine», approved 08.10.2018, registration # UD-L.642/1819/edu;
- curriculum in the educational discipline «Outpatient Therapy» in the specialty 1-79 01 01 «General Medicine», approved on 12.08.2023, registration # UD-L.09/2324/edu;
- curriculum in the educational discipline «Occupational Diseases» in the specialty 1-79 01 01 «General Medicine», approved 10.08.2017, registration # UD-L.607/1718/edu;
- curriculum in the educational discipline «Phthisiopulmonology» in the specialty 1-79 01 01 «General Medicine», approved 24.06.2024, registration # UD-0911-01-17/2425/edu;
- curriculum in the educational discipline «Endocrinology» in the specialty 1-79 01 01 «General Medicine», approved 12.08.2023, registration # L.16/2324/edu;
- curriculum in the educational discipline «Emergency cardiology and other emergency conditions» in the specialty 1-79 01 01 «General Medicine» Sub-Residency «General Clinical Practice», approved 12.08.2023, registration # L.15/2324/edu.sub.

**COMPILERS:**

A.M.Prystrom, Head of the Department of Internal Diseases, Cardiology and Rheumatology with a course of advanced training and retraining of the Educational institution «Belarusian State Medical University», D.Sc., Professor;

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**RECOMMENDED FOR APPROVAL:**

by the Department of Internal Diseases, Cardiology and Rheumatology with a course of advanced training and retraining of the Educational institution «Belarusian State Medical University»  
(protocol #9 of 19.03.2026);

by the Council of the Medical Faculty for International Students of the Educational institution «Belarusian State Medical University»  
(protocol #8 of 28.04.2026)

## STATE EXAMINATION PROCEDURE

### List of academic disciplines included in the state examination:

1. «Internal Diseases»;
2. «Infectious Diseases»;
3. «Clinical Immunology, Allergology»;
4. «Clinical Pharmacology»;
5. «Acute Cardiac Care and Other Emergency Conditions»;
6. «Phthisiopulmonology»;
7. «Endocrinology»;
8. «Outpatient Therapy»;
9. «Occupational Diseases».

### State examination form and procedure

The state examination is conducted orally using examination cards at an open meeting of the state examination commission (hereinafter referred to as the SEC).

The student is given at least 30 minutes to prepare for the answer to the state examination. In order to clarify the examination mark, the SEC members may ask the student additional questions in accordance with the state examination program. The number of additional questions asked by one of the SEC member should not exceed three.

## STRUCTURE OF THE EXAMINATION CARD

The examination card for the state exam «Internal Diseases» includes 4 questions. The first question is formulated in order to test knowledge in the academic disciplines «Internal Diseases», «Outpatient Therapy», «Clinical Pharmacology» and covers the issues of etiology, pathogenesis, classification, clinical manifestations, diagnosis, principles of treatment and prevention of the main nosological forms of internal diseases. The second question evaluates knowledge in one of the following academic disciplines: «Endocrinology», «Clinical Immunology, Allergology», «Occupational Diseases», «Phthisiopulmonology». The third question evaluates proficiency in acute care for urgent conditions. The fourth question evaluates the knowledge of the academic discipline «Infectious Diseases».

The examination card is supplemented with a task to evaluate practical skills in interpreting the results of laboratory and instrumental tests.

## **CONTENT OF THE STATE EXAMINATION PROGRAM**

### **MAIN NOSOLOGICAL FORMS IN INTERNAL DISEASES**

#### **1. CURRENT ISSUES OF THERAPY**

##### **1.1. Differential diagnosis of fever of unknown origin**

The mechanism of fever. The main causes of fever. The types of fevers. The algorithm of differential diagnosis in febrile syndrome. Fever of unknown origin, the search for the causes of febrile syndrome. Medical tactics.

##### **1.2. Differential diagnosis of the syndrome of elevated ESR**

Possible causes of increase in ESR in humans. Laboratory and instrumental tests in the diagnostic search. The algorithm of differential diagnosis.

#### **2. RESPIRATORY DISEASES**

##### **2.1. Differential diagnosis of the syndrome of bronchial obstruction and treatment guidelines**

Differential diagnosis of diseases with different types of bronchial obstruction syndrome: asthmatic, allergic, autoimmune, infectious and inflammatory, obstructive, dyskinetic, emphysematous, hemodynamic, endocrine and humoral, neurogenic and others, spirometry.

The gas composition of the blood and exhaled air, bronchoscopy. Principles of treatment of asthma and chronic obstructive pulmonary disease.

##### **2.2. Differential diagnosis of the syndrome of pulmonary infiltration**

The concept of pulmonary infiltration syndrome. Causes of lung infiltration. Inflammatory and non-inflammatory infiltrates. Clinical diagnostic criteria for pneumonia caused by various pathogens. The tumor infiltrates. Pulmonary tuberculosis in the practice of general practitioner. Differential diagnosis of specific allergic infiltration, infiltration in venous thromboembolism, stagnant-hypostatic disturbances in the lungs, pneumonitis in case of systemic connective tissue diseases. Fungal lung injury. The concept of pulmonary eosinophilia. Differential diagnosis with lung atelectasis. Medical tactics of inspection and treatment of patients.

##### **2.3. Diseases of the pleura. Differential diagnosis with the presence of fluid in the pleural cavity**

Clinical and radiological picture with pleural effusion. Additional research methods: ultrasound, computed tomography. Differential diagnosis with pleural effusion. Medical tactics. Encysted pleurisy. Empyema. Spontaneous pneumothorax: diagnosis, medical emergency. Clinical management of patients. Treatment of pleural diseases.

##### **2.4. Interstitial and suppurative lung disease**

Classification of interstitial lung diseases. Features of clinical, instrumental and laboratory changes in interstitial lung disease. Differential diagnosis with interstitial and disseminated processes in the lungs. Idiopathic pulmonary fibrosis, exogenous (toxic), alveolitis, disseminated miliary pulmonary tuberculosis, pneumoconiosis, sarcoidosis, lung lesions by vasculitis and diffuse connective tissue diseases, tumor dissemination in the lungs. Principles of treatment of idiopathic pulmonary fibrosis, lung sarcoidosis. Acute and chronic destruction of the lung, lung abscess, gangrene of the lungs, risk factors and causes of development, clinical manifestations, course,

outcomes. Diagnostic investigations. Selection of patients, therapy.

### 2.5. Differentiated antibacterial therapy for lung diseases

Main groups of antibiotics. The choice of an antibiotic, routes of administration and doses of the drug for the treatment of community-acquired pneumonia caused by various microorganisms, depending on the severity of the course. Antibacterial treatment of chronic bronchitis, infectious exacerbation of chronic obstructive pulmonary disease. Antifungal antibiotics. Rational use of combinations of antibiotics for the treatment of lung diseases. Side effects of antibacterial drugs.

## 3. DISEASES OF THE CIRCULATORY SYSTEM

3.1. Chronic forms of coronary heart disease: differential diagnosis, medical tactic.

Prevalence and classification of coronary heart disease (CHD). The term «ischemic cascade.» Silent myocardial ischemia. Anginal attack characteristics. Atypical angina pectoris. Relief of pain attack. Classification, diagnosis and treatment of stable angina. Stratification of risk of cardiovascular complications. Electrocardiography and Holter monitoring in the diagnosis of chronic coronary insufficiency. Exercise testing with physical and drug load. Non-invasive methods of diagnosis of CHD. Indications for routine and diagnostic coronary angiography.

3.2. Acute coronary syndrome with elevation and without ST segment elevation. Atypical forms of myocardial infarction

Definition, diagnosis of acute coronary syndrome, organizational tactics of pre-hospital and in hospital. Risk stratification for GRACE scale. Emergency medical assistance, a differentiated approach to the treatment. Methods of reperfusion therapy. Atypical clinical forms of myocardial infarction. Classes of severity. ECG and laboratory diagnosis of myocardial infarction. Markers of myocardial necrosis. The value of echocardiography. Drug therapy depending on the method of reperfusion of the infarct-related artery. Thrombolytic and anticoagulant therapy. Indications for percutaneous coronary intervention, cardiac surgical treatment and auxiliary blood circulation.

3.3. Differential diagnosis and current principles of treatment of hypertension

Prevalence, current classification, risk stratification, variants of the course and complications of hypertension. Classification of secondary hypertension. Features of clinical manifestations of renal, endocrine and hemodynamic hypertension. ECG in myocardial hypertrophy. Plan and algorithm of examination of patients with high blood pressure. Differential diagnosis of primary and secondary hypertension. The objectives of the treatment of hypertension. Differentiated approach to treatment. The concept of the target blood pressure values for different diseases of internal organs. Current antihypertensive drugs. Prevention of sudden death, heart attack and stroke in people with hypertension.

3.4. Differential diagnosis and differentiated treatment of cardiac arrhythmias and conduction

Tachyarrhythmia. Extrasystole. Paroxysmal arrhythmias. Ventricular tachycardia. Ventricular fibrillation. Wolff-Parkinson-White syndrome. Differential diagnosis. Treatment of cardiac arrhythmias: emergency assistance, planned treatment, medical and surgical treatment. Risk stratification of thromboembolic

events in atrial fibrillation. Classification and pharmacokinetics of antiarrhythmic drugs, side effects, interactions with other drugs and with each other. General principles for selection of anti-arrhythmic drugs. Prevention of cardiac arrhythmias. Bradyarrhythmia. Indications for pacemaker.

### 3.5. Differential diagnosis of pain in the chest

Possible causes of chest pain. Diseases of the myocardium and pericardium which is manifested by pain in the heart. Chest pain associated with the diseases of the pleura, lung and spine. Differential diagnosis of pain in the chest.

### 3.6. Differential diagnosis and treatment of the endocardial and myocardial diseases

Laboratory and instrumental methods of diagnosis of myocardial inflammatory diseases. Diagnosis of myocarditis .Indications for endomyocardial biopsy. Differential diagnosis. ECG hormonal and metabolic disorders, myocarditis. Risk factors, etiological factors, clinical picture, classification, diagnostic methods. Diagnostic criteria and principles of differential diagnosis of infective endocarditis. «Masks» of infective endocarditis. Methods of verification of the diagnosis. Indications for cardiac surgery and medical treatment. Basic principles of antibiotic therapy. Prevention of infective endocarditis.

### 3.7. A differentiated approach to the treatment of chronic heart failure

Definition and classification of heart failure. Advantages and disadvantages of the classifications used in chronic heart failure. The concept of the «hidden» heart failure. Basic principles of diagnosis and differential diagnosis. Current approaches to therapy. Algorithms of treatment. Chronic pulmonary heart. Heart transplantation. Cardiac resynchronization therapy.

## 4. DISEASES OF THE DIGESTIVE TRACT

### 4.1. Differential diagnosis of esophageal diseases

Gastroesophageal reflux disease (GERD), achalasia, Barrett's esophagus, esophagitis, esophageal cancer. Esophageal dysphagia, causes of appearance. Symptoms of diseases of the esophagus. Differential diagnosis of problems in swallowing. The main methods of diagnosis and differential diagnosis.

### 4.2. Differential Diagnosis and differential treatment of gastroduodenal lesions

Functional dyspepsia, chronic gastritis, gastroduodenal ulcers, tumors. Diagnosis of complications of gastroduodenal ulcers. Principles of drug therapy of gastroduodenal lesions (eradication of *Helicobacter pylori*, suppression of acid-peptic aggression, correction of motor-evacuation disorders). Place of physiotherapy in the treatment of ulcers. Prevention of recurrence of ulcers.

### 4.3. Differential Diagnosis and differential treatment of chronic hepatitis and non-alcoholic steatohepatitis

The etiological classification of chronic hepatitis. Determination of clinical entities: autoimmune hepatitis, chronic hepatitis B, chronic hepatitis C, drug-induced hepatitis, Wilson's disease, liver disease caused by deficiency of alpha.1-antitrypsin. Clinical symptoms. Laboratory symptoms. Medicines for the causal treatment. Medications causing toxic liver disease. Alcoholic hepatitis. The doses of alcohol that increase the risk of liver damage. Signs of an alcoholic lesion of other organs (chronic pancreatitis, Dupuytren's contracture, myocardial dystrophy,

encephalopathy, polyneuropathy). Associated symptoms (deficit diet, vitamin deficiency), liver biopsy. The clinical picture. Features of laboratory diagnosis. Treatment of nonalcoholic and alcoholic steatohepatitis.

#### 4.4. Differential diagnosis and treatment of liver cirrhosis.

Biliary, viral, alcoholic cirrhosis, cirrhosis with hereditary diseases. Basic clinical syndromes and symptoms. Complications. Differential diagnosis. Treatment of certain forms of liver cirrhosis. Indications for liver transplantation.

#### 4.5. Differential diagnosis of jaundice and hepatosplenomegaly

Classification of jaundice: suparenal (hemolytic), parenchymal, subhepatic (obstructive). Laboratory diagnosis of hepatocyte damage syndrome. Diagnosis of jaundice and hepatosplenomegaly. The tactics of a general practitioner in identifying hemolytic, hepatocellular and obstructive jaundice. Differential diagnosis of hepatosplenomegaly. Tactics of general practitioner in identifying the disease. Indications for consultation of surgeon and hematologist.

#### 4.6. Differential diagnosis and treatment of diseases of the pancreas

Diagnosis and differential diagnosis of chronic pancreatitis. Patient survey program. The main directions of conservative treatment: pain relief, compensation of exocrine insufficiency, correction of nutritional status.

#### 4.7. Diagnosis and differential diagnosis of inflammatory bowel disease

Inflammatory bowel disease: ulcerative colitis, Crohn's disease. Diagnostic criteria: clinical, endoscopic, histological, cytological, radiological, laboratory.

Extraintestinal manifestations. Complications. Differential diagnosis. Principles of drug therapy. Indications for surgical treatment.

### 5. DISEASES OF JOINTS AND CONNECTIVE TISSUE

5.1. Current treatment options for rheumatic diseases: non-steroidal anti-inflammatory drugs, corticosteroids, cytotoxic drugs, genetically engineered biological agents

Properties and mechanism of action of non-steroidal anti-inflammatory drugs (NSAIDs). The classification of NSAIDs. NSAID interaction with other drugs. Side effects of NSAID: gastropathy, the risk of cardiovascular complications. The mechanism of action of glucocorticoid hormones, indications and contraindications for using these drugs. Pulse (stress) therapy: indications, contraindications, side effects. Cytotoxic agents used in the treatment of rheumatic diseases. Genetically engineered biological agents, indications for use. Extracorporeal therapies in rheumatology: indications, contraindications, side effects.

#### 5.2. Rheumatoid arthritis. Osteoarthritis. Differential diagnosis and treatment

Etiology, pathogenesis, pathomorphological features, extraarticular manifestations of rheumatoid arthritis. Criteria for laboratory and instrumental diagnosis. Differential diagnosis. Treatment. Osteoarthritis: etiology, pathogenesis. Clinical variants. Diagnostic criteria and methods. Drug and non-drug therapy.

5.3 Differential diagnosis and treatment of spondyloarthritis. Arthritis associated with infection: diagnosis, differential treatment. Erythema nodosum

Clinical variants of spondyloarthritis. Characteristics of joint syndrome, differential diagnosis. Pathogenetic therapy. Diagnostic algorithm and therapy for psoriatic arthritis. Main forms of reactive arthritis, principles of diagnosis.

Etiopathogenetic, symptomatic therapy of reactive arthritis. Principles of diagnosis and pathogenetic therapy in enteropathic arthropathies. Infectious arthritis (tuberculosis, viral, Lyme disease), diagnosis and principles of treatment. Erythema nodosum. Algorithm of differential diagnosis. Principles of treatment.

5.4. Differential diagnosis of microcrystalline arthritis, principles of treatment. Criteria for diagnosis, treatment and prevention of osteoporosis

Gout, calcium pyrophosphate deposition disease, hydroxyapatite arthropathy. Pathogenesis. Clinical manifestations. Diagnosis. Differential diagnosis. Principles of treatment.

Clinical picture, diagnosis, differential diagnosis of osteoporosis (osteopenia, osteomalacia). Classification and risk factors for osteoporosis. The goals of osteoporosis therapy. Pathogenetic therapy, groups of drugs. Prevention of osteoporosis, primary and secondary. Rehabilitation of patients with osteoporosis.

5.5. Differential diagnosis of systemic connective tissue diseases and systemic vasculitis

Diagnostic algorithm in systemic connective tissue diseases. Features of the joint-affected syndrome, the clinical picture of systemic connective tissue diseases. Differential diagnosis. Characteristics of immunologic diagnosis. The outcome and prognosis in systemic lupus erythematosus, systemic sclerosis, and dermato- and polymyositis. Antiphospholipid syndrome, diagnosis and treatment algorithm. Primary and secondary forms of vasculitis. Diagnostic algorithm in systemic vasculitis. Differential diagnosis. Immunological diagnosis. Prognosis.

5.6. Principles of treatment of systemic connective tissue diseases and systemic vasculitis

The aim of treatment of systemic connective tissue diseases. A differentiated approach depending on disease activity, organ damage. The goal of therapy stages of systemic vasculitis. The main groups of drugs used for the treatment of systemic connective tissue diseases, vasculitis: indications, contraindications, side effects, interactions with other drugs, the duration of therapy. Plasmapheresis. The concept of simultaneous intensive care. Symptomatic treatment of systemic connective tissue diseases and vasculitis.

## 6. KIDNEY DISEASE AND URINARY TRACT

6.1. The diagnostic capabilities of laboratory and instrumental diagnostic methods in nephrology

Disorders of filtration, reabsorption, and secretion. Major renal function (urine formation and urination; regulation of homeostasis parameters, synthesis and incretion of biologically active substances, regulation of hematopoiesis). Laboratory methods of examination of patients with kidney disease (urinary syndrome). Instrumental methods of diagnosis of kidney disease. Methods of evaluation of renal function. Kidney biopsy (indications and contraindications).

6.2. Differential diagnosis of chronic kidney disease

Main causes and classification of chronic kidney disease (CKD). Features of bladder syndrome in glomerulonephritis. Differential diagnosis. Interstitial nephritis. Etiology. The clinical picture. Features of medicinal interstitial nephritis. Treatment. Forecast. Pyelonephritis. Risk factors for pyelonephritis. Current methods of

diagnosis of pyelonephritis. Antibiotic therapy for pyelonephritis. Criteria for selection of antibacterial drugs.

6.3. Differential diagnosis of glomerular and tubular renal lesions, treatment guidelines

Diseases, the pathogenesis of which is loss of glomerular nephrons and diseases with a primary lesion of renal tubular system. Clinical manifestations, diagnosis, differential diagnosis. Treatment principles of the glomerular lesions and tubular lesions of the kidneys.

6.4. Differential diagnosis of nephrotic syndrome

Determination of nephrotic syndrome. The main symptoms. Diseases that contribute to the development of the syndrome. Clinical manifestations. The diagnostic capabilities. Differential diagnosis. Medical tactic.

6.5. Kidney damage from diabetes mellitus, systemic connective tissue diseases, systemic vasculitis, gout, multiple myeloma. Current treatment options

The mechanisms of kidney damage in diabetes mellitus, systemic connective tissue diseases, systemic vasculitis, gout, multiple myeloma. Clinical and laboratory manifestations. The diagnostic capabilities. The principles of treatment.

7. DISEASES OF BLOOD

7.1 Differential diagnosis of anemia syndrome, anemia treatment guidelines

Classification of anemia. Differential diagnosis. Diagnostic algorithm in anemic syndrome. Iron deficiency, vitamin B12 deficiency and folic acid deficiency, Hemolytic and aplastic anemia, anemia of chronic disease, anemia in patients with chronic kidney disease. The principles of treatment. The criteria for the effectiveness of treatment.

7.2 Differential diagnosis of leukemoid reactions and hematological malignancies, treatment guidelines. Causes of leukemoid reactions. Blood picture. Diagnosis and differential diagnosis of leukemoid reactions and hematological malignancies. Principles of treatment of hematological malignancies.

Differential diagnosis of thrombophilia, treatment guidelines

Thrombophilia due to changes of the cell composition, blood rheology. The primary hemostatic disorders. Clinical manifestations and diagnosis of thrombophilia. The principles of treatment.

7.3 Differential diagnosis of hemorrhagic diathesis. Transfusion of blood products in therapeutic practice

The main types of hemorrhagic diathesis. Causes of thrombocytopenia. Diagnosis and differential diagnosis. Components of blood: red cells, white blood cells concentrate, platelet concentrates, plasma. Blood products: Preparations of complex action (albumin protein); correctors of the hemostatic system (cryoprecipitate, prothrombin complex, fibrinogen, thrombin, fibrinolizin, hemostatic sponge for local application); means of immunological actions ( $\gamma$ -globulins, immunoglobulins - tetanus, influenza, Rh, antistaphylococcal et al.). Blood-substituting solutions. Terms of storage of blood products and components. Transfusion of blood components. Criteria for assessing the condition of the patient during and after the blood transfusion. Transfusion reactions and complications. Prevention of complications.

## **ENDOCRINOLOGY**

### **1. DIABETES MELLITUS**

1.1. Definition, epidemiology, classification, etiology, pathogenesis, clinical manifestations of the main types of diabetes, diagnosis of the disease manifestations of the main types of diabetes, diagnosis of the disease

Definition of diabetes mellitus (DM). Social significance, epidemiology, etiologic classification of diabetes. The etiology and pathogenesis of diabetes 1 and 2 types, specific and gestational. The concept of Metabolic Syndrome. Insulin resistance. The main clinical manifestations of diabetes and their differences depending on the type of DM.

1.2. Diabetes Mellitus type 1 and type 2: the modern principles of treatment

The goal of diabetes mellitus treatment. A balanced diet and physical exercise of patients depending on the type of DM. Pathogenetic therapy of type 1 diabetes – methods insulin therapy. The concept of insulin analogues. Modern possibilities of antihyperglycemic therapy in type 2 diabetes. Criteria of treatment effectiveness (compensation, subcompensation and decompensation).

New remedies and methods for the treatment of diabetes and obesity: insulin pump, daily monitoring of blood glucose, a transplant, bariatric surgery.

1.3. Diabetes Mellitus: late complications of diabetes

Diabetic microangiopathy: common mechanisms of development. Diabetic Retinopathy: stages of development, diagnosis, prevention and treatment. Diabetic Nephropathy: stages of development, clinical manifestations, diagnosis and clinical management of patients. Diabetic Neuropathy: classification, diagnosis, treatment. Diabetic Foot Syndrome. Features of examination for the feet. Prevention of lower limb amputations in diabetes.

### **2. THYROID GLAND PATHOLOGY**

2.1. Classification of Thyroid Gland Pathology. Principles of diagnosis of Goiter Syndrome. Thyroid disease associated with iodine deficiency. Nodular Goiter. Thyroiditis

Classification of Thyroid Gland Pathology. Principles of diagnosis of Goiter Syndrome. Thyroid Gland Pathology associated with iodine deficiency: definition, epidemiology, etiology, classification, pathogenesis, clinical manifestations, diagnosis, principles of treatment and prevention. Nodular Goiter. Algorithm of examination of patients with Nodular Goiter. The principles of monitoring and treatment of Nodular Goiter depending on its shape. Acute Thyroiditis: definition, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, principles of treatment. Subacute Thyroiditis: definition, etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis, principles of treatment. Hashimoto's Thyroiditis (Autoimmune Thyroiditis): etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis, principles of treatment.

2.2. Thyroid Gland Pathology: Hypothyroidism. Thyrotoxicosis Syndrome

Hypothyroidism: classification, epidemiology, definition, etiology pathogenesis, clinical manifestations, diagnosis and treatment policy. Clinical management of patients in a Hypothyroid (myxedema) coma. Thyrotoxicosis

Syndrome: epidemiology, definition, etiology pathogenesis, classification, clinical manifestations. Algorithm examination of the patient with suspected Syndrome of Hyperthyroidism. Thyrotoxic Myocardiodystrophy. Autoimmune (Endocrine Ophthalmopathy). Principles of treatment Syndrome of Hyperthyroidism. Thyrotoxic crisis.

### 3. DISEASE OF THE ADRENAL GLANDS

Hypocortical Syndrome definition, classification, epidemiology, etiology, pathogenesis, clinical manifestations (clinical differences between primary and secondary Hypocortical Syndrome), differential diagnosis, therapeutic principles of therapy. Hypercortical Syndrome: definition, classification, epidemiology, etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis and treatment policy. Hyperaldosteronal Syndrome: determination, classification, etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnostics of primary and secondary Hyperaldosteronal Syndrome and treatment policy. Pheochromocytoma and Paraganglioma: etiology, pathogenesis, clinical manifestations, diagnosis, treatment policy, prognosis. The concept of Incidental Adrenal Glands, diagnostic.

### 4. DISEASE OF THE HYPOTHALAMIC-PITUITARY SYSTEM

Hypersomatotropism: definition, epidemiology, etiology, pathogenesis, clinical manifestations (especially depending on the age of onset of the disease), diagnostic and treatment policy. Hyperprolactinemia (Hiperprolaktinemia Hypogonadism): definition, epidemiology, etiology, pathogenesis, a clinical manifestations in men and women, diagnostic and treatment policy. Diabetes Insipidus: definition, epidemiology, etiology, pathogenesis, clinical manifestations, diagnostics, treatment policy.

## **CLINICAL IMMUNOLOGY, ALLERGOLOGY**

The human leukocyte antigen system (HLA-system). Antigens of the HLA system, which are important in the diagnosis of internal diseases.

Clinical and laboratory diagnosis of immunodeficiency: plan of investigations, interpretation of the results of laboratory and instrumental tests.

Types of allergic reactions. Pseudoallergy. Diagnosis of allergy. Allergic anamnesis. Clinical and laboratory signs of allergy. Principles of treatment and emergency care for allergic diseases. Nonspecific and allergen-specific immunotherapy.

Causes and pathogenetic mechanisms of autoimmune diseases. Cross-immune reactions, the role of infections. Connection with the HLA phenotype. Types of autoantibodies. Clinical manifestations of autoimmune diseases. Mixed forms of pathology and cross-syndromes. Immunodiagnostics of rheumatic diseases. Pathogenetic (basic) therapy of autoimmune diseases.

## **OCCUPATIONAL DISEASES**

Vibration disease: definition, characteristics of etiological factors, industries, professions. The scheme of the pathogenesis of vibration disease. Classification of vibration disease. Clinical characteristics of the main syndromes of vibration disease,

their differential diagnosis. Diagnostic criteria, standards of vibration disease treatment, prevention.

Classification of pneumoconioses and their characteristics. Characteristics of etiological factors, pathogenesis scheme, features of clinical manifestations and course of various types of pneumoconiosis. Clinical and radiological features of silicosis, course, complications, diagnostic criteria.

Definition of chronic lead intoxication. Characteristics of industries and professions in occupational lead poisoning. Pathogenesis of lead intoxication. Characteristics of specific and non-specific lead intoxication syndromes, clinical and laboratory diagnostic criteria, assessment of a provocative test, etiotropic antidote therapy. Pathogenetic treatment of lead intoxication. Prevention of occupational lead intoxication.

Definition of occupational intoxication with aromatic hydrocarbons. Chemical features of benzene and its homologues. The list of industries and professions at risk of aromatic hydrocarbon poisoning, the main mechanisms of development of acute and chronic poisoning. Clinical and laboratory manifestations of specific and nonspecific syndromes, long-term effects of intoxication, diagnostic criteria, treatment of acute and chronic poisoning. Prevention of intoxication by aromatic hydrocarbons.

## **ACUTE CARDIAC CARE AND OTHER EMERGENCY CONDITIONS**

1. Differentiated approach to risk stratification and prevention of sudden cardiac death. Cardio-pulmonary resuscitation. Preventive cardiology. Ways to reduce mortality from diseases of the circulatory system

Sudden coronary death, etiology, the basis of the pathogenesis of cardiac arrest, risk factors. Clinical, biological, «brain» death. Asystole. Ventricular tachycardia. Ventricular fibrillation. Emergency care. The sequence and methodology of the main resuscitation measures in cardiac arrest. Typical mistakes during resuscitation. Cardiovascular post-resuscitation complications. Implementation of the algorithm of cardiopulmonary resuscitation and various clinical scenarios for providing assistance in patients with life-threatening rhythm and conduction disorders on simulation equipment. Basic approaches to the stratification of cardiovascular risk. Principles of primary prevention of cardiovascular diseases. Non-drug methods of prevention. The value of reducing table salt in the diet. Combined change of the nutrition regime. Principles of physical training. Secondary prevention of cardiovascular disasters. Adherence to drug therapy. Groups of drugs that significantly reduce the mortality of people with post-infarction atherosclerosis. Ways to reduce mortality from diseases of the circulatory system, international experience, problems of the national health care system.

2. Differential diagnosis and emergency care for syncopal conditions, acute respiratory failure, acute ischemic encephalopathy, acute hepatic and renal failure in diseases of the circulatory system; prevention of the progression of chronic organ pathology. Complicated hypertensive crises, secondary prevention of adverse cardiovascular events

An algorithm for the diagnosis and treatment of syncopal conditions. Stratification of the risk of sudden death in syncope. The most common causes of short-term loss of consciousness. Pathogenesis and classification of syncopal conditions. Critical ischemia of brain structures. Neuroreflex causes of syncope syndrome. Syncope of cardiovascular origin. Special syncope. Examination program for differential diagnosis of syncope. Scheme of diagnostic search in a patient with prolonged loss of consciousness. Emergency care. Acute respiratory failure, acute ischemic encephalopathy, acute hepatic and renal failure in diseases of the circulatory system, characteristic features of diagnosis and treatment. Classification, mechanisms of formation, clinical and diagnostic criteria of hypertensive crises. Emergency care. Indications for hospitalization. Hypertensive crises complicated by acute coronary syndrome, acute left ventricular failure, dissecting heart aneurysm, subarachnoid, intracerebral hemorrhage. Etiology, pathogenesis, classification of acute cardiovascular insufficiency. Clinical picture and diagnosis of pulmonary edema. Emergency care. Cardiogenic shock. Classification, diagnostic criteria. Differential diagnosis of various variants of cardiogenic shock, Principles of treatment. Secondary prevention of complications. Indications for interventional and cardiac surgery.

3. Instrumental diagnostic technologies in cardiology: ultrasound examination of the heart and blood vessels, Holter monitoring, daily monitoring of blood pressure, radionuclide diagnostics, stress tests

Echocardiography, Holter monitoring, daily monitoring of blood pressure (BP), exercise tests. Ultrasound diagnostic systems: physical principles and methods. Ultrasound diagnostics of the pathology of the valvular apparatus of the heart, congenital heart defects. Echocardiography of prosthetic heart valves. Measurement of pressure in the pulmonary artery. Diagnosis of systolic and diastolic heart dysfunction. Stress echocardiography. Ultrasound diagnostics of the pathology of myocardium, pericardium, endocardium, heart tumors, aortic diseases. Transesophageal echocardiography. Holter monitoring in identifying coronary heart disease in the differential diagnosis of syncopal conditions. Assessment of heart rate variability. Indications for the daily monitoring of blood pressure. Tests with physical activity (bicycle ergometry, treadmill).

4. Differentiated approach to the use of interventional and cardiac surgery technologies in diseases of the circulatory system

Single-photon emission computed tomography and magnetic resonance imaging in the differential diagnosis of coronary heart disease. Indications, investigation methods, interpretation of the results. Non-invasive diagnosis of coronary artery calcification, criteria for selecting patients for coronary angiography. Coronary angiography, indications for interventional and cardiac surgery in patients with pathology of the cardiovascular system. Management of patients after interventional and cardiac surgery.

## **INFECTIOUS DISEASES**

### **1. Intestinal infections and invasions**

Pathogenetic types of infectious diarrhea: key pathogens, mechanisms of development, clinical manifestations. Principles of etiotropic therapy for intestinal

infections and invasions. Rehydration therapy: concept, types, principles. Pathogenetic therapy of intestinal infections. Emergency medical care for hypovolemic shock and intestinal bleeding in typhoid fever. Probiotics: definition, role in the prevention and treatment of intestinal infections and invasions. Bacterial intestinal infections. Salmonellosis of the typhoid and non-typhoid groups: epidemiology, etiology, pathogenesis, clinical picture, complications, diagnosis, differential diagnosis, treatment, prevention. Shigellosis: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Food poisoning: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Cholera: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Emergency medical care for hypovolemic shock. Escherichiosis: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Yersiniosis: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Clostridioides difficile (C.difficile)-associated infection: epidemiology, etiology, pathogenesis, clinical forms, complications, diagnosis, etiologic therapy, prevention. Viral intestinal infections. Rotavirus and norovirus infections: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Protozoal intestinal infections. Amebiasis: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Collection of epidemiological anamnesis in patients with acute intestinal infections (AII). Examination of patients with salmonellosis, rotavirus and norovirus infections, escherichiosis, yersiniosis, food poisoning, shigellosis: collection of complaints and medical history; objective examination; drawing up a survey plan; interpretation of the results of laboratory and instrumental examination methods; interpretation of coprogram in AII. Drawing up a treatment plan for patients with AII. Drawing up a plan of anti-epidemic measures in the focus of AII. Taking material for pathogenic intestinal flora. Registration of an inpatient (outpatient) training card.

## 2. Viral hepatitis

Enteral viral hepatitis. Acute viral hepatitis A, E: epidemiology, etiology, pathogenesis, current classification, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Parenteral viral hepatitis. Acute viral hepatitis B, B+D, C: epidemiology, etiology, pathogenesis, current classification, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Chronic viral hepatitis B, B+D, C: epidemiology, etiology, pathogenesis, current classification, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Complications and outcomes of viral hepatitis. Acute and chronic liver failure: concept, causes, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Emergency medical care for patients with hepatic encephalopathy and coma. Virus-associated cirrhosis of the liver: epidemiology, etiology, pathogenesis, current classification, clinical picture, diagnosis, differential diagnosis, complications, treatment, prevention. Hepatocellular carcinoma: clinical picture, diagnosis, differential diagnosis, principles of treatment. Examination of patients with viral hepatitis: objective examination; drawing up a survey plan; interpretation of the results of laboratory and instrumental examination

methods; assessment of serological markers of hepatitis, diagnosis. Treatment plan for patients with viral hepatitis. Drawing up a plan of anti-epidemic measures in the focus of enteral and parenteral hepatitis. Registration of an inpatient (outpatient) training card.

### 3. Helminthiases

Enterobiasis: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Ascariasis: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Echinococcosis and alveococcosis: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Trichinosis: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Cysticercosis: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Toxocariasis: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Plan of examination and treatment of patients with helminthiasis. Retrospective analysis of charts of inpatients (outpatients) with helminthiasis.

### 4. Infectious diseases with predominant damage to the central nervous system (CNS)

Viral neuroinfections. Rabies: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, prevention. Enterovirus infection: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Bacterial neuroinfections. Meningococcal infection: epidemiology, classification, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Emergency medical care for infectious and toxic shock and acute adrenal insufficiency. Differential diagnosis of diseases with damage to CNS. The main clinical syndromes of CNS damage are: meninges syndrome, brain substance damage syndrome, intracranial hypertension syndrome. The most common causes of CNS lesions, clinical manifestations, diagnostic methods, principles of differential diagnosis. Analysis and interpretation of cerebrospinal fluid analysis: differential diagnosis of meningism, serous, purulent, eosinophilic, fungal and tuberculous meningitis, subarachnoid hemorrhage and traumatic lumbar puncture. Examination of patients with neuroinfections (viral and bacterial): objective examination; drawing up a survey plan; interpretation of the results of laboratory and instrumental examination methods; assessment of cerebrospinal fluid analysis; diagnosis. Drawing up a treatment plan for patients with neuroinfections. Drawing up a plan of anti-epidemic measures in the focus of neuroinfections. Taking specimens for meningococcus. Registration of an inpatient (outpatient) training card.

### 5. Vector-borne infections

Rickettsiosis: definition, classification, key clinical manifestations, methods of laboratory diagnosis, etiotropic therapy. Epidemic typhus and Brill-Zinsser disease: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Malaria: epidemiology, etiology, pathogenesis, current classification, clinical picture, diagnosis, differential diagnosis, principles of

treatment and prevention. Tick-borne viral encephalitis: epidemiology, etiology, pathogenesis, current classification, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Lyme disease: epidemiology, etiology, pathogenesis, current classification, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Other tick-borne infections (human granulocytic anaplasmosis, tick-borne borreliosis caused by *B.miyamotoi*): epidemiology, etiology, clinical picture, diagnosis, etiologic therapy. Providing emergency medical care to patients with complications of vectorborne infections and malarial coma. Examination of patients with various vector-borne infections: collection of complaints and medical history; objective examination; drawing up a survey plan; interpretation of the results of laboratory and instrumental examination methods; diagnosis. Drawing up a treatment plan for patients with various vector-borne infections. Drawing up a plan of antiepidemic measures in the focus of vector-borne infections. Registration of an inpatient (outpatient) training card.

#### 6. Acute respiratory viral infections

Influenza: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Indications and contraindications for influenza vaccination. Parainfluenza: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Adenovirus infection: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. RS virus infection: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Rhinovirus infection: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. COVID-19: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Emergency medical care for acute respiratory failure. Examination of patients with acute respiratory viral infections (ARVI): collection of complaints and medical history; objective inspection; drawing up a survey plan; interpretation of the results of laboratory and instrumental examination methods; diagnosis. Drawing up a treatment plan for patients with ARVI. Registration of an inpatient (outpatient) training card.

#### 7. Respiratory tract infections caused by intracellular pathogens

Respiratory chlamydial infection (*Chlamydia pneumoniae*, *Chlamydia psittaci*): epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Respiratory mycoplasmosis: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Legionellosis: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, treatment, prevention. Plan for the evaluation and treatment of patients with respiratory tract infections caused by intracellular pathogens.

#### 8. Especially dangerous infections

Plague: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Anthrax: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention.

#### 9. Other zoonoses

Tularemia: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Leptospirosis: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Viral hemorrhagic fevers: definition, classification. Hemorrhagic fever with renal syndrome (HFRS): epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Ebola virus disease: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Brucellosis: epidemiology, classification, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Listeriosis: epidemiology, etiology, pathogenesis, classification, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Emergency medical care for the development of complications of leptospirosis, tularemia, HFRS, listeriosis, including acute renal injury. Examination of patients with leptospirosis, tularemia, HFRS, listeriosis: collection of complaints and medical history; objective inspection; drawing up a survey plan; interpretation of the results of laboratory and instrumental examination methods; diagnosis. Drawing up a treatment plan for patients with leptospirosis, tularemia, HFRS, listeriosis. Drawing up a plan of anti-epidemic measures in the focus of leptospirosis, tularemia, HFRS, listeriosis. Registration of an inpatient (outpatient) training card.

#### 10. Sepsis. Healthcare-associated infections

Sepsis: classification, clinical picture, diagnosis, principles of etiotropic therapy and pathogenetic therapy, emergency measures. Septic shock: clinical picture, principles of emergency medical care for patients. Emergency medical care for the septic shock. Healthcare-associated infections (HAIs): definition, key pathogens, main localizations, principles of laboratory diagnostics. Modern principles of HAI treatment and prevention. Examination of patients with sepsis: collection of complaints and medical history; objective examination; drawing up a survey plan; interpretation of the results of laboratory and instrumental methods; antibiotic grams, diagnosis, determination of a treatment plan for patients with sepsis. Drawing up a plan of anti-epidemic measures in the focus of sepsis. Drawing up a plan of preventive measures to prevent the spread of HAIs. Registration of an inpatient (outpatient) training card.

#### 11. Infections of the superficial skin

Erysipelas: epidemiology, etiology, pathogenesis, current classification, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Plan for the examination and treatment of patients with erysipelas.

#### 12. Exotoxicosis

Botulism: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Tetanus: epidemiology, etiology, pathogenesis, current classification, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Diphtheria: epidemiology, etiology, pathogenesis, current classification, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Anaphylactic shock: causes, principles of emergency medical care. Emergency medical care for asphyxia with laryngeal stenosis. Indications and contraindications for vaccination against tetanus, diphtheria. Method of administration of polyvalent

botulinum equine-derived antitoxin. Examination of patients with exotoxigenesis: collection of complaints and medical history; objective inspection; drawing up a survey plan; interpretation of the results of laboratory and instrumental examination methods; diagnosis. Drawing up a treatment plan for patients with exotoxigenesis. Registration of an inpatient (outpatient) training card.

### 13. Infections caused by herpes viruses

Infections caused by human herpes viruses: etiological classification. Infections caused by herpes simplex viruses types 1 and 2: epidemiology, clinical classification, pathogenesis, clinical picture, diagnosis, etiologic therapy. Shingles (zoster): epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. EBV infection: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Cytomegalovirus infection: epidemiology, etiology, pathogenesis, clinical picture, diagnosis, differential diagnosis, treatment, prevention. Examination of patients with herpes virus infections: collection of complaints and medical history; objective inspection; drawing up a survey plan; interpretation of the results of laboratory and instrumental examination methods; interpretation of hemograms; diagnosis. Drawing up a treatment plan for patients with infectious diseases caused by various herpes viruses. Drawing up a plan of anti-epidemic measures in the focus for various herpes infections. Registration of an inpatient (outpatient) training card.

### 14. HIV infection

HIV infection: epidemiology, etiology, pathogenesis, clinical classification of the World Health Organization, clinical manifestations, principles of laboratory verification of diagnosis, principles of antiretroviral therapy. Prevention of HIV transmission (primary, pre-exposure, post-exposure, mother-to-child). The concept of opportunistic infections and HIV-associated lesions. Pneumocystis pneumonia, toxoplasma meningoencephalitis, cryptococcal meningitis: clinical picture, principles of diagnosis and treatment. Collection of epidemiological anamnesis in patients with suspected HIV infection, preparation of a plan for examination and treatment of patients. Retrospective analysis of charts of inpatients (outpatients) with HIV infection. Determination of indications for post-exposure prophylaxis of HIV infection.

**LIST OF QUESTIONS FOR THE STATE EXAM****Section I****General questions**

Problems of medical ethics and medical deontology in the practice of a physician.

Extragenital diseases and pregnancy: contraindications for pregnancy, therapeutic approach to pregnant women with hypertension, valvular heart disease, glomerulonephritis.

**Main nosological forms of internal diseases****Respiratory system diseases**

Acute and chronic (non-obstructive) bronchitis: etiology, pathogenesis, clinical manifestations, diagnosis, clinical variants, complications, treatment.

Pneumonia: etiology, pathogenesis, key clinical manifestations, diagnosis, classification, severity, complications. Basic treatment strategies.

Pneumonia caused by atypical pathogens: clinical peculiarities, diagnostics, treatment.

Chronic obstructive pulmonary disease: etiology and pathogenesis, risk factors, diagnosis, stages of disease, treatment, complications, prophylaxis.

Asthma: etiology, pathogenesis, basic clinical manifestations, clinical variants, diagnosis, complications, treatment principles.

Pleural diseases and pleural effusion: etiology, pathogenesis, basic clinical manifestations, diagnosis, differential diagnosis of exudate and transudate, treatment principles.

Pulmonary heart, acute and chronic: etiology, pathogenesis, basic clinical manifestations, diagnosis, classification, principles of treatment.

**Cardiovascular system diseases**

Coronary heart disease: etiology, pathogenesis, risk factors, classification, prophylaxis.

Clinical types of angina pectoris, diagnosis, patient management, treatment principles.

Myocardial infarction: etiology, pathogenesis, clinical variants (typical and atypical). Myocardial infarction diagnosis. Patient management, treatment principles. Complications of myocardial infarction.

Hypertension: etiology, pathogenesis, clinical manifestations, classification, diagnosis, risk stratification, treatment principles.

Secondary hypertension: classification, diagnosis, treatment strategies.

Myocarditis: etiology, pathogenesis, classification, clinical manifestations, diagnosis, treatment principles.

Cardiomyopathy: definition, classification, clinical variants, diagnosis, treatment principles.

Pericarditis: etiology, pathogenesis, classification, clinical manifestations, diagnosis, treatment principles.

Infective endocarditis: etiology, pathogenesis, diagnostic criteria, classification, clinical picture, diagnosis verification methods. Indications for cardiosurgical treatment or pharmacological therapy. Basic principles of antibacterial therapy.

Chronic heart failure: etiology, pathogenesis, basic clinical manifestations, classification, diagnosis, treatment principles.

Cardiac tachyarrhythmia: classification. Antiarrhythmic drugs.

Atrial fibrillation and flutter: etiology, pathogenesis, diagnosis, management, principles of drug therapy, radiofrequency catheter ablation of the heart.

Bradyarrhythmia. Heart blocks: etiology, pathogenesis, clinical manifestations, diagnosis, prognosis, treatment principles. Indications for pacemaker therapy.

Interventional and cardiosurgical technologies in cardiovascular diseases: criteria of patient selection for coronary angiography, indications for interventions. Catheter technologies in the treatment of coronary heart disease, acquired heart valve disease.

### **Diseases of the digestive tract**

Gastroesophageal reflux disease: pathogenesis, clinical manifestations, diagnosis, treatment principles.

Functional dyspepsia and chronic gastritis: cause of pathology, clinical manifestations, classification, diagnosis, treatment principles.

Gastroduodenal ulcer disease: etiology, pathogenesis, clinical manifestations, diagnosis, treatment strategies.

Chronic hepatitis: etiology, pathogenesis, classification, basic clinical and biochemical syndromes, diagnosis, treatment principles.

Liver cirrhosis: etiology, classification, morphological characteristic, clinical laboratory syndromes, diagnosis, complications, treatment principles.

Chronic pancreatitis: etiology, pathogenesis, clinical variants, diagnosis, treatment principles.

Irritable bowel syndrome. Basic clinical manifestations, diagnosis, treatment principles.

Bowel inflammatory diseases (Chron's disease, ulcerative colitis). Basic clinical syndromes, diagnosis, treatment principles.

### **Renal diseases**

Acute glomerulonephritis: etiology, pathogenesis, clinical variants, diagnosis, treatment principles.

Chronic glomerulonephritis: etiology, pathogenesis, clinical and morphological variants, diagnosis, outcomes, treatment principles.

Tubulointerstitial nephritis: causes of development, clinical manifestations, diagnosis, treatment.

Chronic pyelonephritis: etiology, pathogenesis, clinical manifestations, diagnosis, treatment strategies.

Renal amyloidosis: etiology, pathogenesis, clinical manifestations, diagnosis, outcomes, treatment strategies.

Nephrotic syndrome: etiology, clinical and laboratory criteria, treatment.

Chronic kidney disease: classification, diagnosis. Treatment strategies according to the stage.

### **Rheumatic diseases**

Acute rheumatic fever: etiology, pathogenesis, clinical manifestations, diagnosis, treatment, prevention.

Mitral valve disease: etiology, hemodynamic compromise, clinical manifestations, treatment strategies, indications for surgery.

Aortic valve disease: etiology, hemodynamic compromise, clinical manifestations, treatment strategies, indications for surgery.

Osteoarthritis: etiology, pathogenesis, classification, clinical manifestations, diagnosis, disease course, treatment.

Rheumatoid arthritis: etiology, pathogenesis, classification, disease course, treatment.

Gout: etiology, pathogenesis, clinical manifestations, classification, diagnosis, disease course, treatment.

System lupus erythematosus: etiology, pathogenesis, clinical manifestations, diagnosis, disease course, treatment.

Dermatomyositis: etiology, pathogenesis, clinical manifestations, diagnosis, disease course, treatment.

Systemic sclerosis: etiology, pathogenesis, basic clinical manifestations, diagnosis and treatment principles.

Systemic vasculitis: main nosological entities, diagnosis and treatment principles.

Reactive arthritis: etiology, clinical manifestations, diagnosis, treatment.

Spondyloarthritis: main forms, clinical manifestations, diagnosis, treatment.

### **Blood system diseases**

Anemia: etiology, pathogenesis, classification, clinical manifestations, diagnosis, treatment principles.

Leukemia: etiology, pathogenesis, classification, clinical manifestations, diagnosis, treatment principles.

Polycythemia vera: etiology, pathogenesis, clinical manifestations, diagnosis, treatment principles, prognosis. Secondary polycythemia.

Multiple myeloma: clinical manifestations, diagnosis, treatment.

Hemorrhagic diathesis: etiology, pathogenesis, classification. Clinical manifestations and treatment of thrombocytopenic purpura.

## **Section II**

### **Special issues of internal diseases**

#### **Metabolic and endocrine system diseases**

Classification and diagnosis of diabetes mellitus. Etiology, pathogenesis, diagnosis, treatment of type 1 diabetes mellitus.

Etiology, pathogenesis, clinical manifestations, diagnosis, treatment and prevention of type 2 diabetes mellitus.

Metabolic syndrome: definition, current concept of pathogenesis, main clinical

manifestations, treatment approaches.

Chronic complications of diabetes: microangiopathy (diabetic retinopathy, diabetic nephropathy), macroangiopathy (diabetic foot syndrome), polyneuropathy.

Urgent states in diabetes (hypoglycemic and hyperglycemic coma): causes, pathogenesis, clinical manifestations, treatment.

Diffuse toxic goiter (Graves-Basedow disease): etiology, pathogenesis, clinical manifestations, diagnosis, treatment principles, indications for surgical treatment.

Nodal goiter: etiopathogenesis, clinical manifestations, diagnosis, treatment and prevention.

Hypothyroidism: classification, etiology, pathogenesis, clinical manifestations, diagnosis, principles of replacement therapy.

Hyperparathyroidism: classification, etiology, pathogenesis, clinical manifestations, diagnosis, treatment principles.

Primary and secondary hyperaldosteronism: etiology, pathogenesis, clinical manifestations, diagnosis, treatment.

Chronic adrenal insufficiency: etiology, pathogenesis, clinical manifestations, diagnosis, complications, course, treatment.

Hypercorticism: etiology, pathogenesis, clinical manifestations, diagnosis, complications, course, treatment.

Pheochromocytoma: pathogenesis of major clinical manifestations, symptoms, diagnosis, treatment.

Obesity: etiology, types of obesity, severity, treatment and prevention.

### **Clinical Immunology, Allergology**

The concept of immunity. Structural and functional organization of the immune system. Innate and adaptive immunity. Clinical manifestations in patients with disorders in various parts of the immune system.

Methods for evaluation of cellular, humoral and innate immunity.

Immunodeficiency: classification, clinical features depending on the engaged element of immune system. "Red flags" in clinical practice.

Primary immunodeficiency in adults: clinical picture, diagnosis, treatment. Common variable immunodeficiency. Hyper-IgE syndrome. Chronic granulomatous disease. Selective IgA deficiency. Hereditary angioedema.

Secondary immunodeficiency: etiology, pathogenesis, clinical picture, diagnosis, treatment.

Immunomodulators. Principles of use in internal diseases. Intravenous immunoglobulins: immunostimulating, replacement and immunosuppressive therapy.

Allergy. Allergens. Hypersensitivity reactions. Allergy diagnostics in vivo and in vitro.

Life-threatening allergic diseases (angioedema, anaphylactic shock, toxicoderma).

Allergic respiratory diseases: seasonal and perennial rhinitis, asthma, exogenous allergic alveolitis. Insect, drug, and food allergies. Allergic skin diseases (atopic and contact dermatitis, urticaria).

Principles of treatment of allergic diseases. Allergen-specific and non-specific immunotherapy.

Immunopathology of reproduction. Transplant immunity. Immunodiagnostics of autoimmune diseases of connective tissue, liver, blood system, endocrine glands, and other organs and systems. Principles of immunotherapy: CAR-T cell therapy, biological therapy, vaccine prophylaxis.

### **Occupational diseases**

Vibration disease: etiology, pathogenesis, clinical manifestations, diagnosis, course, principles of treatment.

Pneumoconiosis: etiopathogenesis, clinical manifestations, diagnosis, principles of treatment.

Occupational lead poisoning: clinical manifestations, diagnostic criteria, treatment.

Occupational intoxication from organic solvents (benzene and its homologues), clinical manifestations, diagnostic criteria, treatment.

### **Phthisiopulmonology**

Diagnosis of respiratory tuberculosis in healthcare organizations. Algorithm for the diagnosis of tuberculosis. Required examination methods (required diagnostic minimum) for a patient with suspected tuberculosis. Systematic screening for active tuberculosis in target populations.

Microbiological diagnosis of tuberculosis: methods, types of diagnostic material. Methods of immunodiagnostics of tuberculosis infection: Mantoux tuberculin skin test (2TU), skin test with a recombinant tuberculosis allergen (Diaskintest), interferon gamma release assays (QuantiFERON-TB and T-SPOT.TB), their significance in the diagnosis of local forms of tuberculosis and latent tuberculosis infection.

Differential diagnosis of infiltrative tuberculosis with other lung diseases (pneumonia, lung cancer with atelectasis).

Differential diagnosis of focal tuberculosis with other lung diseases (neoplasms, pneumonia, etc.).

Differential diagnosis of tuberculoma with other rounded formations in the lungs (neoplasms, abscess, filled cyst, pneumonia).

Differential diagnosis of disseminated tuberculosis with other pulmonary dissemination (sarcoidosis, carcinomatosis, silicosis).

Differential diagnosis of cavernous and fibrous-cavernous tuberculosis with other cavities in the lungs (abscess, lung cancer, aspergilloma, congenital cyst).

Caseous pneumonia. Clinical picture, diagnosis, differential diagnosis and treatment.

Miliary tuberculosis of the lungs. Clinical picture, diagnosis, differential diagnosis and treatment.

Tuberculous pleurisy. Clinic, diagnosis, differential diagnosis and principles of treatment.

Tuberculous meningitis. Clinical picture, diagnosis, differential diagnosis and treatment.

Sarcoidosis: definition, classification, etiopathogenesis, pathomorphology, clinical course variants, extrapulmonary manifestations, diagnosis, differential diagnosis, treatment tactics, prognosis, follow-up.

HIV-associated tuberculosis, clinical and radiological manifestations characteristics, pathomorphology, diagnosis, principles of treatment and prevention.

Nontuberculous mycobacterial lung disease, clinical manifestations, diagnosis, differential diagnosis.

### **Section III**

#### **Emergencies and urgent medical care**

Status asthmaticus (acute severe asthma exacerbation) urgent treatment. Acute respiratory failure: causes, diagnosis, differential therapy.

Emergency care for an attack of asthma. Tactics of a general practitioner with an unrestrained attack.

Diagnosis and emergency treatment of spontaneous pneumothorax.

Emergency care for hemoptysis and urgent care for pulmonary hemorrhage.

Acute coronary syndrome with ST segment elevation: organizational and diagnostic activities at prehospital stage, emergency medical care, choice of reperfusion method (prehospital thrombolysis, primary percutaneous intervention, pharmacological interventions).

Non-ST-segment elevation acute coronary syndrome: pre-hospital organizational and diagnostic measures, urgent medical care.

Urgent measures in case of intractable chest pain syndrome.

Sudden cardiac death: medical emergency.

Hypertensive crisis urgent medical care in the outpatient setting and in hospital.

Paroxysm of atrial fibrillation: clinical picture, diagnosis, emergency measures in an outpatient setting and inpatient treatment.

Emergency treatment for acute left ventricular failure.

Diagnosis of aortic aneurysm stratification, emergency medical care.

Emergency medical care for pulmonary edema (cardiogenic and noncardiogenic).

Diagnosis and urgent therapy of pulmonary embolism.

Emergency medical care for a paroxysmal wide QRS complex tachycardia (ventricular tachycardia).

Emergency medical care for a paroxysmal narrow QRS complex tachycardia (supraventricular tachycardia).

Emergency medical care for a complete atrioventricular block.

Diagnosis and treatment tactics at biliary colic.

Diagnosis and urgent measures for hepatic coma.

Diagnosis and urgent medical care for gastrointestinal bleeding.

Emergency medical care and tactics at unspecified coma.

Poisoning by alcohol and its surrogates: clinical manifestations, emergency medical care.

Acute adrenal insufficiency: diagnosis, treatment principles and urgent medical care.

Acute kidney injury: diagnosis, emergency therapy.

Uremic coma: clinic, diagnosis, emergency medical care.  
 Diagnosis and urgent measures for agranulocytosis.  
 Emergency therapy for hypoglycemic coma.  
 Emergency therapy for hyperglycemic coma.  
 Anaphylactic shock: diagnosis, emergency medical care.  
 Urticaria and angioedema: urgent medical care, medical tactics.  
 Lyell's syndrome. Urgent measures.  
 Emergency medical care for acute disorders of cerebral circulation.

#### **Section IV**

#### **Infectious Diseases**

Typhoid fever: etiology, epidemiology, pathogenesis, clinical picture, complications, diagnosis, differential diagnosis with paratyphoid fever A and B, treatment.

Acute hepatitis A and E: etiology, epidemiology, clinical picture, diagnosis, treatment, prevention.

Viral hepatitis B: etiology, epidemiology, pathogenesis, classification, clinical picture, marker diagnosis, treatment, prophylaxis (primary, post-exposure and vertical transmission).

Viral hepatitis B+D: etiology, epidemiological features of the clinical variants (coinfection, superinfection), marker diagnosis, treatment, prevention.

Viral hepatitis C: etiology, epidemiology, classification, clinical picture, diagnosis, principles of treatment.

Definition of jaundice syndrome. Differential diagnosis of jaundice in infectious diseases (viral hepatitis, leptospirosis, yersiniosis, infectious mononucleosis).

Diagnosis and treatment of acute viral hepatitis complications. Acute liver failure.

Meningococcal infection: routes of transmission, classification, clinical picture, treatment.

Meningococcal infection: routes of transmission, classification. Clinical picture of central nervous system lesions in meningococcal infection, diagnosis, treatment.

Meningococcal infection: routes of transmission, classification. Clinical picture of meningococemia, diagnosis, treatment.

Complications of meningococcal infection (toxic-shock syndrome, cerebral edema, acute adrenal insufficiency): clinical picture, emergency treatment.

Enterovirus infection: etiology, epidemiology, clinical forms, diagnosis, treatment.

Tick-borne borreliosis: etiology, epidemiology, pathogenesis, classification, clinical picture, diagnosis, treatment, prevention.

Tick-borne encephalitis: routes of infection transmission, clinical picture, diagnosis and differential diagnosis, treatment, prevention.

Differential diagnosis of meningitis (purulent and serous): algorithm for diagnosis and treatment.

Herpes infection: etiological classification. Clinical picture of infection caused by herpes simplex virus type 1 and type 2, diagnosis, treatment.

Herpes infection: etiological classification. Clinical picture of Herpes zoster skin manifestations, diagnosis, treatment.

Herpes infection: etiology, epidemiology, clinical picture of chickenpox, diagnosis, treatment.

Infectious mononucleosis: etiology, routes of infection, clinical picture, diagnosis, differential diagnosis with diphtheria, treatment.

Cytomegalovirus infection: clinical picture in immunocompetent and immunocompromised patients, diagnosis, treatment.

COVID-19: etiology, clinical picture, complications, diagnosis, treatment, prevention.

Influenza: etiology, clinical picture, complications, diagnosis and differential diagnosis, treatment, prevention.

Adenovirus infection: etiology, clinical picture, diagnosis, treatment. Characteristics of acute respiratory diseases course in children and the elderly patients.

Respiratory syncytial virus infection: etiology, clinical features, diagnosis, treatment.

Pathogenetic classification of infectious diarrhea. Degrees of dehydration. Indications for antibiotic therapy. Principles of rehydration.

Foodborne infection: etiology, pathogenesis, clinical picture, first aid, principles of treatment.

Cholera: etiology, classification, clinical picture, diagnosis, complications. Principles of treatment.

Shigellosis: etiology, clinical picture, diagnosis and differential diagnosis with salmonellosis, treatment, prevention.

Clostridioides difficile-associated infection: clinical picture, diagnosis, complications, treatment.

Differential diagnosis of diarrhea (infectious and non-infectious).

Malaria: etiology, epidemiology, clinical picture, complications, diagnosis, differential diagnosis, treatment, prevention.

HIV infection: etiology, epidemiology, WHO clinical classification, diagnosis, principles of antiretroviral therapy.

HIV infection: etiology, epidemiology, clinical picture, diagnosis, prophylaxis (primary, post-exposure, pre-exposure and prevention of vertical transmission).

The concept of opportunistic infections in HIV infection. Toxoplasmosis in HIV-infected people: etiology, pathways of infection, clinical picture, diagnosis, treatment.

The concept of opportunistic infections in HIV infection. Pneumocystis pneumonia: etiology, routes of transmission, clinical picture, diagnosis, differential diagnosis with pneumococcal pneumonia, treatment.

Clinical indications for testing for HIV infection in outpatient department.

Sepsis: etiology, pathogenesis, current clinical classification.

Sepsis: etiology, pathogenesis, current classification. Multiple organ dysfunction syndrome. Diagnosis, principles of treatment.

Healthcare-associated infections: the concept, principles of diagnosis and treatment.

Erysipelas: etiology, risk factors, classification, clinical picture, complications, diagnosis, treatment, prevention of relapses.

Diphtheria: etiology, epidemiology, pathogenesis, classification, clinical picture, diagnosis and differential diagnosis, treatment, prevention.

Oropharyngeal diphtheria: etiology, routes of infection transmission, pathogenesis, classification, clinical picture, diagnosis, treatment.

Laryngeal diphtheria: epidemiology, routes of infection transmission, clinical picture, diagnosis, treatment.

Differential diagnosis of oropharyngeal diphtheria (infectious mononucleosis, acute streptococcal tonsillitis, paratonsillar abscess).

Botulism: etiology, routes of infection, pathogenesis, clinical picture, diagnosis, treatment, prevention.

Tetanus: etiology, pathogenesis, classification, clinical picture, complications, diagnosis, principles of therapy, emergency and planned prophylaxis.

Rabies: etiology, epidemiology, clinical picture, diagnosis, prevention.

Leptospirosis: etiology, epidemiology, clinical picture, diagnosis, treatment, prevention.

Hemorrhagic fever with renal syndrome: etiology, epidemiology, clinical picture, diagnosis, treatment.

Trichinellosis: etiology, epidemiology, pathogenesis, clinical picture, diagnosis, treatment.

Fever of unknown origin: definition, classification, diagnostic algorithm.

Differential diagnosis of exanthemas in infectious diseases (meningococcal infection, measles, leptospirosis, infectious mononucleosis, Lyme borreliosis).

Treatment strategy in septic, hypovolemic, and anaphylactic shock.

Plague, anthrax: prevalence, etiology, transmission routes, clinical picture, laboratory diagnosis, treatment.

Anthrax: etiology, epidemiology, classification, clinical picture, diagnosis, treatment, prevention.

Tularemia: etiology, epidemiology, classification, clinical picture, diagnosis, treatment.

**INFORMATION AND METHODOLOGICAL UNIT**  
**LITERATURE**

**Basic:**

1. Immunology : textbook (in English) / Khaitov, Rakhim M. - 2nd ed. upd. - Moscow : Geotar-Media, 2022. - 272 p.
2. Infectious diseases : textbook / G. K. Alikeeva [и др.] ; ed. by N. D. Yushchuk, Yu. Ya. Vengerov. - Moscow : Geotar-Media, 2024. - 462 p.
3. Internal diseases : textbook. In 2 Vols. Vol. 1 / ed. by A. I. Martynov, J. D. Kobalava, S. V. Moiseev. – Moscow : Geotar-Media, 2022. – 683 p.
4. Internal diseases : textbook. In 2 Vols. Vol. 2 / ed. by A. I. Martynov, J. D. Kobalava, S. V. Moiseev. – Moscow : Geotar-Media, 2022. – 614 p.

**Additional:**

5. Family medicine : textbook. In 3 books. Book 3. Special part. Multidisciplinary general medical practice / Babinets, Liliia Stepanivna, Bezditko, Pavlo Andriiovych, Bondar, Serhii Anatoliiovych [и др.] ; ed. by O. M. Hyrina, L. M. Pasiyeshvili, L. S. Babinets. – Kyiv : AUS Medicine Publishing, 2020. – 615 p.
6. Infectious diseases : пособие для студентов учреждений высш. образования, обучающихся по спец. 1-79 01 01 "Лечебное дело", 1-79 01 07 "Стоматология", 1-79 01 03 "Медико-профилактическое дело" / Карпов, Игорь Александрович [и др.] ; Белорус. гос. мед. ун-т, Каф. инфекц. болезней. - Минск : БГМУ, 2020. - 199 с.
7. Internal medicine : textbook : in 2 books. Book 2. Diseases of the Digestive System, Kidney, Rheumatic and Hematological Diseases / Seredyuk, Nestor Mykolayovych [и др.]. - Kyiv : AUS Medicine Publishing, 2020. - 463 p.
8. Internal medicine : textbook for English-speaking students of higher medical educational esablishment. P. 1 : Cardiology. Rheumatology. Hematology / ed. by M. A. Stanislavchuk, V. K. Sierkova. - Vinnytsya : Nova Knyha, 2019. – 407 p.
9. Internal medicine : textbook for English-speaking students of higher medical educational esablishment. P. 2 : Pulmonology. Gastroenterology. Nephrology. Diseases of the internal organs in countries with hot climate / ed. by M. A. Stanislavchuk, V. K. Sierkova. - Vinnytsya : Nova Knyha, 2019. – 359 p.
10. Internal medicine : textbook. In 2 books. Book 1 . Diseases of the Cardiovascular and Respiratory Systems / N. M. Seredyuk [et al.]. - Kyiv : AUS Medicine Publishing, 2019. - 663 p.
11. Аутоиммунные ревматические заболевания: принципы диагностики и лечения = Autoimmune rheumatic diseases: principles of diagnosis and treatment : пособие / Выхристенко, Людмила Ростиславна, Подолинская, Наталья Александровна, Дикарева, Елена Александровна, Е. В. Сидоренко. – Витебск : ВГМУ, 2020. – 131 с.

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V.M.Sidzenka

## AGREED

Dean of the Medical Faculty for International Students of the Educational Institution «Belarusian State Medical University»

04.05. 2026



O.S.Ishutin