

MINISTRY OF HEALTH OF THE REPUBLIC OF BELARUS  
EDUCATIONAL INSTITUTION  
BELARUSIAN STATE MEDICAL UNIVERSITY

Контрольный  
экземпляр



APPROVED

by First Vice-Rector, Professor

I.N.Moroz

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Reg # UD-1.05/2324/edu.sub.

INFECTIOUS DISEASES

Curriculum of educational institution in the educational discipline for the  
specialty 1-79 01 01 «General Medicine»

Sub-Residency «General Clinical Practice»

Minsk 2023

Curriculum is based on the educational program of educational institution in the educational discipline «Infectious diseases» for the Sub-Residency «General Clinical Practice (for foreign citizens)», approved 11.08.2023, registration # УД-L.05/2324ч.суб.

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**RECOMMENDED FOR APPROVAL:**

by the Infectious Diseases Department of the Educational Institution «Belarusian State Medical University»

(protocol # 13 of 30.06.2023);

by the Scientific and Methodological Council of the Educational Institution «Belarusian State Medical University»

(protocol # 7 of 10.08.2023)

## EXPLANATORY NOTE

«Infectious diseases» is the educational discipline containing systematized scientific knowledge of the etiology, pathogenesis, clinical picture, methods of diagnosis, treatment and prevention of infectious diseases.

The purpose of teaching the discipline «Infectious Diseases» of the Sub-Residency «General Clinical Practice» is to develop students' academic, social, personal and professional competencies to provide medical care to patients with infectious diseases, to conduct primary preventive, sanitary and anti-epidemic measures in infectious focus.

The tasks of teaching the discipline are to form students' scientific knowledge of the etiology, epidemiology, pathogenesis, clinical manifestations of diseases and their complications, the basic principles of diagnosis and therapy, issues of prevention of socially significant and most common infectious diseases, skills and abilities necessary for:

- the examination of patients with infectious diseases;
- interpretation of the results of laboratory and instrumental methods of tests;
- diagnosis and prescription of etiotropic and pathogenetic treatment of diseases caused by infectious agents;
- differential diagnosis of infectious diseases with non-infectious diseases;
- carrying out specific and non-specific prophylaxis of socially significant and most common infectious diseases;
- medical examination, medical rehabilitation of patients with infectious diseases of different localization;
- carrying out sanitary and anti-epidemic measures in infectious focus.

Teaching and successful study of the academic discipline «Infectious Diseases» of Sub-Residency «General Clinical Practice» is carried out on the basis of the knowledge and skills acquired by the student in the following academic disciplines:

Histology, Cytology, Embryology. Pathological changes observed in various infectious diseases and their clinical manifestations.

Microbiology, Virology, Immunology. Properties of pathogens of infectious diseases (morphological, tinctorial, cultural, biochemical, toxigenicity, factors of invasion and aggression). Classification of microorganisms. Methods of cultivation and identification in clinical practice.

Pathological Physiology. Changes in the course of physiological processes occurring during the development of infection.

Biological Chemistry. Interpretation of the results of biochemical studies of biological media. Molecular mechanisms of toxins action, other factors of invasion and aggression, as well as antibiotics, antiviral, antifungal, antiprotozoal, anthelmintic drugs.

Propeutics of internal diseases. Principles and methods for taking anamnesis and physical examination of patients with infectious diseases.

Clinical Immunology, Allergology. Differential diagnosis of the manifestations and complications after infectious diseases with the manifestations of

somatic diseases of allergic origin. Diagnosis and treatment of complications after allergic infectious diseases.

**Dermatovenereology.** Differential diagnosis of skin symptoms in infectious diseases and dermato-venereological pathology.

**Internal diseases.** Interpretation of the results of the clinical examination. Differential diagnosis of clinical manifestations of infectious and somatic diseases.

**Otorhinolaryngology.** Otorhinolaryngological manifestations of infectious diseases, diagnosis and treatment. Differential diagnosis of somatic lesions of otorhinolaryngological organs with infectious lesions.

**Ophthalmology.** Ophthalmological manifestations of infectious diseases, their diagnosis and treatment.

**Oncology.** HIV-associated neoplasms. Hepatocellular carcinoma. Differential diagnosis of the manifestations of infectious diseases with symptoms of cancer.

**Pharmacology.** Classification of medicines, mechanisms of their action, interaction of medicines with each other, indications and contraindications for prescribing medicines.

**Surgical Diseases.** Differential diagnosis of clinical manifestations of infectious and surgical diseases. Differential diagnosis of invasive diarrhea of various etiologies. Diagnostics of purulent lymphadenitis, pancreatitis and sepsis.

As a result of studying the discipline «Infectious Diseases» the student should

**know:**

infectious diseases diagnostic methods using the syndromic approach, taking into account epidemiological and clinical laboratory data;

differential diagnosis methods of infectious and non-communicable diseases;

an algorithm of actions in case of patient examination with an infectious disease (warning rules, indications for hospitalization, principles and methods of treatment in outpatient and inpatient conditions, methods of preventive, sanitary and anti-epidemic measures in the outbreak);

methods of rational treatment of infectious diseases using modern effective medicines and methods;

modern methods of providing emergency medical care to patients with severe and / or complicated infectious diseases;

methods of medical rehabilitation and clinical examination of patients with infectious diseases;

principles of medical ethics and deontology.

**be able to:**

determine the leading syndrome and make the diagnosis of the most common and socially significant infectious diseases, determine the examination tactics and prescribe treatment that is adequate to the patient's condition;

carry out differential diagnosis of infectious diseases with non-communicable diseases according to the leading syndrome;

organize sanitary and anti-epidemic measures in the outbreak of an infectious disease;

prescribe treatment to a patient with an infectious disease and carry out

dynamic monitoring of convalescents

carry out clinical examination of patients with chronic infectious diseases;  
to identify and arrest emergency situations that complicate the course of infectious diseases;

**master:**

methods of collecting history (including epidemiological);  
methods of physical examination of the patient;  
skills of interpreting laboratory results;  
methods of providing medical care in emergency situations that complicate the course of infectious diseases.

Total number of hours for the study of the discipline is 56 academic hours.  
Classroom hours according to the types of studies: practical classes - 35 hours.  
Student independent work (self-study) - 21 hours.

Intermediate assessment is carried out according to the curriculum of the educational institution in the specialty in the form of a credit.

Form of higher education – full-time.

## THEMATIC PLAN

Section (topics) name	Number of class hours
	practical
1. General infectious syndrome. Fever of unknown origin. Sepsis, septic shock. Infections related to medical care. Fungal infections. The meaning and principles of empirical and etiologic therapy	7
2. Infectious diseases of the respiratory system: acute catarrhal syndrome, acute respiratory viral infections, acute pneumonia, tonsillitis syndrome. Acute respiratory failure	7
3. Infectious diseases occurring with lesions of the hepatobiliary system and the gastrointestinal tract: acute and chronic viral hepatitis, acute lesions of the liver of bacterial and parasitic etiology, infectious diarrhea. Dehydration. Hypovolemic shock	7
4. Infectious diseases of the central nervous system: meningitis, encephalitis, myelitis, edema-swelling syndrome of the brain, neurotoxic syndrome in infectious diseases. Acute adrenal insufficiency	7
5. Quarantine and especially dangerous infections. Zoonotic infections. Diseases occurring with lymphadenopathy. HIV infection	7
<b>Total hours</b>	<b>35</b>

### CONTENT OF EDUCATIONAL MATERIAL

#### **1. General infectious syndrome. Fever of unknown origin. Sepsis, septic shock. Infections related to medical care. Fungal infections. The meaning and principles of empirical and etiologic therapy**

The main clinical symptoms of the general infectious syndrome. Fever of unknown origin: causes, diagnosis algorithm for fever of unknown origin, differential diagnosis with various types of hyperthermia. Antipyretic measures.

Sepsis: etiology, pathogenesis, classification, pathogens with unexplained primary focus. Principles of choice of antibacterial drugs for starting empirical antibacterial therapy of sepsis. Septic shock, diagnosis, pathogenetic drugs, emergency medical care.

The etiological structure of infections associated with the provision of medical care, classification. Indications, procedure for taking biological material, selection of the optimal biological sample for research, interpretation of the results obtained. Principles of etiologic and pathogenetic therapy.

Catheter-related bloodstream infections: the main pathogens, principles of microbiological diagnosis, antimicrobial therapy, prevention.

The basic principles of diagnosis and treatment of fungal infections in the clinical practice of hospital infections.

General characteristics and classification of antimicrobial drugs, mechanisms of action. Types of antimicrobial therapy. Principles of empirical prescribing of antimicrobial drugs. The choice of antibiotics depending on the causative infection agent. The concept and scope of step therapy.

Examination of patients with fever of unknown origin (complaints and anamnesis of the disease, objective examination); drawing up a checkup plan; interpretation of laboratory and instrumental examination results; making the diagnosis. Selection of therapy regimen.

## **2. Infectious diseases of the respiratory system: acute catarrhal syndrome, acute respiratory viral infections, acute pneumonia, tonsillitis syndrome. Acute respiratory failure**

The clinical symptoms of the catarrhal syndrome. The main causative agents of acute respiratory viral infections (ARVI), epidemiological features.

Influenza: clinical picture, diagnosis, differential diagnosis, treatment of uncomplicated and complicated forms of influenza, indications for hospitalization. Vaccines for flu prevention.

COVID-19: clinical picture, diagnosis, differential diagnosis, treatment of uncomplicated and complicated forms, indications for hospitalization. Vaccines for COVID-19 prevention.

Other acute respiratory viral infections: parainfluenza, adenoviral infection, respiratory syncytial, rhinovirus infections. Clinical picture, diagnosis, treatment. Indications for hospitalization. Complications after ARVI. Indications for antibiotic therapy. Sanitary and anti-epidemic measures in the outbreak of ARVI.

Community-acquired pneumonia: etiological structure depending on age and premorbid background, choice of antibacterial drugs. Indications for hospitalization.

The concept of nosocomial pneumonia: etiological structure, features of diagnostic approaches, algorithm for choosing antimicrobial therapy depending on risk factors and the established pathogen.

Tonsillitis syndrome: diagnosis, range of major pathogens. Choice of antibacterial drugs. Differential diagnosis of diphtheria and tonsillitis of a different etiology. Therapeutic and diagnostic tactics in case of suspected diphtheria.

Specific prevention of diphtheria. Sanitary and anti-epidemic measures in the outbreak of diphtheria.

Acute respiratory failure: types, pathogenesis, clinical manifestations, diagnosis, emergency medical care.

Examination of patients with infectious diseases of the respiratory system (complaints and anamnesis of the disease, objective examination); interpreting the results of laboratory and instrumental tests, making the diagnosis and treatment plan.

## **3. Infectious diseases occurring with lesions of the hepatobiliary system and the gastrointestinal tract: acute and chronic viral hepatitis, acute lesions of the liver of bacterial and parasitic etiology, infectious diarrhea. Dehydration. Hypovolemic shock**

Hepatitis syndrome: main clinical symptoms. Laboratory and clinical criteria for of the liver failure. Enteral and parenteral acute viral hepatitis: clinical picture, diagnosis. Interpretation of molecular biological and immunological blood tests.

Differential diagnosis with acute liver damage of bacterial and parasitic etiology. Indications for hospitalization. Treatment and prevention of acute viral hepatitis. Sanitary and anti-epidemic measures in the outbreak of acute viral hepatitis.

Classification of chronic hepatitis. Chronic viral hepatitis: clinical picture, extrahepatic manifestations. Definition of indications, contraindications, optimal regimens of antiviral drugs.

Complications after viral hepatitis. Acute liver failure, hepatorenal syndrome: diagnosis, assessment of severity, emergency medical care. Liver cirrhosis, hepatocellular carcinoma: clinical picture, diagnosis, differential diagnosis. Indications for liver transplantation.

The main representatives of the group of infectious diarrhea: salmonellosis, campylobacteriosis, shigellosis, escherichiosis, Clostridioides difficile-associated infection, rotavirus infection, norovirus infection, amoebiasis, giardiasis: clinical and epidemiological features, methods of diagnosis and treatment. Differential diagnosis of infectious and non-infectious diarrhea.

The main pathogenetic mechanisms of diarrhea. Secretory, invasive, osmotic diarrhea: main pathogens, etiological and epidemiological features, clinical manifestations, diagnostic methods, physician tactics. Indications for the etiotropic therapy, choice of antibacterial and antiprotozoal drugs. Prevention.

Indications for hospitalization of patients with infectious diarrhea. Sanitary and anti-epidemic measures in the outbreak of acute intestinal infection.

Clinical and laboratory criteria of dehydration degrees. Principles of rehydration therapy. Hypovolemic shock: clinical and laboratory manifestations, emergency medical care.

Examination of patients with acute and chronic viral hepatitis, acute intestinal infections (complaints and anamnesis of the disease, objective examination); interpreting the results of laboratory and instrumental examination, making the diagnosis and treatment plan.

#### **4. Infectious diseases of the central nervous system: meningitis, encephalitis, myelitis, edema-swelling syndrome of the brain, neurotoxic syndrome in infectious diseases. Acute adrenal insufficiency**

Etiological structure of infectious lesions of the central nervous system (CNS). Syndromic diagnosis of various levels of CNS lesions, clinical symptoms. Differential diagnosis of infectious and non-infectious lesions of the central nervous system.

Serous meningitis: major pathogens, early diagnosis, physician tactics, treatment, indications for etiotropic therapy.

Primary and secondary purulent meningitis (meningoencephalitis): etiological features, epidemiology, pathogenesis, clinical picture, diagnosis, treatment, choice of etiotropic therapy, prevention.

Meningococcal infection: modern epidemiological features, clinical classification, early diagnosis, differential diagnosis with infectious lesions of the central nervous system and exanthema of a different etiology, therapeutic and diagnostic tactics.

Acute adrenal insufficiency: clinical manifestations, emergency medical care.



Cerebral edema: types, clinical manifestations of edema-swelling of the brain, emergency medical care.

Neurotoxicosis: causes and pathogenetic mechanisms of the development of toxic brain damage, emergency therapeutic measures.

Examination of patients with infectious lesions of the central nervous system (complaints and history of the disease, objective examination); results of laboratory and instrumental examinations, evaluating the analysis of cerebrospinal fluid (CSF) and methods of determining causative agents of the disease in CSF, making the diagnosis and treatment plan.

### **5. Quarantine and especially dangerous infections. Zoonotic infections. Diseases occurring with lymphadenopathy. HIV infection**

The spread of quarantine and especially dangerous infections. Features of etiology, epidemiology, clinical manifestations of especially dangerous infections of bacterial etiology (plague, cholera, anthrax). Therapeutic tactics for suspected quarantine infection.

Features of etiology, epidemiology, clinical manifestations of the most common zoonotic infectious diseases (leptospirosis, brucellosis, hemorrhagic fever with renal syndrome, tularemia, yersiniosis). Principles of diagnostics and therapeutic tactics. Prevention, sanitary and anti-epidemic measures in the outbreak of zoonotic infections.

Infectious diseases occurring with lymphadenopathy: the main pathogens, differential diagnosis of non-infectious etiology diseases.

HIV infection: epidemiological characteristics, stages of HIV infection, clinical picture. Diseases associated with HIV. The value of the complex epidemiological, clinical and laboratory data for the early diagnosis of HIV infection. Antiretroviral treatment: general principles, regimens and main classes of antiretroviral drugs, side effects. Methods of HIV infection prevention: pre-exposure and postexposure prophylaxis, prevention of vertical transmission of HIV infection.

Examination of patients with HIV, lymphadenopathy, zoonotic infectious diseases (complaints and anamnesis of the disease, objective examination); drawing up a checkup plan; interpretation of laboratory and instrumental examination results; making the diagnosis, the stage of the disease. Selection of antiretroviral medication regimens, making a treatment plan for infectious diseases associated with HIV infection. Making a treatment plan for patients with zoonotic infectious diseases.

## EDUCATIONAL DISCIPLINE CURRICULAR CHART

Section number, topics	Section name, topic	Number of hours		Self - studies	Means of training	Literature	Form of knowledge control
		lectures	practical classes				
1.	General infectious syndrome. Fever of unknown origin. Sepsis, septic shock. Infections related to medical care. Fungal infections. The meaning and principles of empirical and etiologic therapy	-	7	4	1-4	1-3	1-2, 4-9, 12
2.	Infectious diseases of the respiratory system: acute catarrhal syndrome, acute respiratory viral infections, acute pneumonia, tonsillitis syndrome. Acute respiratory failure	-	7	3	1-5	1-3	1-2, 4-9, 11-14
3.	Infectious diseases occurring with lesions of the hepatobiliary system and the gastrointestinal tract: acute and chronic viral hepatitis, acute lesions of the liver of bacterial and parasitic etiology, infectious diarrhea. Dehydration. Hypovolemic shock	-	7	7	1-5	1-3	1-2, 4-9, 11-14
4.	Infectious diseases of the central nervous system: meningitis, encephalitis, myelitis, edema-swelling syndrome of the brain, neurotoxic syndrome in infectious diseases. Acute adrenal insufficiency.	-	7	3	1-5	1-3	1-2, 4-9, 11-13
5.	Quarantine and especially dangerous infections. Zoonotic infections. Diseases occurring with lymphadenopathy. HIV infection	-	7	4	1-5	1-3	1-14
	<b>Total hours</b>	-	<b>35</b>	<b>21</b>			

## **INFORMATION AND METHODOLOGICAL PART**

### **LITERATURE**

#### **Basic (relevant):**

1. Infectious diseases : textbook / I. A. Karpov [et al.]. – Minsk: BSMU, 2020. – P. 199.

#### **Additional:**

2. Infectious diseases : textbook for students of higher educational establishment / Karpov I.A. [et. al.]; Belarus. state med. un-y. – 2nd ed. – Minsk : BSMU, 2017. - 188 p.

3. Infectious diseases : textbook / ed. by O.A. Holubovska. – Kyiv : AUS Medicine Publishing, 2018. – 664 p.

### **CHARACTERISTICS OF THE EDUCATIONAL METHODS**

When organizing the educational process, traditional methods of teaching the academic discipline are used: practical exercises, as well as elements of the students' managed independent work.

The educational process is organized using traditional and modern educational technologies (various forms of communication, variable models of independent work, test and other systems for assessing the level of competence, etc.).

Practical classes are held on the basis of Minsk City Infectious Clinic. During practical exercises under the supervision of a teacher, students independently collect patient complaints and a history of the disease, conduct physical examination, learn to make a plan of a laboratory and instrumental examination, correctly interpret the results of laboratory and instrumental tests, make the diagnosis and treatment plan, draw up medical records. Practical training is provided by students solving situational tasks, test tasks, practicing in the patient examination, diagnosing and differential diagnosing diseases, communication competence skills using a «standardized patient».

Independent extracurricular work consists in the study of basic and additional literature, monographs and periodical literature, preparation of reports, abstracts, presentations and short reports on the most topical issues of infectology, elaboration of topics (questions) submitted for independent study, preparation for practical classes, offset.

Students learn about safe working conditions, international requirements and ethical standards during the examination of patients with infectious pathology.

### **LIST OF MEANS OF TRAINING**

1. Multimedia pictures.
2. Training videos, thematic videos.
3. Medical records of inpatient (outpatient) patients.
4. Results of additional methods of examination (laboratory (general clinical blood tests, general clinical urine tests, biochemical blood tests, molecular

biological and immunological blood tests, cerebrospinal fluid, results of bacteriological, virological studies, antibioticograms), functional, radiation, etc.)

5. «Standardized» patient

### **LIST OF AVAILABLE DIAGNOSTIC TOOLS**

The following forms of knowledge control are used:

Oral form:

1. interview.
2. reports on practical classes.
3. report at the conference.

Written form:

4. tests.
5. quizzes.
6. cases.
7. abstracts.
8. Publication of an article, report.

Oral-written form:

9. reports on classroom practical exercises (examination of patients in infectious departments of health care institutions) with their oral defense.

10. offset

11. Assessment based on a business game.

Technical form:

12. electronic tests.
13. electronic cases.

Simulation form:

14. evaluation using the standardized patient.

### **LIST OF PRACTICAL SKILLS**

1. History taking (including epidemiological), physical examination of a patient with an infectious disease.

2. Determination of the leading clinical syndrome in a patient with an infectious disease.

3. Establishment, justification, formulation of the clinical diagnosis of an infectious disease.

4. Drawing up a plan for the necessary laboratory and instrumental examination in case of an infectious disease.

5. Identification of the main meningeal signs (stiff muscles, Kernig's symptom, upper and lower Brudzinsky symptoms) at a patient.

6. Determination of the nature of the rash in a patient with an infectious disease.

7. Examination of the patient's discharge with an assessment of pathological changes.

8. Interpretation of the results of general clinical studies of blood, urine.

9. Interpretation of the results of the blood biochemical examination of a patient with an infectious disease.
10. Interpretation of coprogram results.
11. Interpretation of the results of molecular genetic studies of blood in viral hepatitis.
12. Interpretation of the results of immunological blood tests of parenteral viral hepatitis markers.
13. Interpretation of the results of general clinical studies of cerebrospinal fluid.
14. Interpretation of chest radiographs.
15. Taking biological material for bacteriological seeding, molecular genetic research, immunochromatological research.
16. Interpretation of the results of bacteriological seeding of biological material.
17. Making the plan of diagnostic measures for a patient with fever of unclear origin.
18. Assessment of the degree of dehydration.
19. Making a rehydration therapy plan, determination of the composition, volume and doses of injected solutions and drugs, the rate of administration.
20. Making a detoxification therapy plan, determination of the composition, volume and doses of injected solutions and drugs, the rate of administration.
21. Providing medical care in emergency conditions that complicate the course of infectious diseases.
22. Determination of indications for hospitalization of a patient with an infectious disease.
23. Drawing up a plan for carrying out sanitary and anti-epidemic measures in the focus of infection.
24. Filling in medical documentation, emergency notification for infectious diseases.

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Curriculum content, composition and accompanying documents comply with established requirements.

Dean of the Medical Faculty for International Students of the educational institution «Belarusian State Medical University»

09.08. 2023

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09.08. 2023

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