**FEDERAL STATE BUDGETARY**
**EDUCATIONAL INSTITUTION OF HIGHER EDUCATION**
**"AMUR STATE MEDICAL ACADEMY"**
**MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION**

AGREED
Vice-Rector for Academic Affairs,

_____N.V. Loskutova

April17, 2025
Decision of the CCMC
April17, 2025
Protocol No. 7

APPROVED
by decision of the Academic Council of the FSBEI HE Amur SMA of the Ministry of Health of the Russian Federation
April 22, 2025
Protocol No. 15
Acting Rector of the FSBEI HE Amur SMA of the Ministry of Health of the Russian Federation

_____I.V. Zhukovets

April 22, 2025

ДОКУМЕНТ ПОДПИСАН
ЭЛЕКТРОННОЙ ПОДПИСЬЮ

Сертификат: 50AB2242604E64520B52614FA420034A
Владелец: Жуковец Ирина Валентиновна
Действителен: с 15.04.2025 до 09.07.2026

# EDUCATIONAL PROGRAM

## discipline "Endocrinology"

**Specialty: 31.05.01 General Medicine**
**Course: 5**
**Semester: 10**
**Total hours: 72 hrs.**
**Total credits: 2 credit units**
**Control form: credit-test, 10semester**

**Blagoveshchensk, 2025**

**The educational program of the discipline is designed in accordance with the requirements of the Federal State Educational Standard of Higher Education - specialist in specialty 31.05.01 General Medicine, approved by the order of the Ministry of Education and Science of Russia dated 08.12.2020 No. 988 (registered with the Ministry of Justice of Russia on 08.26.2020 No. 59493), BPEP HE (2021).**

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**Reviewers:**
**Head of the Department of Hospital Therapy with a Course in Pharmacology, Holder of an Advanced Doctorate (Doctor of Science) in Medical Sciences, Full Professor _____V.V. Voitsekhovsky**

**Deputy Chief Physician for Medical Affairs of the State Autonomic Healthcare Institution of the Amur Region "Blagoveshchensk City Clinical Hospital" T.S. Orlova**

**APPROVED at the meeting of the Department of Faculty and Polyclinic Therapy, Protocol No. 6, dated April 3, 2025**

**Head of the Department, Holder of the Advanced Doctorate in Medical Sciences, Associate Professor _____V.I. Pavlenko**

**Conclusion of the Expert Commission on the review of the Educational Sciences:**
**Protocol No. 1, dated April 16, 2025**

**Expert of the Expert Commission,**
**Holder of an Advanced Doctorate in Medical Sciences, Associate Professor _____E.E. Molchanova**

**APPROVED at the meeting of the CMC No. 3:**
**Protocol No. 1, dated April 17, 2025**

**Chairman of the CMC No. 3,**
**Holder of an Advanced Doctorate (Doctor of Science) in Medical Sciences, Full Professor _____V.V. Voitsekhovsky**

**AGREED: Dean of the Medical Faculty,**
**Ph.D. of Medical Sciences, Associate Professor _____ N.G. Brush**

# *1. Explanatory note*

## 1.1 Characteristics of the discipline

The reform of healthcare and higher medical education requires the training of qualified doctors capable of solving complex issues of early diagnostics, rational treatment and prevention of various diseases. Knowledge of the basics of clinical medicine is important for the training of doctors of all specialties. When studying the discipline "Endocrinology", a picture of clinical thinking, medical deontology is formed, skills are mastered in examining patients, making decisions on prescribing treatment and providing emergency care in life-threatening conditions.

The physician's thought process, from the moment of meeting a patient or receiving the first preliminary information about him to the moment of his recovery or death, the result of which is the formation of a clinical diagnosis, an examination plan, treatment and its practical implementation, is usually called clinical thinking.

The practical course of the discipline begins with teaching this most important medical task. When presenting the lecture course of the discipline "Endocrinology", the connection between the topics and sections of the program is emphasized, ensuring the perception of the discipline as a single, integral science. The importance of endocrinology in modern medicine is determined not only by the widespread prevalence of endocrine diseases. Endocrinology has long outgrown the limits of a relatively closed discipline and has acquired general medical significance.

In the process of studying the discipline "Endocrinology", basic ideas about the methodology of clinical diagnosis, symptoms, clinical syndrome complexes, differential diagnostics, key principles of pharmacotherapy of the main nosological forms are formed, taking into account the clinical features of the course of diseases, the presence of complications and concomitant pathology.

The work program for the discipline "Endocrinology" provides for the development of professional skills in students through a complete clinical examination of patients, conducting syndromic differential diagnostics, which contributes to the establishment of a clinical diagnosis and the development of a plan for treatment, rehabilitation and preventive measures.

Classes in this discipline are conducted in accordance with the curriculum in classrooms, hospital wards, and in the Accreditation and Simulation Center.

## 1.2. The purpose and objectives of the discipline

1. **The purpose of teaching the discipline** is to prepare a highly qualified physician with certain knowledge and skills in the field of endocrinology, taking into account further professional activity in the specialty "General Medicine".
2. **The educational objectives of the discipline** are to promote the development of clinical thinking and professional skills in students, and to teach students:
   - timely diagnosis of early manifestations of various endocrine diseases ;
   - correctly analyze clinical and anamnestic data, results of physical examination of the patient;
   - differential diagnostics of the main nosological forms of endocrine diseases ;
   - correctly interpret data from additional examination methods;
   - work with medical documentation in a hospital setting;
   - formulate a detailed clinical diagnosis in accordance with modern classifications;
   - to draw up individual plans of treatment and rehabilitation measures for patients with various endocrine diseases depending on the etiological factor, features of pathogenesis, degree of activity of the pathological process, functional state of organs and systems;
   - the basic principles of providing emergency care in urgent conditions within the nosological forms studied.

## 1.3. The place of the discipline in the structure of the main professional educational program of higher education

In accordance with the Federal State Educational Standard of Higher Education - a specialist in the specialty 31.05.01 General Medicine (2020), the discipline belongs to the disciplines of the basic part of Block 1. The total workload is 2 ZET (72 hours). The discipline "Endocrinology" belongs to the basic part, Block 1. When presenting the lecture course of the discipline and in practical classes, the connection between the topics and sections of the program is emphasized, while ensuring the perception of the discipline as a single holistic science.

Classes in the discipline "Endocrinology" are held according to the cyclic system of 10 classes in the 10th semester. Classes in the discipline are held in accordance with the curriculum in classrooms, hospital wards, in the Accreditation and Simulation Center.

As a result of studying the discipline "Endocrinology", students develop the foundations of clinical thinking, medical ethics and deontology, which are necessary for a future specialist, regardless of the field of his activity.

The program for the discipline "Endocrinology" is designed for 72 hours in the 10th semester , of which lectures - 14 hours , clinical practical classes - 34 hours, independent work of students - 24 hours.

In X In the semester, a test is held, consisting of 3 stages - defense of the educational medical history, theoretical and practical parts. The theoretical part is a survey of the student on tickets, the practical part is the interpretation of the results of clinical, laboratory and instrumental examinations , solving situational problems.

The forms of student training are: lectures, clinical practical classes, independent work in the classroom and outside the classroom.

## 1.4. Requirements for students

| **To study the discipline, knowledge, skills and abilities formed by previous disciplines are necessary:** |
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| **Latin** |
| ***Knowledge*** **:** Basic medical and pharmaceutical terminology in Latin. |
| ***Skills:*** be able to apply knowledge for communication and obtaining information from medical literature, medical documentation. ( II - III level) |
| ***Skills:*** applies medical and pharmaceutical terminology in Latin in professional activities |
| **Professional foreign language** |
| ***Knowledge:*** basic medical and pharmaceutical terminology in a foreign language. ( II - III level) |
| ***Skills*** **:** be able to apply knowledge for communication and obtaining information from foreign sources. |
| ***Skills:*** applies medical and pharmaceutical terminology in a foreign language in professional activities |
| **History of Medicine** |
| ***Knowledge:*** outstanding figures in medicine and health care, Nobel laureates, outstanding medical discoveries in the field of therapy, the influence of humanistic ideas on medicine. ( II - III level) |
| ***Skills:*** be able to competently and independently present and analyze the contribution of domestic scientists to the development of endocrinology. |
| ***Skills:*** applies knowledge of the history of medicine in professional activities |
| **Philosophy** |
| ***Knowledge:*** methods and techniques of philosophical analysis of problems; forms and methods of scientific knowledge, their evolution; basic patterns and trends in the development of the world historical process; laws of dialectical materialism in medicine. ( II - III level) |
| ***Skills:*** be able to competently and independently express, analyze the forms and methods of scientific knowledge and the laws of dialectical materialism in medicine. |

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| ***Skills:*** applies scientific methods to analyze medical information |
| **Bioethics** |
| ***Knowledge:*** moral and ethical standards, rules and principles of professional medical conduct, rights of the patient and the doctor, basic ethical documents regulating the activities of the doctor. ( II - III level) |
| ***Skills:*** be able to build and maintain working relationships with patients and other team members. |
| ***Skills:*** applies ethical standards to building relationships in a team and when working with patients |
| **Histology** |
| ***Knowledge:*** embryogenesis, histological structure of tissues and systems. ( II - III level) |
| ***Skills:*** be able to determine age-related patterns of development of organs and systems; analyze the results of histophysiological research. |
| ***Skills:*** analyzes and evaluates the results of histological examination when interpreting pathology of the endocrine system |
| **Microbiology with virology** |
| ***Knowledge:*** the impact of microbes, viruses, rickettsia, fungi on the body. Microbiological diagnostics of infectious diseases. ( Level II ) |
| ***Skills:*** be able to analyze the results of microbiological diagnostics of infectious diseases. |
| ***Skills:*** applies knowledge of microbiology and virology in professional activities |
| **Modern problems of regeneration** |
| ***Knowledge:*** biological essence, main forms and phases of the main types of regeneration - physiological and reparative; general ideas about the possibility of stimulating regenerative processes occurring in the body; main types of stem cells, sources of their production, application in medicine. ( II - III level) |
| ***Skills:*** be able to analyze the patterns of physiological and reparative regeneration and the importance of the immune and endocrine systems |
| ***Skills:*** applies knowledge of modern problems of regeneration microbiology with virology in professional activities |
| **Physics, Mathematics. Medical informatics. Medical biophysics** |
| ***Knowledge:*** mathematical methods for solving intellectual problems and their application in medicine; theoretical foundations of informatics, collection, storage, search, processing, transformation, distribution of information in medical and biological systems, use of information computer systems in medicine and health care; principles of operation and design of equipment used in medicine, foundations of physical and mathematical laws reflected in medicine ( II - III level). |
| ***Skills:*** be able to use educational, scientific, popular science literature, the Internet for professional activities, work with equipment taking into account safety regulations **.** |
| ***Skills:*** applies knowledge of physics, mathematics, medical informatics, medical biophysics in professional activities |
| **Bioinorganic and biophysical chemistry in medicine** |
| ***Knowledge:*** hormonal spectrum, biochemical constants of blood, buffer systems, hemoglobin oxygenation factors, erythrocyte metabolism. (II - III level). |
| ***Skills:*** be able to analyze the contribution of biochemical processes to the functioning of the endocrine, cardiovascular, respiratory, digestive, urinary, and hematopoietic systems, and interpret the results of the most common laboratory diagnostic methods to identify disorders in diseases of the endocrine system. |
| ***Skills:*** applies knowledge of bioinorganic and biophysical chemistry in medicine in professional activities |

| **Biology** |
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| ***Knowledge:*** laws of genetics and its importance for medicine; patterns of heredity and variability in individual development as the basis for understanding the pathogenesis and etiology of hereditary and multifactorial diseases; biosphere and ecology, the phenomenon of parasitism and bioecological diseases. ( II - III level). |
| ***Skills:*** be able to analyze patterns of heredity and variability in the development of endocrine system diseases. |
| ***Skills:*** applies knowledge of biology in professional activities |
| **Anatomy** |
| ***Knowledge:*** anatomical and physiological features of the endocrine, cardiovascular, digestive, and hematopoietic systems. ( II - III level). |
| ***Skills:*** be able to analyze age- and gender-related features of the structure of organs and systems. |
| ***Skills:*** applies knowledge of anatomy in professional activities |
| **Normal Physiology** |
| ***Knowledge:*** reflex arc, conditioned and unconditioned reflexes, physiology of the endocrine, cardiovascular, digestive, urinary, respiratory and hematopoietic systems in the norm . ( II - III level). |
| ***Skills*** : be able to analyze the importance of regulation of biological processes in the human body on the functioning of the endocrine, cardiovascular, digestive, urinary, respiratory, and hematopoietic systems. |
| ***Skills:*** applies knowledge of normal physiology in professional activities |
| **Topographic anatomy, operative surgery** |
| ***Knowledge:*** structure, topography of cells, tissues, organs and systems of the body in interaction with their function in norm and pathology. ( Level II ) |
| ***Skills:*** be able to analyze the functional features of the endocrine, cardiovascular, respiratory, digestive, urinary, and hematopoietic systems in normal and pathological conditions. |
| ***Skills:*** applies knowledge of topographic anatomy and surgical procedures in professional activities |
| **Life safety, disaster medicine** |
| ***Knowledge:*** acute and chronic diseases from exposure to ionizing radiation (radiation sickness). ( Level II ) |
| ***Skills:*** be able to analyze the impact of ionizing radiation on the development of pathologies of the endocrine, cardiovascular, digestive, urinary, respiratory, and hematopoietic systems . |
| ***Skills:*** applies knowledge of life safety, disaster medicine in professional activities |
| **Pathophysiology, clinical pathophysiology** |
| ***Knowledge:*** morphological changes in body tissues in pathologies of the endocrine, cardiovascular, respiratory, digestive, urinary and blood systems . ( Level II ) |
| ***Skills:*** be able to determine the contribution of pathophysiological processes to the development of diseases of internal organs. |
| ***Skills:*** applies knowledge of pathophysiology, clinical pathophysiology in professional activities |
| **Pharmacology** |
| ***Knowledge :*** mechanism of action and side effects of various drugs on the body. ( II - III level) |
| ***Skills:*** be able to write prescriptions for prescribed drugs, know the indications and contraindications for their use. |

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| ***Skills:*** prescribes necessary medications for the treatment of endocrine system pathology |
| **Propaedeutics of internal diseases** |
| ***Skills:*** collection of complaints, anamnesis **,** objective methods of examination of patients (palpation, percussion, auscultation . ( II - III level) |
| ***Knowledge:*** Be able to conduct anamnestic and physical examination, identify the main syndromes and symptoms of diseases of internal organs. |
| ***Skills:*** systematizes the obtained data from anamnesis, physical examination, additional research data for the diagnosis of endocrine system pathology |

## 1.5 Interdisciplinary links with subsequent disciplines

The knowledge and skills acquired in the discipline "Endocrinology" are necessary for studying the following disciplines:

| **No. p/p** | **Name of subsequent disciplines** | **Discipline "Endocrinology"** |
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| 1 | Hospital therapy | + |
| 2 | Outpatient therapy | + |
| 3 | Public health and healthcare, health economics | + |
| 4 | Phthisiology | + |
| 5 | Ophthalmology | + |
| 6 | Clinical pharmacology | + |
| 7 | Anesthesiology, resuscitation, intensive care | + |
| 8 | Hospital surgery, pediatric surgery | + |
| 9 | Obstetrics and gynecology | + |

## 1.6. Requirements for the results of mastering the discipline

**The study of the discipline "Endocrinology" is aimed at the formation of the following competencies: universal (UK), general** professional (OPK) and professional (PK): UK-1, 3; OPK-1, 4, 7, 11; PC-1,2,3,4,5,6,10,12,14.

| No. p/p | Code and name of competence | Code and name of the indicator of achievement of competence | As a result of studying the academic discipline "Endocrinology" student must: | | |
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| | | | **Know** | **Be able to** | **To own** |
| **Universal competencies** | | | | | |
| **1** | UK-1. Capable of carrying out a critical analysis of problematic situations based on a systems approach, developing an action strategy | ID UK-1.1. Analyzes the problem situation as a system, identifying its components and the connections between them.<br>ID UK-1.2. Identifies gaps in information needed to solve problem situations and designs processes to eliminate them.<br>ID UK-1.3. Applies systems analysis to resolve problematic situations in the professional sphere.<br>ID UK-1.4. Uses logical and methodological tools for critical evaluation of modern concepts of a philosophical and social nature in their subject area.<br>ID UK-1.5. Critically evaluates the reliability of information sources, works with contradictory information from | The main historical stages in the development of diagnostics of endocrine diseases , the subject and objectives of the discipline, the relationship with other medical-biological and medical disciplines; the main terms and concepts used in the differential diagnosis of endocrine diseases ; modern concepts in the study of endocrinology ;<br>principles of using logical and methodological tools for critically assessing modern concepts of a philosophical and social nature in the differential diagnosis of endocrine | To characterize the stages of development of endocrinology as a science and its role at the present stage; to assess the levels of organization of endocrine diseases ; to assess the contribution of domestic scientists to the development of differential diagnostics of endocrine diseases ; to develop and argue a strategy for solving problem situations based on a systemic and interdisciplinary approach to differential diagnostics of endocrine diseases . | The ability to analyze the significance of differential diagnostics of endocrine diseases at the present stage; system analysis of the obtained data to resolve problem situations in the professional sphere; methods of developing and arguing a strategy for solving problem situations based on a systemic and interdisciplinary approach in differential diagnostics of endocrine diseases ; a critical approach to the assessment and reliability of information sources, methods of working with contradictory information obtained from different sources. |

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| | | different sources. | diseases. | | |
| **2** | UK-3. Able to organize and manage the work of a team, developing a team strategy to achieve the set goal | ID UK-3.1. Establishes and develops professional contacts in accordance with the needs of joint activities, including information exchange and development of a unified strategy; works in a tolerant team, perceives social, ethnic, religious and cultural differences. ID UK-3.2. Plans and adjusts the team's work taking into account the interests, behavioral characteristics and opinions of team members, distributes assignments and delegates authority to team members. ID UK-3.3. Selects constructive ways to resolve conflicts and contradictions in business communication. ID UK-3.4. Organizes discussions on a given topic and | Basic principles of tolerant perception of social, ethnic, religious and cultural differences when working in a team;<br>skills of effective and conflict-free communication in a team | Tolerantly perceive social, ethnic, religious and cultural differences when working in a team;<br>communicate effectively and without conflict within a team, including developing a team strategy to achieve a goal. | The ability to develop a team strategy to achieve a set goal, including a professional one; methods of effective and conflict-free communication in a team; tolerance for social, ethnic, religious and cultural differences. |

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| | | discussion of the results of the team's work with the involvement of opponents to the developed ideas. | | | |
| **General professional competencies** | | | | | |
| **3** | OPK-1. Capable of implementing moral and legal norms, ethical and deontological principles in professional activities | ID OPK-1.1. Carries out professional activities in accordance with ethical standards and moral principles.<br>ID OPK-1.2. Organizes professional activities, guided by legislation in the field of healthcare, knowledge of medical ethics and deontology.<br>ID OPK-1.3. Has the skills of presenting an independent point of view, analysis and logical thinking, public speaking, moral and ethical argumentation, conducting discussions and round tables, principles of medical deontology and medical ethics. | Ethical and deontological aspects of the relationship "doctor-doctor", "doctor-patient";<br>principles of effective and conflict-free communication with patients;<br>methods of effective communication between doctor and patient in difficult situations;<br>Basic requirements for the personality of a doctor; general principles for conducting discussions and round tables. | Conduct a physical examination of the patient taking into account ethical and deontological principles;<br>communicate effectively and without conflict with patients, relatives, colleagues;<br>to form effective relationships with the patient; to observe the principles of confidentiality; to conduct discussions, observing the principles of moral and ethical argumentation. | Have communication skills with the patient and relatives<br>colleagues, junior staff;<br>identify problems with a patient's approach to a doctor;<br>methods of verbal and non-verbal communication with the patient; principles of confidentiality in professional activities and communication with colleagues; continuous improvement of communication skills in the professional activities of a doctor |
| **4** | OPK-4. Capa- | ID OPK-4.1. Uses modern | Indications and contra- | Apply modern medical | The ability to use modern |

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| | ble of using medical products provided for by the procedure for providing medical care, as well as conducting patient examinations to establish a diagnosis | medical technologies, specialized equipment and medical products, disinfectants, drugs, including immunobiological and other substances and their combinations when solving professional problems from the standpoint of evidence-based medicine.<br>ID OPK-4.2. Knows the indications and contraindications for the appointment of instrumental, functional and laboratory examination methods, possible complications during the examination, emergency care and their prevention.<br>ID OPK-4.3. Interprets the results of the most common methods of instrumental, laboratory and functional diagnostics, thermometry to identify pathological processes.<br>ID OPK-4.4. Proficient in methods of general clinical examination of patients of various ages.<br>ID OPK-4.5. Formulates a | indications for the use of modern medical technologies, medical devices, drugs, instrumental, functional and laboratory examination methods in the differential diagnosis of endocrine diseases ; interpretation of the results of the most common methods of instrumental, laboratory and functional diagnostics; methods of general clinical examination of the patient;<br>principles of formulating a preliminary diagnosis and clinical diagnosis of endocrine diseases according to ICD. | technologies, specialized equipment, medical products, drugs in accordance with the procedure for providing medical care, from the standpoint of evidence-based medicine in the field of differential diagnostics of endocrine diseases ; prescribe instrumental, functional and laboratory examination methods; interpret the results of instrumental, laboratory and functional diagnostic methods; conduct a clinical examination of the patient; formulate a preliminary diagnosis and clinical diagnosis in endocrinology according to the ICD. | medical technologies, specialized equipment, medical products, drugs and their combinations, from the standpoint of evidence-based medicine in the differential diagnosis of endocrine system diseases; compare the results of additional examination methods (instrumental, laboratory and functional diagnostics) to identify pathological processes;<br>methods of general clinical examination of patients of different ages;<br>formulation of a preliminary diagnosis and clinical diagnosis in accordance with the ICD, taking into account a set of clinical and additional examination methods (instrumental, laboratory and functional). |

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| | | preliminary diagnosis and clinical diagnosis according to ICD. | | | |
| **5** | OPK-7. Capable of prescribing treatment and monitoring its effectiveness and safety | ID OPK-7.1. Selects a drug based on the totality of its pharmacokinetic and pharmacodynamic characteristics for the treatment of patients with various nosological forms in outpatient and inpatient settings.<br>ID OPK-7.2. Selects the optimal minimum of the most effective means, using convenient methods of their application.<br>ID OPK-7.3. Explains the main and side effects of drugs, the effects of their combined use and interaction with food, taking into account the morphofunctional features, physiological states and pathological processes in the human body<br>ID OPK-7.4. Prescribes medicines in prescriptions for the treatment of diseases and correction of pathological condi- | Principles of selection of a medicinal product based on the totality of its pharmacokinetic and pharmacodynamic characteristics for treatment of patients with various endocrine diseases ; advantages of the selected drug and the preferred method of its administration; main and side effects of medicinal products; morphofunctional features, physiological states and pathological processes in the body of a patient with endocrine diseases when selecting a medicinal product; results of possible interactions of medicinal products with the combined use of various drugs in endocrinology; criteria for the effectiveness and | To select the optimal drug (taking into account its pharmacokinetic and pharmacodynamic characteristics) and the preferred method of its use; to identify the main and side effects of drugs used in the differential diagnosis of endocrine diseases , taking into account the morphofunctional features, physiological states and pathological processes of the human body;<br>select over-the-counter medications and other pharmacy products taking into account the physiological conditions and pathological processes in patients with endocrine diseases ; take into account<br>possible interaction of | The ability to prescribe the optimal drug, select the preferred method of its use, taking into account the morphofunctional characteristics, physiological conditions and pathological processes in diseases of the endocrine system, the possible interaction of drugs with the combined use of various drugs;<br>the ability to promptly identify side effects of drugs used in the differential diagnosis of endocrine system diseases;<br>of the endocrine system based on a combination of clinical, laboratory, instrumental and other diagnostic methods . |

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| | | tions, based on the characteristics of the pharmacokinetics and pharmacodynamics of drugs<br>ID OPK-7.5. Takes into account morphofunctional features, physiological states and pathological processes in the human body when choosing over-the-counter drugs and other pharmacy products.<br>ID OPK-7.6. Analyzes the results of possible interactions of drugs during the combined use of various drugs.<br>ID OPK-7.7. Evaluates the effectiveness and safety of drug therapy using a combination of clinical, laboratory, instrumental and other diagnostic methods. | safety of medicinal therapy based on the totality of clinical, laboratory, instrumental and other methods for diagnosing endocrine diseases . | drugs with the combined use of various drugs in endocrinology ;<br>to evaluate the effectiveness and safety of drug therapy using a combination of clinical, laboratory, instrumental and other diagnostic methods in endocrinology . | |
| **6** | OPK-11. Capable of preparing and applying scientific, scientific-production, design, organizational- | ID OPK 11.1. Applies modern methods of collecting and processing information, conducts statistical analysis of the obtained data in the professional field and interprets the results to solve professional problems. | Basic methodological approaches to working with educational, scientific, reference, medical literature, including the Internet (methods of collecting and processing information); | Independently work with educational, scientific, reference, medical literature, including on the Internet (search and select information) in the field of differential diagnosis of endocrine dis- | Ability to take a systematic approach to the analysis of educational, scientific, reference, medical information, including Internet sources (methodology for collecting and processing information); basic |

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| | managerial and regulatory documentation in the healthcare system | ID OPK 11.2. Identifies and analyzes problem situations, searches for and selects scientific, regulatory and organizational documentation in accordance with the specified goals.<br>ID OPK 11.3. Interprets and applies data from physical, chemical, mathematical and other natural science concepts and methods to solve professional problems.<br>ID OPK-11.4. Conducts scientific and practical research, analyzes information using the historical method and prepares publications based on the research results.<br>ID OPK-11.5. Analyzes and compiles accounting and reporting medical documentation and calculates qualitative and quantitative indicators used in professional activities. | algorithms and software tools to support decision-making during the treatment and diagnostic process in the differential diagnosis of endocrine diseases ;<br>methods of collecting, storing, searching, processing, transforming and distributing information in medical information systems;<br>methods of maintaining medical records;<br>Basic statistical methods for solving intellectual problems and their application in differential diagnostics of endocrine diseases . | eases ;<br>carry out statistical processing, analysis of the obtained data and interpret the results to solve professional problems in the field of diagnostics and treatment of endocrine diseases ;<br>interprets and applies data from physical, chemical, mathematical and other natural science concepts and methods to solve professional problems in the field of differential diagnosis of endocrine diseases . | skills in using medical information systems and Internet resources;<br>methods of maintaining medical records;<br>the main scientific methods of knowledge: observation, description, measurement, experiment in the field of differential diagnosis of diseases of the endocrine system;<br>analysis and preparation of accounting and reporting medical documentation and methods for calculating qualitative and quantitative indicators used in the differential diagnosis of endocrine diseases . |
| **Professional competencies** | | | | | |

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| 7 | PC-1. Capable of providing medical care in urgent and emergency situations | ID PC - 1.1. Identifies clinical signs of conditions requiring emergency medical care ID PC -1.2. Provides emergency medical care to patients with sudden acute illnesses, conditions, exacerbation of chronic diseases without obvious signs of a threat to the patient's life ID PC -1.3. Identifies conditions requiring emergency medical care ID PC - 1.4. Provides emergency medical care to patients with conditions that pose a threat to the patient's life ID PC - 1.5. Identifies signs of sudden cessation of blood circulation and respiration ID PC - 1.6. Performs basic cardiopulmonary resuscitation in combination with electropulse therapy (defibrillation) in case of clinical death of the patient (in case of sudden cessation of blood circulation and/or respiration) . | Clinical signs of conditions requiring emergency medical care in the differential diagnosis of diseases endocrine system; methods of providing emergency medical care for endocrine diseases. | To identify clinical signs of conditions requiring emergency medical care in the differential diagnosis of endocrine diseases (hypoglycemia syndrome, acute adrenal insufficiency, thyrotoxic crisis); to provide emergency medical care for endocrine diseases. | The ability to diagnose endocrine diseases and provide emergency medical care in case of endocrine pathology. |
| 8 | PC-2. Capable | ID PC-2 .1. Establishes con- | Methodology for col- | Establish contact with | The ability to establish |

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| | of collecting and analyzing complaints, life history and medical history of the patient in order to establish a diagnosis | tact with the patient.<br>ID PC- 2.2. Collects complaints, specifies them, highlighting the main and secondary ones.<br>ID PC- 2.3. Collects and analyzes information about the onset of the disease, the presence of risk factors, the dynamics of the development of symptoms and the course of the disease.<br>ID PC- 2.4. Analyzes the timing of the first and repeated requests for medical care, the volume of therapy performed, and its effectiveness.<br>ID PC- 2.5. Collects and evaluates information about the medical history, including data on past illnesses, injuries and surgeries, hereditary, professional, and epidemiological history. | lecting complaints (primary, secondary) of a patient with endocrine diseases ; methods for collecting the anamnesis of the disease (time of seeking medical care, dynamics of symptom development, volume of therapy performed and its effectiveness), life history, including risk factors for endocrine diseases , data on past illnesses, injuries and surgeries, hereditary, professional, epidemiological anamnesis. | the patient; collect complaints and anamnesis of the patient's disease with endocrine pathology , analyze the obtained data; determine the risk factors of the patient's existing endocrine disease ; evaluate information about the patient's life history, paying special attention to concomitant diseases, hereditary, allergic, professional, epidemiological anamnesis. | contact, compliant relationships with a patient with endocrine pathology ; collecting complaints (primary, secondary), disease history (onset, dynamics of symptom development, seeking medical help, characteristics and volume of therapy and its effectiveness), life history (risk factors, concomitant diseases, allergological, professional, epidemiological history) of the patient in the differential diagnosis of endocrine diseases . |
| 9 | PC-3. Capable of conducting a physical examination of a patient, analyz- | ID PC-3.1. Conducts a complete physical examination of the patient (inspection, palpation, percussion, auscultation) and interprets its re- | The methodology of a complete physical examination of a patient with an endocrine disease (inspection, palpation, per- | Conduct a complete physical examination of a patient with an endocrine disease (inspection, palpation, percussion, aus- | Ability to conduct a complete physical examination of a patient with an endocrine disease (inspection, palpation, percus- |

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| | ing the results of additional examination methods in order to establish a diagnosis | sults<br>ID PC-3.2. Justifies the necessity, volume, sequence of diagnostic measures (laboratory, instrumental) and referral of the patient to specialist doctors for consultations<br>ID PC-3.3. Analyzes the results of the patient examination, if necessary, justifies and plans the scope of additional studies.<br>ID PC-3.4. Interprets and analyzes the results of collecting information about the patient's disease, data obtained during laboratory and instrumental examinations and during consultations with specialist doctors; if necessary, justifies and plans the scope of additional research.<br>ID PC-3.5. Performs early diagnostics of internal organ diseases. Establishes a diagnosis taking into account the current international statistical classification of diseases and related health problems (ICD) | cussion, auscultation) and interpretation of its results; the need, scope, sequence of diagnostic measures and indications for consultation with specialist doctors; the methodology of analysis and comparison of the obtained clinical and diagnostic results of examination of a patient with an endocrine disease ; indications for prescribing additional examination methods (if necessary); principles of early diagnosis, main symptoms and syndromes in the differential diagnosis of endocrine diseases ; formulation of a diagnosis taking into account the current international statistical classification of diseases and related health problems (ICD); differential diagnosis of endocrine diseases. | cultation) and interpret its results; determine the need, scope, sequence of diagnostic measures and indications for consultation with specialist doctors; analyze and compare the obtained clinical and diagnostic results of examination of a patient with an endocrine disease ; determine indications for the appointment of additional examination methods; identify syndromes and symptoms in the differential diagnosis of endocrine system diseases , to substantiate their clinical diagnosis in accordance with the current international statistical classification of diseases and related health problems (ICD); to conduct differential diagnosis of identified endocrine system diseases. | sion, auscultation) and interpretation of its results;<br>refer the patient for diagnostic procedures (laboratory, instrumental), for consultation of the patient with medical specialists; analysis and comparison of the obtained clinical and diagnostic results of examination of the patient with endocrine system disease; the ability to analyze the main clinical manifestations in the differential diagnosis of endocrine system diseases, establish a clinical diagnosis in accordance with the current international statistical classification of diseases and related health problems (ICD) and justify it; conduct differential diagnostics of identified endocrine system diseases with other pathologies. |

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| | | ID PC-3.6. Conducts differential diagnostics of endocrine diseases from other diseases | | | |
| 10 | PC-4. Capable of determining indications for hospitalization, indications for emergency, including emergency specialized, medical care | ID PC-4.1. Defines medical indications for the provision of emergency, including emergency specialized, medical care<br>ID PC-4.2. Refer the patient for specialized medical care in inpatient or day hospital conditions if there are medical indications in accordance with the current procedures for providing medical care, clinical guidelines (treatment protocols) on issues of providing medical care, taking into account the standards of medical care<br>ID PC-4.3. Uses medical products in accordance with current procedures for the provision of medical care, clinical recommendations (treatment protocols) on issues of providing medical | Medical indications for the provision of emergency, including emergency specialized, medical care in the differential diagnosis of endocrine organs ; medical indications for referring a patient for specialized medical care in inpatient or day hospital conditions, principles of using medical devices in accordance with current procedures for the provision of medical care, clinical recommendations (treatment protocols) on issues of providing medical care taking into account standards of medical care in differential diagnosis. | Determine medical indications for providing emergency, including emergency specialized, medical care to a patient with a disease of the endocrine organs; determine medical indications for referring a patient for specialized medical care in a hospital or day hospital, principles of using medical devices in accordance with current procedures for providing medical care, clinical recommendations (treatment protocols) in the differential diagnosis of diseases of the endocrine system. | The ability to determine medical indications for the provision of emergency, including emergency specialized, medical care in the differential diagnosis of endocrine diseases ; the ability to determine medical indications for referring a patient for specialized medical care in a hospital or day hospital, principles of using medical devices in accordance with current procedures for the provision of medical care, clinical guidelines (treatment protocols) on issues of providing medical care to patients with endocrine diseases. |

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| | | care, care taking into account the standards of medical care. | | | |
| 11 | PC-5. Able to prescribe treatment to patients | ID PC-5.1. Draws up a treatment plan for the patient taking into account the diagnosis, age of the patient, clinical picture of the disease, presence of complications, concomitant pathology, in accordance with the current procedures for the provision of medical care, clinical recommendations (treatment protocols) on issues of providing medical care taking into account the standards of medical care<br>ID PC-5.2. Prescribes medications, medical devices and therapeutic nutrition taking into account the diagnosis, age and clinical picture of the disease in accordance with the current procedures for the provision of medical care, clinical recommendations, taking into account the standards of medical care | Modern methods of application, mechanism of action, indications and contraindications for the prescription of drugs, medical devices in the differential diagnosis of endocrine diseases (taking into account the diagnosis, age and clinical picture of the disease) in accordance with the current procedures for the provision of medical care, clinical recommendations (treatment protocols) on issues of providing medical care taking into account the standards of medical care in the differential diagnosis of endocrine diseases ;<br>non-drug treatment taking into account the diagnosis, age and clinical picture of endocrine dis- | To draw up a treatment plan for a patient with endocrine system diseases taking into account the diagnosis, age, clinical picture of the disease in accordance with the current procedures for the provision of medical care, clinical recommendations (treatment protocols) on issues of providing medical care taking into account the standards of medical care in the differential diagnosis of endocrine system diseases;<br>prescribe medications, medical devices, non-drug treatment for diseases of the endocrine organs; provide palliative care to patients with diseases of the endocrine organs; organize person- | The ability to develop an individual treatment plan for a patient with endocrine diseases , taking into account the diagnosis, age, clinical picture of the disease in accordance with the current procedures for the provision of medical care, clinical recommendations (treatment protocols) on issues of providing medical care, taking into account the standards of medical care in the differential diagnosis of endocrine diseases ; prescribe non-drug treatment for endocrine diseases ;<br>provide palliative care to patients with endocrine diseases ; organize personalized treatment of the patient, including pregnant women, elderly and senile patients with endocrine diseases in accordance with |

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| | | ID PC-5.3. Prescribes non-drug treatment taking into account the diagnosis, age and clinical picture of the disease in accordance with the current procedures for the provision of medical care, clinical recommendations, taking into account the standards of medical care<br>ID PC-5.4. Provides palliative medical care in cooperation with medical specialists and other medical workers<br>ID PC-5.5. Organizes personalized treatment of the patient, including pregnant women, elderly and senile patients | eases; principles of providing palliative care to patients with diseases of the endocrine organs;<br>principles of organizing personalized treatment of patients, including pregnant women, elderly and senile patients with endocrine diseases. | alized treatment of the patient, including pregnant women, elderly and senile patients with endocrine diseases, in accordance with the current procedures for the provision of medical care, clinical recommendations (treatment protocols). | the current procedures for the provision of medical care, clinical guidelines (treatment protocols) on issues of providing medical care, taking into account the standards of medical care in endocrinology; |
| 12 | PC-6. Capable of monitoring the effectiveness and safety of the therapy being performed. | ID PC-6.1. Assesses the effectiveness and safety of the use of drugs, medical devices, therapeutic nutrition and other methods of treatment<br>ID PC-6.2. Takes into account the pharmacodynamics and pharmacokinetics of the main groups of drugs, pre- | Information on the effectiveness and safety of using drugs, medical devices, therapeutic nutrition and other methods of treatment in the differential diagnosis of endocrine system diseases ; pharmacodynamics and | To evaluate the effectiveness and safety of the use of drugs, medical devices, therapeutic nutrition and other methods of treating patients with endocrine pathology;<br>take into account the pharmacodynamics and | The ability to assess the effectiveness and safety of the use of drugs, medical devices, therapeutic nutrition and other methods of treating diseases of the endocrine system;<br>the ability to take into account, when prescribing, |

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| | | vents the development of adverse drug reactions, and corrects them if they occur. | pharmacokinetics of the main groups of drugs used in the differential diagnosis of endocrine diseases . | pharmacokinetics of drugs used in the differential diagnosis of endocrine diseases when prescribing . | the features of the pharmacodynamics and pharmacokinetics of drugs used in the treatment of endocrine system pathology. |
| 13 | PC -10. Capable of conducting and monitoring the effectiveness of preventive work and healthy lifestyle promotion activities | ID PC 10.1. Prescribes preventive measures to patients taking into account risk factors for the prevention and early detection of diseases, including socially significant diseases ID PC 10.2. Develops and implements programs for the formation of a healthy lifestyle, including programs to reduce alcohol and tobacco consumption, prevent and combat non-drug use of narcotic drugs and psychotropic substances ID PC 10.3. Conducts sanitary and anti-epidemic measures in the event of an outbreak of infection | Forms and methods of educational work, preventive measures for patients taking into account risk factors for the prevention and early detection of pathology of the endocrine organs, including socially significant diseases; risk factors for the development of endocrine diseases . | To identify modifiable risk factors for the development of endocrine diseases;<br>to prescribe preventive measures to patients in a timely manner, taking into account risk factors for the prevention and early detection of endocrine diseases , including socially significant diseases in endocrinology | The ability to conduct educational work, preventive measures for patients, taking into account the identified risk factors for the development of endocrine diseases for the prevention and early detection of endocrine diseases , including socially significant ones |

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| 14 | PC-12. Ready to maintain medical records, including in electronic form | ID PC-12.1. Fills out medical documentation, including in electronic form<br>ID PC-12.2. Works with personal data of patients and information constituting a medical secret<br>ID PC-12.3. Prepares documents when referring patients for hospitalization, consultation, spa treatment, medical and social examination. | Rules for the preparation of medical documentation (including in electronic form) in medical organizations with an endocrinological profile; principles of working with personal data of patients and information constituting a medical secret. | Fill out medical documentation (including in electronic form) in endocrinology-focused medical organizations; work with personal data of patients and information constituting a medical secret. | Ability to fill out medical documentation (including in electronic form) in endocrinology-focused medical organizations; ability to work with personal data of patients and information constituting a medical secret. |
| 15 | PC-14. Capable of participating in research activities. | ID PC-14.1. Participates in scientific research<br>ID PC-14.2. Analyzes medical information based on evidence-based medicine<br>ID PC-14.3. Introduces new methods and techniques into practical healthcare aimed at protecting the health of the adult population. | Methodology of conducting scientific research; main directions of scientific research in differential diagnostics of endocrine diseases ; principles and methods of conducting scientific research, medical statistics. | To participate in scientific research, analyze medical information based on evidence-based medicine, and introduce new methods into practical work aimed at protecting the health of the adult population, including preventing the development of endocrine system pathology. | The ability to participate in scientific research; the ability to analyze medical information based on evidence-based medicine and implement new methods in practical work aimed at protecting the health of the adult population. |

## 1.7 Stages of competence development and assessment scale


The first stage is knowledge of topics (at each lesson, the student must know is presented in the form of questions), sections (questions for the final lesson), and discipline (questions submitted for midterm assessment).

The second stage is skills in practical manipulations based on knowledge (is presented in the form - the student must be able to).

The third stage is mastering the skills of application in a specific clinical situation (solving a clinical situation (problem), with a demonstration of practical implementation).

To assess the mastery of competencies, a binary competency assessment scale is adopted: satisfactory - mastered the competency (marked as passed), unsatisfactory - did not master the competency (marked as failed).

## 1.8 Forms of training organization and types of control

| **Form of organization of students' training** | **Brief description** |
|---|---|
| Lectures | The lecture material contains key and most problematic issues of the discipline, which are most significant in the training of a specialist. |
| Clinical practical classes | They are intended for the analysis (reinforcement) of theoretical principles and monitoring their assimilation with subsequent application of the acquired knowledge during the study of the topic. |
| Interactive forms of education | - solving situational problems with subsequent discussion,<br>- performing creative tasks,<br>- work in the Accreditation and Simulation Center,<br>- discussions,<br>- online course of the discipline in the Moodle system ,<br>- testing in the Moodle system . |
| Participation in the department's research work, student circle and conferences | - preparation of oral presentations and poster reports for presentation at a student club or scientific conference;<br>- writing theses and abstracts on the chosen scientific field;<br>- preparation of a literature review using educational, scientific, reference literature and Internet sources. |
| **Types of control** | **Brief description** |
| Current control | Incoming inspection<br>Testing theoretical knowledge and practical skills developed during the study of previous disciplines.<br>The entrance knowledge control includes:<br>- testing in the Moodle system (test of incoming knowledge control),<br>- solving situational problems and exercises.<br>The results of the incoming inspection are systematized, analyzed and used by the teaching staff of the department to develop measures to improve and update the teaching methods of the discipline. |
| | Current control (initial, output) of knowledge includes:<br>- checking the solution of situational problems and exercises completed independently (extracurricular independent work);<br>- assessment of the assimilation of theoretical material (oral survey and computer testing );<br>- testing in the Moodle system on all topics of the discipline (tests include questions of a theoretical and practical nature);<br>- individual assignments (practical and theoretical) for each topic of the discipline being studied. |
| Intermediate certification | The midterm assessment is presented by a test at the end of the 10th semester. The test includes the following stages:<br>- assessment of knowledge of theoretical material (oral survey and interview);<br>- testing in the Moodle system (interim assessment test);<br>- testing the acquisition of practical skills and abilities; |

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| | - defense of the educational clinical case history<br>- solving situational problems for each topic of the discipline studied. |

**Explanation.** Students receive theoretical knowledge on the subject at lectures, clinical practical classes, taking part in the research work of the department, patient rounds with the head of the department, professor, associate professors, work in the functional diagnostics department, X-ray room, clinical and biochemical laboratories, in the Accreditation and Simulation Center. During clinical practical classes, the material learned is consolidated and monitored. Interactive forms of training are used in the training process: business games, computer simulations, etc. Practical application of theoretical material in everyday work is logical in the process of cognition, helps to acquire practical skills and abilities. In the process of patient supervision, training duty, students consolidate and improve the basics of patient examination, the skills of interpreting the results of clinical, laboratory and instrumental examination, formulating a clinical diagnosis, prescribing an examination and treatment plan, medical deontology, medical ethics.

**Current control** consists of assessing the theoretical knowledge and practical skills developed by students during the lesson and includes: entrance control **(** held during the first lesson, designed to determine the level of preparedness of students and consists of testing on previously completed disciplines); initial control (checking homework, testing, including computer testing, frontal survey (similar theoretical and test questions will be offered during the midterm assessment)); exit control (solving situational problems; testing practical skills (interpretation of patient examination results, laboratory and instrumental examination methods, formulation and justification of a clinical diagnosis, differential diagnosis, drawing up an examination and treatment plan), a duty report with a report on the patient's medical history.

**The midterm assessment** includes a credit in the 10th semester and consists of an assessment of the theoretical knowledge and practical skills developed by students during the course of the course, includes a final test control (in the Moodle system ), defense of the educational medical history, testing of practical skills, an interview on questions for midterm assessment, and solving a situational problem.

## *2. Structure and content disciplines*
## 2.1. Scope of the discipline and types of educational activities

| Types of educational work | Total hours | X semester |
|---|---|---|
| Lectures | 14 | 14 |
| Clinical practical classes | 34 | 34 |
| Independent work of students | 24 | 24 |
| **Total labor intensity in hours** | 72 | 72 |
| **Total workload in credit units** | 2 | 2 |

**Explanation:** the training program for the discipline "Endocrinology" for students of the Faculty of Medicine includes theoretical (lecture course) and practical training (clinical practical classes). The

training is conducted during the X semester and includes: 14 hours of lectures, 34 hours of clinical practical classes, 24 hours of independent work of students, the type of final control is a test (in the X semester).

## 2.2. Thematic plan of lectures and their brief content

| Item No. | Lecture topics | Codes of formed competencies | Labor intensity (hours) |
|---|---|---|---|
| 1. | **Introduction to endocrinology. Diabetes mellitus: etiopathogenesis, classification, clinical features, diagnostics.** Objectives and tasks of the subject. Place of endocrinology among other disciplines. Diabetes mellitus **.** Social significance of diabetes mellitus. Modern understanding of etiology; classification of diabetes mellitus. Pathogenetic and clinical features of diabetes mellitus types 1 and 2. Late complications of diabetes mellitus: clinical manifestations and diagnostics of diabetic retinopathy, nephropathy, polyneuropathy. Laboratory criteria for diagnostics of diabetes mellitus, impaired carbohydrate tolerance. | UK-1, 3<br>OPK – 1,4,7,11<br>PC-1,2,3,4,5,6,10,12,14 | 2 |
| 2. | **Treatment of diabetes mellitus. Diet. Insulin therapy. Absolute indications. Types of insulin, insulin therapy regimens. Criteria for compensation of diabetes mellitus. Tableted hypoglycemic drugs.** Treatment depending on the types of diabetes mellitus. Principles of building an individual diet. Tableted hypoglycemic drugs. Sulfanilamide drugs, mechanism of action, side effects. Biguanides: characteristics, mechanism of action. Side effects, effect on anaerobic glycolysis, indications for use. Treatment of diabetes mellitus with insulin. Absolute indications. Types of insulin, insulin therapy regimens. Criteria for compensation of diabetes mellitus. Complications caused by insulin administration: hypoglycemia, Somogyi phenomenon, allergic reactions, insulin lipodystrophies, insulin resistance. | UK-1, 3<br>OPK – 1,4,7,11<br>PC-1,2,3,4,5,6,10,12,14 | 2 |
| 3. | **Acute complications of diabetes mellitus.** Acute complications of diabetes mellitus . Causes of ketoacidotic coma, pathogenesis. Precursor period, clinical manifestations, dynamics of their development. Laboratory test data: serum ketone body content, glycemia level, blood pH, sodium bicarbonate content, etc. Blood osmolarity. The main diagnostic criteria of diabetic coma: hyperglycemia, ketoacidosis, dehydration. Principles of treatment tactics. Insulin therapy, rehydration. Restoration of potassium deficiency. Elimination of ketoacidosis, indications for sodium bicarbonate administration. Follow-up therapy. Hyperosmolar coma, causes of development. Clinical manifestations, cellular dehydration, hyperosmolarity, hyperglycemia, hypernatremia, neurological disorders. Emergency therapy: rehydration, insulin therapy, replenishment of potassium deficiency. Follow-up therapy. Hypoglycemic coma, causes of occurrence. Clinical manifestations: motor agitation, stupor, convul- | UK-1, 3<br>OPK – 1,4,7,11<br>PC-1,2,3,4,5,6,10,12,14 | 2 |

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| | sions, profuse sweating. Complications of hypoglycemic coma: cerebral edema, hemiplegia, cerebrovascular accident. Emergency care. Lactic acidotic coma, causes of development. Clinical manifestations, differential diagnostics: glycemia level, blood pH, lactic and pyruvic acid content. Treatment tactics. | | |
| 4. | **Thyroid diseases. Synthesis, secretion and metabolism of thyroid hormones. Diffuse toxic goiter.** Synthesis, secretion and metabolism of thyroid hormones. Classification of thyroid diseases. Diffuse toxic goiter. Etiology and pathogenesis: genetic autoimmune disease, hereditary defect in the HLA system, deficiency of T-lymphocyte suppressors, thyroid-stimulating immunoglobulin. Pathological anatomy. Pathogenesis of clinical symptoms: increased nervous excitability, tremor, tachycardia. Degrees of thyroid enlargement, thyrotoxic exophthalmos, endocrine ophthalmopathy. Pretibial myxedema. Features of thyrotoxicosis in the elderly. Thyrotoxic crisis. Diagnosis and differential diagnosis. Methods of examining the thyroid gland. Differential diagnostics with vegetative-vascular dystonia, rheumatism, pituitary cachexia. Treatment methods: conservative, surgical, radiation. Drug therapy: mercazolil, thiamazole, corticosteroids. | UK-1, 3<br>OPK – 1,4,7,11<br>PC-1,2,3,4,5,6,10,12,14 | 2 |
| 5. | **Hypothyroidism.** Definition, classification: congenital, acquired, primary secondary, tertiary, tissue. Classification of primary hypothyroidism based on severity. Etiology. Clinical picture. "Masks" of primary hypothyroidism. Clinic, diagnostics, treatment. Prevention. | UK-1, 3<br>OPK – 1,4,7,11<br>PC-1,2,3,4,5,6,10,12,14 | 2 |
| 6. | **Obesity.** Classification: primary, secondary. Gynoid, android type of obesity. Classification of degrees of weight gain, pathogenesis. Clinical picture. Diagnostics. Differential diagnosis. Treatment. | UK-1, 3<br>OPK – 1,4,7,11<br>PC-1,2,3,4,5,6,10,12,14 | 2 |
| 7. | **Adrenal diseases: chronic adrenal insufficiency , Itsenko-Cushing's disease.** Primary and secondary chronic adrenal cortex insufficiency. Etiology: significance of autoimmune disorders, tuberculosis. Pathogenesis: decreased production of glucocorticoids, mineralocorticoids, androgens. Physiological effects of adrenal cortex hormones and their mechanism of action. Clinical picture: muscle weakness, skin hyperpigmentation, hypotension, weight loss. Diagnosis, methods of studying the functional state of the adrenal cortex. Differential diagnosis: primary and secondary adrenal insufficiency; diseases occurring with hyperpigmentation; hypotension, gastrointestinal disorders. Treatment, hormone replacement therapy, dietary features, etiologic treatment. Features of hormonal | UK-1, 3<br>OPK – 1,4,7,11<br>PC-1,2,3,4,5,6,10,12,14 | 2 |

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| | therapy during planned surgical interventions in patients with chronic adrenal insufficiency. Treatment of Addisonian crisis. Diseases of the hypothalamic-pituitary system. Itsenko-Cushing's disease. Disruption of the mechanisms that control the hypothalamic-pituitary-adrenal system. Pituitary adenomas. Hypercorticism symptom complex, pathogenesis of clinical symptoms. Study of the sella turcica, adrenal gland visualization methods, study of the function of the hypothalamic-pituitary-adrenal system. Differential diagnosis. Itsenko-Cushing's syndrome, functional hypercorticism. Pathogenetic therapy: pituitary irradiation, adenomectomy, hypothalamic-pituitary system blockers. Symptomatic treatment, compensation of metabolic disorders. Prognosis. | | |
| **Total** | | | **14** |

## 2.3.Thematic plan of practical classes and their content

| No. Topics p/p | Name of topics of clinical practical classes | Contents of clinical topics practical classes of the discipline | Competency codes | Forms of control | Labor intensity (hours) |
|---|---|---|---|---|---|
| **1** | **Diabetes mellitus. Etiology. Pathogenesis. Clinic. Diagnostics. Late complications .** | **Theoretical part:** Etiological factors leading to the development of diabetes mellitus. Pathogenesis. Classification. Clinical manifestations. Differential diagnostics. Late complications. **Practical part:** analysis of a subject patient, patient supervision, solving situational problems, preparing a workbook, an educational medical history, working with handouts, educational, scientific, medical and reference literature, and the standard of specialized medical care ( Orders of the Ministry of Health of the Russian Federation No. 773n of November 9, 2012; No. 1388n of December 24, 2012). | UK-1: ID 1.1., 1.2., 1.3., 1.4.,1.5<br>UK-3: ID 3.1.<br>OPK-1: ID 1.1.-1.3<br>OPK-4: ID 4.1-4.5<br>OPK-7: ID 7.1,7.2, 7.3,7.5,7.6,7.7.<br>OPK-11: ID 11.1-11.5<br>PC-1: ID 1.3.,1.4.<br>PC-2: ID 2.1-2.5<br>PC-3: 3.1-3.6<br>PC-4: ID 4.1-4.3<br>PC-5: ID 5.1-5.5<br>PC-6: ID 6.1., 6.2 | –checking homework<br>–frontal survey (oral or written)<br>–testing, including computer testing<br>–solving situational problems<br>–practical skills test | 3.4 |

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| | | | PC-10: ID 10.1<br>PC-12: ID 12.1-12.3<br>PC-14: ID 14.1-14.3 | | |
| **2** | **Treatment of diabetes. Diet. Insulin therapy. Tableted hypoglycemic drugs** | **Theoretical part:** Principles of building an individual diet for diabetes. Indications, contraindications for insulin administration, complications of modern insulin therapy, the concept of chronic insulin overdose syndrome, insulin resistance. Indications, contraindications, complications in treatment with tableted hypoglycemic drugs. The main tasks of the diabetes school. Prevention and treatment of late complications of diabetes.<br>**Practical part:** analysis of a case study, patient supervision, demonstration of diabetes treatment methods under glycemic profile control, solving situational problems, preparing a workbook, a case history, working with handouts, educational, scientific, medical and reference literature, and the standard of specialized medical care ( Orders of the Ministry of Health of the Russian Federation No. 773n of November 9, 2012; No. 1388n of December 24, 2012) | UK-1: ID 1.1., 1.2., 1.3., 1.4.,1.5<br>UK-3: ID 3.1.<br>OPK-1: ID 1.1.-1.3<br>OPK-4: ID 4.1-4.5<br>OPK-7: ID 7.1,7.2, 7.3,7.5,7.6,7.7.<br>OPK-11. ID 11.1-11.5<br>PC-1: ID 1.3.,1.4.<br>PC-2: ID 2.1-2.5<br>PC-3: 3.1-3.6<br>PC-4: ID 4.1-4.3<br>PC-5: ID 5.1-5.5<br>PC-6: ID 6.1., 6.2<br>PC-10: ID 10.1<br>PC-12: ID 12.1-12.3<br>PC-14: ID 14.1-14.3 | –checking home-work<br>–frontal survey (oral or written)<br>–testing, including computer testing<br>–solving situational problems<br>–practical skills test | 3.4 |
| **3** | **Acute complications of diabetes mellitus** | **Theoretical part:** Etiology and pathogenesis of acute complications of diabetes mellitus . Classification. Clinical manifestations. Main diagnostic criteria. Complications. Treatment.<br>**Practical part:** analysis of case studies, patient supervision, solving situational problems, preparing a workbook, an educational medical history, working with handouts, educational, scientific, medical and reference literature, and the standard of | UK-1: ID 1.1., 1.2., 1.3., 1.4.,1.5<br>UK-3: ID 3.1.<br>OPK-1: ID 1.1.-1.3<br>OPK-4: ID 4.1-4.5<br>OPK-7: ID 7.1,7.2, 7.3,7.5,7.6,7.7. | –checking home-work<br>–frontal survey (oral or written)<br>–testing, including computer testing | 3.4 |

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| | | specialized medical care ( Orders of the Ministry of Health of the Russian Federation No. 773n of November 9, 2012; No. 1388n of December 24, 2012) | OPK-11. ID 11.1-11.5<br>PC-1: ID 1.3.,1.4.<br>PC-2: ID 2.1-2.5<br>PC-3: 3.1-3.6<br>PC-4: ID 4.1-4.3<br>PC-5: ID 5.1-5.5<br>PC-6: ID 6.1., 6.2<br>PC-12: ID 12.1-12.3<br>PC-14: ID 14.1-14.3 | –solving situational problems<br>–practical skills test | |
| **4** | **Control lesson by sections. Simulation class** | **Theoretical part:** indications, contraindications for manipulations on the topics of the lesson, the algorithm for performing manipulations on the topics of the lesson. **Practical part:** technique for performing manipulations on the simulator in accordance with the algorithms for their implementation. Collect complaints, anamnesis and conduct a physical examination of the patient. Formulate a clinical diagnosis **.** Perform manipulations on the simulator in accordance with the algorithms for their implementation. ( Orders of the Ministry of Health of the Russian Federation No. 773n of November 9, 2012; No. 1388n of December 24, 2012) | UK-1: ID 1.1., 1.2., 1.3., 1.4.,1.5<br>UK-3: ID 3.1.<br>OPK-1: ID 1.1.-1.3<br>OPK-4: ID 4.1-4.5<br>OPK-7: ID 7.1,7.2, 7.3,7.5,7.6,7.7.<br>OPK-11. ID 11.1-11.5<br>PC-1: ID 1.3.,1.4.<br>PC-2: ID 2.1-2.5<br>PC-3: 3.1-3.6<br>PC-4: ID 4.1-4.3<br>PC-5: ID 5.1-5.5<br>PC-6: ID 6.1., 6.2<br>PC-10: ID 10.1<br>PC-12: ID 12.1-12.3<br>PC-14: ID 14.1-14.3 | –checking home-work<br>–frontal survey (oral or written)<br>–testing, including computer testing<br>–solving situational problems<br>–practical skills test | 3.4 |
| **5** | **Diffuse toxic goiter** | **Theoretical part:** Etiology and pathogenesis of diffuse toxic goiter . Classification. Clinical manifestations. Main diagnostic criteria. Treatment and prevention. Complications. Emergency care for thyrotoxic crisis.<br>**Practical part:** analysis of case studies, patient supervision, | UK-1: ID 1.1., 1.2., 1.3., 1.4.,1.5<br>UK-3: ID 3.1.<br>OPK-1: ID 1.1.-1.3<br>OPK-4: ID 4.1-4.5 | –checking home-work<br>–frontal survey (oral or written)<br>–testing, including | 3.4 |

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|---|---|---|---|---|---|
| | | solving situational problems, preparing a workbook, an educational medical history, working with handouts, educational, scientific, medical and reference literature, and the standard of specialized medical care ( Orders of the Ministry of Health of the Russian Federation No. 773n of November 9, 2012; No. 1388n of December 24, 2012) | OPK-7: ID 7.1,7.2, 7.3,7.5,7.6,7.7. OPK-11. ID 11.1-11.5 PC-1: ID 1.3.,1.4. PC-2: ID 2.1-2.5 PC-3: 3.1-3.6 PC-4: ID 4.1-4.3 PC-5: ID 5.1-5.5 PC-6: ID 6.1., 6.2 PC-12: ID 12.1-12.3 PC-14: ID 14.1-14.3 | computer testing<br>–solving situational problems<br>–practical skills test | |
| **6** | **Hypothyroidism** | **Theoretical part:** Etiology and pathogenesis of hypothyroidism. Classification. Clinical manifestations. Main diagnostic criteria. Treatment and prevention. Hypothyroid coma.<br>**Practical part:** analysis of case studies, patient supervision, solving situational problems, preparing a workbook, an educational medical history, working with handouts, educational, scientific, medical and reference literature, and the standard of specialized medical care ( Orders of the Ministry of Health of the Russian Federation No. 773n of November 9, 2012; No. 1388n of December 24, 2012) | UK-1: ID 1.1., 1.2., 1.3., 1.4.,1.5 UK-3: ID 3.1. OPK-1: ID 1.1.-1.3 OPK-4: ID 4.1-4.5 OPK-7: ID 7.1,7.2, 7.3,7.5,7.6,7.7. OPK-11. ID 11.1-11.5 PC-1: ID 1.3.,1.4. PC-2: ID 2.1-2.5 PC-3: 3.1-3.6 PC-4: ID 4.1-4.3 PC-5: ID 5.1-5.5 PC-6: ID 6.1., 6.2 PC-10: ID 10.1 PC-12: ID 12.1-12.3 PC-14: ID 14.1-14.3 | –checking home-work<br>–frontal survey (oral or written)<br>–testing, including computer testing<br>–solving situational problems<br>–practical skills test | 3.4 |
| **7** | **Obesity** | **Theoretical part:** Etiology and pathogenesis of obesity. Classification. Clinical manifestations. Main diagnostic criteria. Treatment and prevention. Complications. | UK-1: ID 1.1., 1.2., 1.3., 1.4.,1.5 UK-3: ID 3.1. | –checking home-work<br>–frontal survey | |

| | | | | | |
|---|---|---|---|---|---|
| | | **Practical part:** analysis of case studies, patient supervision, solving situational problems, preparing a workbook, an educational medical history, working with handouts, educational, scientific, medical and reference literature, and the standard of specialized medical care ( Orders of the Ministry of Health of the Russian Federation No. 773n of November 9, 2012; No. 1388n of December 24, 2012) | OPK-1: ID 1.1.-1.3<br>OPK-4: ID 4.1-4.5<br>OPK-7: ID 7.1,7.2, 7.3,7.5,7.6,7.7.<br>OPK-11. ID 11.1-11.5<br>PC-1: ID 1.3.,1.4.<br>PC-2: ID 2.1-2.5<br>PC-3: 3.1-3.6<br>PC-4: ID 4.1-4.3<br>PC-5: ID 5.1-5.5<br>PC-6: ID 6.1., 6.2<br>PC-10: ID 10.1<br>PC-12: ID 12.1-12.3<br>PC-14: ID 14.1-14.3 | (oral or written)<br>–testing, including computer testing<br>–solving situational problems<br>–practical skills test | 3.4 |
| **8** | **Acromegaly** | **Theoretical part:** Etiology and pathogenesis of acromegaly. Classification. Clinical manifestations. Main diagnostic criteria. Treatment.<br>**Practical part:** analysis of case studies, patient supervision, solving situational problems, preparing a workbook, an educational medical history, working with handouts, educational, scientific, medical and reference literature, and the standard of specialized medical care ( Orders of the Ministry of Health of the Russian Federation No. 773n of November 9, 2012; No. 1388n of December 24, 2012) | UK-1: ID 1.1., 1.2., 1.3., 1.4.,1.5<br>UK-3: ID 3.1.<br>OPK-1: ID 1.1.-1.3<br>OPK-4: ID 4.1-4.5<br>OPK-7: ID 7.1,7.2, 7.3,7.5,7.6,7.7.<br>OPK-11. ID 11.1-11.5<br>PC-1: ID 1.3.,1.4.<br>PC-2: ID 2.1-2.5<br>PC-3: 3.1-3.6<br>PC-4: ID 4.1-4.3<br>PC-5: ID 5.1-5.5<br>PC-6: ID 6.1., 6.2<br>PC-12: ID 12.1-12.3<br>PC-14: ID 14.1-14.3 | –checking home-work<br>–frontal survey (oral or written)<br>–testing, including computer testing<br>–solving situational problems<br>–practical skills test | 3.4 |
| **9** | **Adrenal diseas-** | **Theoretical part:** Etiology and pathogenesis of Itsenko- | UK-1: ID 1.1., 1.2., | –checking home- | |

| | | | | | |
|---|---|---|---|---|---|
| | **es: Itsenko-Cushing's disease, chronic adrenal insufficiency** | Cushing's disease. Clinical manifestations. Main diagnostic criteria. Treatment.<br>Etiology and pathogenesis of chronic adrenal insufficiency . Classification. Clinical manifestations. Main diagnostic criteria. Differential diagnostics. Treatment and prevention.<br>**Practical part:** analysis of case studies, patient supervision, solving situational problems, preparing a workbook, an educational medical history, working with handouts, educational, scientific, medical and reference literature, and the standard of specialized medical care ( Orders of the Ministry of Health of the Russian Federation No. 773n of November 9, 2012; No. 1388n of December 24, 2012) | 1.3., 1.4.,1.5<br>UK-3: ID 3.1.<br>OPK-1: ID 1.1.-1.3<br>OPK-4: ID 4.1-4.5<br>OPK-7: ID 7.1,7.2, 7.3,7.5,7.6,7.7.<br>OPK-11. ID 11.1-11.5<br>PC-1: ID 1.3.,1.4.<br>PC-2: ID 2.1-2.5<br>PC-3: 3.1-3.6<br>PC-4: ID 4.1-4.3<br>PC-5: ID 5.1-5.5<br>PC-6: ID 6.1., 6.2<br>PC-10: ID 10.1<br>PC-12: ID 12.1-12.3<br>PC-14: ID 14.1-14.3 | work<br>–frontal survey (oral or written)<br>–testing, including computer testing<br>–solving situational problems<br>–practical skills test | 3.4 |
| **10** | **Acute adrenal insufficiency.**<br><br>**Interim assessment (credit)** | **Theoretical part:** Etiology and pathogenesis of acute adrenal insufficiency . Classification. Clinical manifestations. Main diagnostic criteria. Differential diagnostics. Treatment and prevention. Know the algorithms of diagnostics, differential diagnostics, treatment on the topics of classes.<br>**Practical part:** analysis of case studies, patient supervision, solving situational problems, preparing a workbook, an educational case history, working with handouts, educational, scientific, medical and reference literature, and the standard of specialized medical care ( Orders of the Ministry of Health of the Russian Federation No. 773n of November 9, 2012; No. 1388n of December 24, 2012). Checking the acquisition of competencies (testing, interview on situational problems, defense of the educational case history). | UK-1: ID 1.1., 1.2., 1.3., 1.4.,1.5<br>UK-3: ID 3.1.<br>OPK-1: ID 1.1.-1.3<br>OPK-4: ID 4.1-4.5<br>OPK-7: ID 7.1,7.2, 7.3,7.5,7.6,7.7.<br>OPK-11. ID 11.1-11.5<br>PC-1: ID 1.3.,1.4.<br>PC-2: ID 2.1-2.5<br>PC-3: 3.1-3.6<br>PC-4: ID 4.1-4.3<br>PC-5: ID 5.1-5.5<br>PC-6: ID 6.1., 6.2<br>PC-10: ID 10.1 | –checking home-work<br>–frontal survey (oral or written)<br>–testing, including computer testing<br>–solving situational problems<br>–practical skills test | 3.4 |
| | | **Theoretical part:** answers to test control questions (in the | | –credit (testing in | |

| | | | | | |
|---|---|---|---|---|---|
| | | Moodle system ), interview on control questions for midterm assessment (credit).<br>**Practical part:** solving a situational problem, testing practical skills, defending a case history. | PC-12: ID 12.1-12.3<br>PC-14: ID 14.1-14.3 | the Moodle system , defense of the educational medical history, testing practical skills, interview on midterm assessment questions, solving situational problems) | |
| | **Total hours** | | | | **34** |

## 2.4 Interactive forms of learning

**Interactive teaching methods are often used in clinical practical classes to enhance students' cognitive activity.**

| Item No. | Topic of the practical lesson | Labor intensity in hours | Interactive form of learning | Labor intensity in hours, in % of the lesson |
|---|---|---|---|---|
| 1 | Diabetes mellitus. Definition. Etiology. Pathogenesis. Clinic. Diagnostics. Late complications | 3.4 | Interactive survey. Case tasks. | 30 min. (0.66 hours)/19.6% |
| 2 | Treatment of diabetes. Diet. Insulin therapy. Tableted hypoglycemic drugs | 3.4 | Interactive survey. Case tasks. | 30 min. (0.66 hours)/19.6% |
| 3 | Acute complications of diabetes mellitus | 3.4 | Interactive survey. Business game . | 30 min. (0.66 hours)/19.6% |
| 4 | Control lesson by sections. Simulation class. | 3.4 | Interactive survey. Computer simulations . | 30 min. (0.66 hours)/19.6% |
| 5 | Diffuse toxic goiter | 3.4 | Interactive survey. Case tasks. | 30 min. (0.66 hours)/19.6% |
| 6 | Hypothyroidism | 3.4 | Interactive survey. Case tasks. | 30 min. (0.66 hours)/19.6% |
| 7 | Obesity | 3.4 | Interactive survey. | 30 min. (0.66 hours)/19.6% |
| 8 | Acromegaly | 3.4 | Interactive survey. | 30 min. (0.66 hours)/19.6% |
| 9 | Adrenal diseases: Itsenko-Cushing's disease, chronic adrenal insufficiency | 3.4 | Interactive survey. | 30 min. (0.66 hours)/19.6% |
| 10 | Acute adrenal insufficiency. Final lesson (test) | 3.4 | Interactive survey. Defense of the educational medical history. | 30 min. (0.66 hours)/19.6% |

## 2.5. Criteria for assessing students' knowledge

The basis for determining the level of knowledge, skills, and abilities are the assessment criteria - completeness and correctness:
- correct, precise answer;
- correct, but incomplete or inaccurate answer;
- incorrect answer;
- no answer.

When assigning marks, it is necessary to take into account the classification of errors and their quality:
- gross errors;
- similar errors;
- minor errors;
- shortcomings.

**X semester**

| No. p/p | Topic of the practical lesson | Theoretical part | Practical part | Overall rating | Forms of control |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| 1 | Diabetes mellitus. Etiology. Pathogenesis. Clinic. Diagnostics. Late complications | 2-5 | 2-5 | 2-5 | **Theoretical part** Oral or written survey - Test tasks, including computer ones<br><br>**Practical part** Situational interview tasks, testing practical skills at the patient's bedside, in a simulation class, development of the educational medical history and the ability to work with regulatory documents |
| 2 | Treatment of diabetes. Diet. Insulin therapy. Tableted hypoglycemic drugs | 2-5 | 2-5 | 2-5 | |
| 3 | Acute complications of diabetes mellitus | 2-5 | 2-5 | 2-5 | |
| 4 | Control lesson by sections. Simulation class | 2-5 | 2-5 | 2-5 | |
| 5 | Thyroid diseases. Synthesis, secretion and metabolism of thyroid hormones. Diffuse toxic goiter | 2-5 | 2-5 | 2-5 | |
| 6 | Hypothyroidism | 2-5 | 2-5 | 2-5 | |
| 7 | Obesity | 2-5 | 2-5 | 2-5 | |
| 8 | Acromegaly | 2-5 | 2-5 | 2-5 | |
| 9 | Adrenal diseases: Itsenko-Cushing's disease, chronic adrenal insufficiency | 2-5 | 2-5 | 2-5 | |
| 10 | Acute Adrenal Insufficiency. Final Lesson (Credit) | 2-5 | 2-5 | 2-5 | |
| Study medical history | | | | 2-5 | |
| Average score | | 2-5 | | | |

**Incoming inspection**

Conducted during the first lesson, includes testing in the Moodle system.
Access mode: https://educ-amursma.ru/mod/quiz/view.php?id=3121

**Rating scales for ongoing knowledge control**

The success of students in mastering the discipline (topics/sections), practical skills and abilities is characterized by a qualitative assessment and is assessed on a 5-point system: “5” - excellent, “4” - good, “3” - satisfactory, “2” - unsatisfactory.

Evaluation criteria

| Success rate | Mark on a 5-point scale |
|---|---|
| 90 - 100% | "5" |
| 80 - 89% | "4" |
| 70 - 79% | "3" |
| less than 70% | "2" |

**Assessment criteria (grades) of the theoretical part**

**"5" -** for the depth and completeness of mastery of the content of the educational material, in which the student easily navigates, for the ability to connect theoretical questions with practical ones, express and justify their judgments, correctly and logically present the answer; when testing, allows up to 10% of erroneous answers.
**"4" -** the student has fully mastered the educational material, is oriented in it, correctly states the answer, but the content and form have some inaccuracies; during testing, allows up to 20% of erroneous answers.

**"3"** - the student has mastered the knowledge and understanding of the main provisions of the educational material, but presents it incompletely, inconsistently, does not know how to express and justify his/her judgments; when tested, allows up to 30% of erroneous answers.

**"2"** - the student has fragmented and unsystematic knowledge of the educational material, is unable to distinguish between the main and the secondary, makes mistakes in defining concepts, distorts their meaning, presents the material in a disorderly and uncertain manner, and makes more than 30% of erroneous answers when tested.

**Assessment criteria for the practical part**

**"5" -** the student supervises a subject patient on a daily basis, has fully mastered the practical skills and abilities provided for by the course work program (correctly interprets the patient's complaints, anamnesis, objective examination data, formulates a clinical diagnosis, prescribes examination and treatment, interprets clinical, laboratory and instrumental indicators taking into account the norm).

**"4" –** the student supervises the subject patient on a daily basis, has fully mastered the practical skills and abilities provided for by the course work program, but allows for some inaccuracies.

**"3" –** the student does not regularly supervise the patient; the student has only some practical skills and abilities.

**"2"** - the student has visited the supervised patient less than 4 times, and performs practical skills and abilities with gross errors.

**Criteria for evaluation of educational medical history**

**"5"** – preparation of the educational medical history in accordance with the requirements.

**"4" -** in the educational medical history, the student makes some inaccuracies in the formulation of a detailed clinical diagnosis, examination and treatment.

**"3" -** the medical history is filled with errors, written in illegible handwriting, there are inaccuracies in the formulation of the detailed clinical diagnosis, treatment, the pathogenesis of the disease is not fully covered.

**"2" -** the medical history is written in illegible handwriting, with gross errors (a detailed clinical diagnosis is not made and not substantiated, treatment is prescribed incorrectly, the pathogenesis of the disease is not covered.

**Essay evaluation criteria**

**"5"** – the abstract is complete, detailed, formatted according to requirements, and well presented.

**"4"** – the abstract is complete, detailed, formatted according to requirements, but poorly presented.

**"3"** – the abstract is complete, but formatted with errors and poorly presented.

**"2"** – the abstract is not submitted or is written with serious errors.

**Working off disciplinary debts**

If a student misses a class for a valid reason, he/she has the right to make it up and receive the maximum grade provided for by the course work program for that class. A valid reason must be documented.

If a student misses a class for an unjustified reason or receives a grade of "2" for all activities in the class, he is required to make it up.

If a student is excused from a class at the request of the dean's office (participation in sports, cultural and other events), then he is given a grade of "5" for this class, provided that he submits a report on the completion of mandatory extracurricular independent work on the topic of the missed class.

**Assessment criteria for midterm assessment**

The interim assessment (test) is carried out in 4 stages:

1. Test control in the Moodle system.

   Access mode: https://educ-amursma.ru/mod/quiz/view.php?id=370

Total number of test tasks - 444

2. Defense of the educational medical history.
3. Testing practical skills.
4. Interview on control questions.
5. Solving a situational problem.
6. The conversion of the mark into a binary scale is carried out according to the following scheme:

| Mark on a 5-point scale | Binary scale |
|---|---|
| "5" | passed |
| "4" | passed |
| "3" | passed |
| "2" | not credited |

**Assessment criteria for midterm assessment**

**"Passed" -** the student has fully mastered the educational material, is oriented in it, correctly states the answer, and allows up to 30% of incorrect answers during testing. Practical skills and abilities provided for by the working program of the discipline have been mastered.

**"Failed"** - the student has fragmented and unsystematic knowledge of the educational material, is unable to distinguish between the main and secondary, makes mistakes in defining concepts, distorts their meaning, presents the material in a disorderly and uncertain manner, and makes more than 30% of erroneous answers during testing. Performs practical skills and abilities with gross errors.

**Criteria for final assessment (midterm assessment)**

| **Stages** | **Mark** | **Final assessment** |
|---|---|---|
| Test control in the "Moodle" system | 3-5 | Passed |
| Passing practical skills (competencies) | 3-5 | |
| Answers to tickets | 3-5 | |
| Test control in the "Moodle" system | 2 | Not credited |
| Passing practical skills (competencies) | 2 | |
| Answers to tickets | 2 | |

**"5" (passed) -** for the depth and completeness of mastery of the content of the educational material, in which the student easily navigates, for the ability to connect theoretical questions with practical ones, express and justify their judgments, correctly and logically present the answer; when testing, allows up to 10% of erroneous answers. Practical skills and abilities provided for by the working program of the discipline are fully mastered.

**"4" (passed) -** the student has fully mastered the educational material, is oriented in it, correctly states the answer, but the content and form have some inaccuracies; during testing allows up to 20% of erroneous answers. Completely practical skills and abilities provided by the working program of the discipline, but allows some inaccuracies

**"3" (passed)** - the student has mastered the knowledge and understanding of the main provisions of the educational material, but presents it incompletely, inconsistently, does not know how to express and justify his/her judgments; during testing, allows up to 30% of erroneous answers. Has only some practical skills and abilities.
**"2" (failed)** - the student has fragmented and unsystematic knowledge of the educational material, is unable to distinguish between the main and secondary, makes mistakes in defining concepts, distorts their meaning, presents the material in a disorderly and uncertain manner, and makes more than 30% of erroneous answers during testing. Performs practical skills and abilities with gross errors

## 2.6. Independent work of students: in-class, out-of-class

Independent work of students consists of two components: classroom and extracurricular (mandatory for all students and optional) work.

### Independent classroom work of students

The main didactic tasks of independent work of students under the guidance of a teacher: consolidation of knowledge and skills acquired during the study of the academic discipline in lectures and practical classes; prevention of their forgetting; expansion and deepening of educational material; formation of the ability and skills of independent work; development of independent thinking and creative abilities of students.

The students' classroom work includes: checking their current knowledge on the topic of the practical lesson in the form of an oral or written survey, test control, solving situational problems, interpreting laboratory and instrumental indicators, drawing up an examination and treatment plan. Familiarization with the department's teaching aids, tables, diagrams, stands, tablets. Supervision of patients and preparation of educational medical history, practicing practical skills and abilities in a simulation class. Individual work with mastering and performing practical skills

### Extracurricular independent work of students

The following can be used as the main forms of extracurricular independent work: studying the main and additional educational and scientific literature; solving situational problems, test assignments, working in an online classroom; preparing oral reports; writing an educational medical history; being on duty at the clinic; preparing a report on duty, performing diagnostic manipulations; observing and self-observing specific clinical phenomena being studied, etc. This type of educational activity should be based on the activity, initiative, consciousness and independence of students.

| **Item No.** | **Topic of practice tic occupation** | **Independent classroom work of students** | **Time for student preparation for the lesson (hour.)** | **Forms of extracurricular independent work** | |
|---|---|---|---|---|---|
| | | | | **Mandatory and the same for all students** | **At the student's choice** |
| | ***X semester*** | | | | |
| 1 | Diabetes mellitus. Definition. Etiology. Pathogenesis. Clinic. Diagnostics. | Patient care. Working with medical records. Participation in the work of the | **2 hours** | Preparation on theoretical issues (lecture reading, primary and secondary literature, methodological recommen- | Report or computer presentation on the topic: "Modern approaches to the |

| | | | | | |
|---|---|---|---|---|---|
| | Late complications | biochemical laboratory, working with handouts, educational, scientific, medical and reference literature, the standard of specialized medical care ( Orders of the Ministry of Health of the Russian Federation No. 773n of November 9, 2012) , maintaining a workbook, preparing an educational medical record, completing assignments according to the sample | | dations, abstracting, compiling notes, diagrams, algorithms, etc.). Solving (or compiling) problems, tests, writing prescriptions, algorithms, completing assignments according to a model, completing a medical history, workbook, working in an online classroom | diagnosis of diabetes mellitus" "Modern approaches to diagnostics of late complications of diabetes mellitus" |
| 2 | Treatment of diabetes. Diet. Insulinotherapiya. Tableted antidiabetic drugs | Patient care. Working with medical records. Participation in the work of the biochemical laboratory, working with handouts, educational, scientific, medical and reference literature, the standard of specialized medical care ( Order of the Ministry of Health of the Russian Federation No. 1388n of December 24, 2012) , main- | **2 hours** | Preparation on theoretical issues (lecture reading, primary and secondary literature, methodological recommendations, abstracting, compiling notes, diagrams, algorithms, etc.). Solving (or compiling) problems, tests, writing prescriptions, algorithms, completing assignments according to a model, completing a medical history, workbook, work in the online classroom | Report or computer presentation on the topic: "Modern approaches to the organization and work of the school of diabetes" |

| | | | | | |
|---|---|---|---|---|---|
| | | taining a workbook, preparing an educational medical record, completing assignments according to the sample | | | |
| 3 | Acute complications of diabetes<br>diabetes | Patient care. Working with case histories. Participation in the work of the clinical and biochemical laboratory, working with handouts, educational, scientific, medical and reference literature, the standard of specialized medical care ( Order of the Ministry of Health of the Russian Federation No. 1388n of December 24, 2012) , maintaining a workbook, preparing an educational case history, completing assignments according to the sample | **2 hours** | Preparation on theoretical issues (lecture reading, primary and secondary literature, methodological recommendations, abstracting, compiling notes, diagrams, algorithms, etc.). Solving (or compiling) problems, tests, writing prescriptions, algorithms, completing assignments according to a model, completing a medical history, workbook, working in an online classroom | Preparing a presentation or making a table, tablet on the topic: "Algorithm for differential diagnostics of acute complications of diabetes mellitus" |

| | | | | | |
|---|---|---|---|---|---|
| 4 | Control lesson by sections. Simulation Class | Working with case histories. Working in a simulation class. Working with handouts, educational, scientific, medical and reference literature, the standard of specialized medical care ( Order of the Ministry of Health of the Russian Federation No. 1388n of December 24, 2012) , keeping a workbook, preparing an educational case history, completing assignments according to a sample | **2 hours** | Preparation on theoretical issues (lecture reading, primary and secondary literature, methodological recommendations, abstracting, compiling notes, diagrams, algorithms, etc.). Solving (or compiling) problems, tests, writing prescriptions, algorithms, completing assignments according to a model, completing a medical history, workbook, working in an online classroom | Drawing up a summary or presentation, algorithm, table, tablet or abstract review, review of Internet sources on the topic: " Differential diagnostics of emergency conditions in endocrinology" |
| 5<br>55555 | Diffuse toxic goiter | Patient supervision. Working with medical records. Participation in the work of the thyroid gland fine-needle aspiration biopsy room, working with handouts, educational, scientific, educational, scientific, medical and reference literature, the standard of specialized medical care ( Order of the Ministry of Health of the | **2 hours** | Preparation on theoretical issues (lecture reading, primary and secondary literature, methodological recommendations, abstracting, compiling notes, diagrams, algorithms, etc.). Solving (or compiling) problems, tests, writing prescriptions, algorithms, preparing a medical history, workbook, working in an online class. Preparation for a report of a subject patient. Preparation for a report of a subject patient. | Making a tablet or table on the topic: "Algorithm for differential diagnostics of diffuse toxic goiter" |

| | | | | | |
|---|---|---|---|---|---|
| | | Russian Federation No. 773n of November 9, 2012) , maintaining a workbook, preparing an educational medical record, completing assignments according to the sample | | | |
| 6 | Hypothyroidism | Patient care. Working with medical records. Participation in the work of the ultrasound room, clinical and biochemical laboratory, working with handouts, educational, scientific, medical and reference literature, the standard of specialized medical care ( Orders of the Ministry of Health of the Russian Federation No. 786n of November 9, 2012; No. 685n of November 7, 2012), maintaining a workbook, preparing an educational medical record, completing assignments according to the sample | **2 hours** | Preparation on theoretical issues (lecture reading, primary and secondary literature, methodological recommendations, abstracting, compiling notes, diagrams, algorithms, etc.). Solving (or compiling) problems, tests, writing prescriptions, algorithms, completing assignments according to a model, completing a medical history, workbook, working in an online classroom | Preparing a presentation on the topic: "Algorithm for differential diagnosis of hypothyroidism" |
| 7 | Obesity | Patient care. Working with | **2 hours** | Preparation on theoretical issues (lec- | Preparation of a presentation or |

| | | | | | |
|---|---|---|---|---|---|
| | | medical records. Participation in the work of the ultrasound room, clinical and biochemical laboratory, working with handouts, educational, scientific, medical and reference literature, the standard of specialized medical care ( Order of the Ministry of Health of the Russian Federation No. 772n of November 7, 2012), maintaining a workbook, preparing an educational medical history, completing assignments according to a sample | | ture reading, primary and secondary literature, methodological recommendations, abstracting, compiling notes, diagrams, algorithms, etc.). Solving (or compiling) problems, tests, writing prescriptions, algorithms, completing assignments according to a model, completing a medical history, workbook, working in an online classroom | abstract review on the topic: "Algorithm for differential diagnostics of obesity" |
| 8 | Acromegaly | Patient care. Working with medical records. Participation in the work of the magnetic resonance imaging room, working with handouts, educational, scientific, medical and reference literature, keeping a workbook, preparation of the educational medical histo- | **2 hours** | Preparation on theoretical issues (lecture reading, primary and secondary literature, methodological recommendations, abstracting, compiling notes, diagrams, algorithms, etc.). Solving (or compiling) problems, tests, writing prescriptions, algorithms, completing assignments according to a model, completing a medical history, workbook, working | Preparation of a presentation, table, tablet on the topic: "Modern methods of surgical treatment of acromegaly" |

| | | | | | |
|---|---|---|---|---|---|
| | | ry, completion of tasks according to the model | | in an online classroom | |
| 9 | Diseases of the adrenal glands: Itsenko's disease Cushing's, chronic adrenal insufficiency | Patient care. Working with medical records. Working with handouts, educational, scientific, medical and reference literature, keeping a workbook, preparation of the educational medical history, completion of tasks according to the model | **2 hours** | Preparation on theoretical issues (lecture reading, primary and secondary literature, methodological recommendations, abstracting, compiling notes, diagrams, algorithms, etc.). Solving (or compiling) problems, tests, writing prescriptions, algorithms, completing assignments according to a model, completing a medical history, workbook, working in an online classroom | Preparation of a presentation, table, tablet on the topic: "Differential diagnostics of Itsenko-Cushing's disease and syndrome", "Differential diagnostics of chronic adrenal insufficiency" |
| 10 | Acute adrenal gland lack of accuracy. Ito new lesson (credit) | Working with handouts, educational, scientific, medical and reference literature, maintaining a workbook. | **2 hours** | Preparation for the test, preparation of the medical history, workbook, preparation for the defense of the medical history. | Preparation of presentation, tables on the topic: "Differential diagnosis of acute adrenal insufficiency." |
| Labor intensity in hours | | | **20 hours** | **20 hours** | **4 hours** |
| Total labor intensity in hours | | **24 hours** | | | |

## 2.7. Research (project) work

Research (project) work (R&D) of students - is a mandatory section of the study of the discipline and is aimed at the comprehensive formation of general cultural and professional competencies of students and provides for the study of specialized literature and other scientific and technical information on the achievements of domestic and foreign science and technology in the relevant field of knowledge, participation in scientific research, etc.

The topics of research can be chosen by students independently in consultation with the teacher or from the list below (taking into account the scientific direction of the department.

Sample topics for students' research work:

1. Analysis of diabetes incidence in the Amur region.
2. Innovative therapy for type 1 diabetes.
3. Survival of patients with terminal chronic renal failure with different types of renal replacement therapy for diabetes mellitus.
4. Peculiarities of cardiovascular system damage in endocrine pathology.

5. Prevention of iodine deficiency conditions.
6. Innovative therapy for type 2 diabetes.
7. Features of the clinical course, diagnosis and treatment of metabolic syndrome.

To evaluate research work, a binary assessment scale is adopted: “passed”, “failed”.

**Criteria for assessing students' research work:**

- the material on the results of the research in the report is presented in detail, the specialized literature is well-developed, scientific and technical information on the achievements of domestic and foreign science and technology in the relevant field of knowledge is studied - “passed”.
- the material on the results of the research in the report is not presented accurately enough, the special literature is poorly studied, the scientific and technical information on the achievements of domestic and foreign science and technology in the relevant field of knowledge is not studied - "failed".

## *3. Educational, methodological, material, technical and informational Ensuring discipline*

**3.1 Main literature:**

1. Dedov, I.I. Endocrinology: textbook / I. I. Dedov, G. A. Melnichenko, V. V. Fadeev - Moscow: Litterra, 2015. - 416 p. - ISBN 978-5-4235-0159-4. - Text: electronic. - Access mode: by subscription. http://www.studmedlib.ru/ru/book/ISBN9785423501594.html
2. Endocrinology: national guidelines / edited by I. I. Dedov, G. A. Melnichenko. - 2nd ed. revised and enlarged. - Moscow: GEOTAR-Media, 2018. - 1112 p.: ill. - 1112 p. - ISBN 978-5-9704-4604-1. - Text: electronic. - Access mode: by subscription. http://www.studmedlib.ru/book/ISBN9785970446041.html
3. Ametov, A. S. Endocrinology / A. S. Ametov, S. B. Shustov, Yu. Sh. Khalimov, -Moscow: GEOTAR-Media, 2016. - 352 p. - ISBN 978-5-9704-3613-4. - Text: electronic. - Access mode: by subscription. http://www.studmedlib.ru/book/ISBN9785970436134.html

**3.2 Further reading:**

1. 1. Murtazin, A. I. Endocrinology. Standards of medical care. Quality assessment criteria. Pharmacological reference book / compiled by A. I. Murtazin. - Moscow: GEOTAR-Media, 2021. - 560 p. (Series "Standards of Medical Care") - ISBN 978-5-9704-6065-8. - Text: electronic. - Access mode: by subscription. http://www.studmedlib.ru/book/ISBN9785970460658.html
2. Mkrtumyan, A. M. Emergency endocrinology / Mkrtumyan A. M., Nelaeva A. A. - Moscow: GEOTAR-Media, 2019. - 128 p. - ISBN 978-5-9704-5147-2. - Text: electronic. - Access mode: by subscription. http://www.studmedlib.ru/book/ISBN9785970451472.html
3. Dedov, I. I. Personalized endocrinology in clinical examples / Dedova I. I. - Moscow: GEOTAR-Media, 2018. - 440 p. - ISBN 978-5-9704-4617-1. - Text: electronic. - Access mode: by subscription. http://www.studmedlib.ru/book/ISBN9785970446171.html

## 3.3. Educational and methodological support of the discipline, prepared by the department staff

***1.*** Naryshkina S.V., Shtilerman A.L., Tanchenko O.A. Diabetic retinopathy. Study guide. -

Blagoveshchensk, 2014. - 115 p. (UMO stamp) https://www.amursma.ru/upload/iblock/f84/Naryshkina_S.V._Shtilerman_A.L._Tanchenko_O.A._Vydrov_A.S._Diabeticheskaya_retinopatiya._Uchebnoe_posobie..pdf

2. Naryshkina S.V., Olifirova O.S., Tanchenko O.A. Diagnostics and treatment of nodular diseases of the thyroid gland. Study guide. - Blagoveshchensk, 2015. - 110 p. (UMO stamp) https://www.amursma.ru/upload/iblock/a5c/Uchebnoe_posobie._Diagnostika_i_lechenie_uzlovyx_zabolevanij_shhitovidnoj_zhelezy.pdf

3. Naryshkina S.V., Shtilerman A.L., Tanchenko O.A. Endocrine ophthalmopathy. Study guide. - Blagoveshchensk, 2018. - 120 p. (UMO stamp) https://www.amursma.ru/upload/iblock/c44/Naryshkina_S.V._Shtilerman_A.L._Tanchenko_O.A._Endokrinnaya_oftalmopatiya._Uchebnoe_posobie..pdf

**Multimedia materials, electronic library,**
**Electronic library systems (ELS)**

***Multimedia materials on electronic media ( CD , DVD )***

**Scientific library**

**Video films, photographic materials used in teaching students (prepared by department staff)**

**Videos:**

1. Genetics of diabetes
2. Diabetic nephropathy
3. Diabetic foot syndrome
4. Hypothalamic syndrome
5. Treatment of complications of diabetes mellitus
6. Acromegaly
7. Pathogenesis of diabetes mellitus
8. Modern approaches to the treatment of diabetes mellitus

**Photo materials:**

1. Photo album on diabetic foot syndrome
2. Photo demonstration of patients with acromegaly
3. Photo demonstration of patients with thyrotoxicosis
4. Photo album on hypothyroidism
5. Photo demonstration of patients with Cushing's disease
6. Photo album on the conduct of the diabetes school

**List of albums, stands, tables, tablets, handouts used in training**
**(prepared by the department staff)**

**Stands**

1. Functional diagnostics of the thyroid gland
2. Diagnosis of Addison's disease
3. Diagnosis of acromegaly
4. Emergency care for diabetic comas
5. Biological action of hormones
6. Differential diagnosis of hyperglycemia syndrome
7. Differential diagnosis of obesity syndrome
8. Diagnostic algorithm for thyroid diseases
9. Differential diagnosis of hypercorticism

**Methodological manuals**

1. Archival medical records
2. Methodological developments for self-training of students on all topics
3. Methodological developments for teachers for all classes
4. Albums, tablets for self-study of students
5. Tables on various sections of endocrinology

**Multimedia materials**

1. Obesity
2. Hypothyroidism
3. Diabetes mellitus: etiopathogenesis, classification, diagnosis, late complications
4. Treatment of diabetes mellitus
5. Acute complications of diabetes mellitus
6. Diffuse toxic goiter
7. Acromegaly
8. Itsenko-Cushing's disease
9. Chronic and acute adrenal insufficiency
10. Diabetic foot syndrome
11. Oral hypoglycemic drugs
12. Insulin therapy
13. Insulin Levemir
14. Insulin Lantus
15. Glucobay
16. Diabetes registry
17. Neuropathies
18. Diabetes Clinic
19. Nodular goiter
20. Iodine deficiency states
21. National guidelines for diabetes

**Electronic materials**

1. High Blood Pressure: An Educational Program for Patients.
1. Correction of dyslipidemia. Interactive clinical situations
2. Endocrinology "National Guide"
3. Type 1 diabetes
4. Type 2 diabetes
5. School of diabetes

**Electronic and digital technologies:**
Online course on the subject "Endocrinology" in the EIOS FGBOU VO Amur State Medical Academy
Access mode: https://educ-amursma.ru/course/view.php?id=59

Characteristics of modules in the electronic information and educational course

| Educational | Controlling |
|---|---|
| Theoretical (lecture) material | Methodological recommendations for students on independent extracurricular work. |
| Methodological recommendations for students for clinical practical classes.<br>Methodological recommendations for self- | List of questions to prepare for clinical practical classes |

| | |
|---|---|
| training. | |
| Electronic manual | List of questions for the test |
| Hyperlinks | List of practical skills |
| Clinical cases | Tests of entrance, current and final knowledge control. |

## 3.4. Equipment used for the educational process

| Item No. | Name | Quantity |
|---|---|---|
| **1** | **Study rooms No. 1-2** | |
| **2** | School board | **2** |
| **3** | Table | **2** |
| **4** | Chairs | **28** |
| **5** | Visual aids | **44** |
| **6** | Multimedia projector | **1** |
| **7** | Laptop | **1** |
| **8** | Stands | **6** |
| **9** | Glucometer | **1** |
| **10** | Pedometer | **1** |
| **11** | Pulse oximeter | **1** |
| **12** | Model - structure of the thyroid gland | **1** |
| | **A room for independent work of students. Classroom No. 8** | |
| **13** | Table | **3** |
| **14** | Chairs | **3** |
| **15** | Laptop | **1** |
| **16** | Multimedia projector | **1** |
| **17** | Bookcase | **1** |
| **18** | Stand | |
| **19** | Phonendoscopes | **3** |
| | **Practical Skills Room. Classroom No. 11** | |
| **20** | Sphygmograph VaSeraVS-1000 | **1** |
| **21** | Pedometer | **1** |
| **22** | Pulse oximeter | **1** |
| **23** | Glucometer | **1** |
| **24** | Dummy - structure of the heart | **1** |
| | **In the functional department, X-ray room, laboratory of the State Autonomous Healthcare Institution of the Arkhangelsk Region BGKB** | |
| **25** | Electrocardiograph 12-channel E CG 9110 k | **1** |
| **26** | Ultrasound device " Aloka " 3500 (Japan) | **1** |
| **27** | X-ray tomograph CT GEBRIGHTSPEED 16 SLICE (Germany) | **1** |
| **28** | X-ray machine "Electron" (Russia) | **1** |
| **29** | Magnetic resonance imaging scanner TOSHIBA Vantage Elan 1.5 T (Japan) | **1** |
| **30** | Electrolyte analyzer « CibaCorning » (UK) | **1** |
| **31** | Biochemical analyzer "VTS-370" (Spain) | **1** |
| | **Classroom for conducting simulation classes No. 3-4** | |
| **32** | Bedside table | **2** |

| | | |
|---|---|---|
| **33** | Video monitoring and recording system for simulation training | **1** |
| **34** | Multimedia projector | **2** |
| **35** | Laptop | **1** |
| **36** | Robot simulator for training advanced cardiopulmonary resuscitation skills | **1** |
| **37** | Adult resuscitation simulator | **1** |
| **38** | Medical bed | **2** |
| **39** | Bedside table | **2** |
| **40** | Glucometer | **2** |
| **41** | Pulse oximeter | **2** |
| **42** | Medical table | **2** |

## 3.5. Professional databases, information and reference systems, electronic educational resources

| No. p.p. | Name resource | Resource Description | Access | Resource address |
|---|---|---|---|---|
| **Electronic library systems** | | | | |
| 1. | "Student Consultant" Electronic library of the medical university. | For students and teachers of medical and pharmaceutical universities. Provides access to electronic versions of textbooks, teaching aids and periodicals. | library, individual access | http: //www .studmedlib.ru/ |
| 2. | "Doctor's Consultant" Electronic Medical Library. | The materials posted in the library have been developed by leading Russian specialists based on modern scientific knowledge (evidence-based medicine). The information has been prepared taking into account the position of the scientific and practical medical society (world, European and Russian) in the relevant specialty. All materials have undergone mandatory independent review. | library, individual access | http://www.rosmedlib.ru/cgi-bin/mb4x |
| 3. | PubMed | Free search system in the largest medical bibliographic database MedLine. Documents medical and biological articles | library, free access | https://pubmed.ncbi.nlm.nih.gov/ |

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| | | from specialized literature, and also provides links to full-text articles. | | |
| 4. | Oxford Medicine Online. | A collection of Oxford medical publications, bringing together over 350 titles into a single, cross-searchable resource. Publications include The Oxford Handbook of Clinical Medicine and The Oxford Textbook of Medicine , the electronic versions of which are constantly updated. | library, free access | http://www.oxfordmedicine.com |
| 5. | Human Biology Knowledge Base | Reference information on physiology , cell biology , genetics , biochemistry , immunology , pathology . (Resource of the Institute of Molecular Genetics of the Russian Academy of Sciences .) | library, free access | http://humbio.ru/ |
| 6. | Medical online library | Free reference books, encyclopedias, books, monographs, abstracts, English-language literature, tests. | library, free access | http://med-lib.ru/ |
| **Information systems** | | | | |
| 7. | Russian Medical Association | Professional Internet resource. Objective: to facilitate the implementation of effective professional activities of medical personnel. Contains the charter, personalities, structure, rules of entry, information about the Russian Medical Union. | library, free access | http://www.rmass.ru/ |
| 8. | Web-medicine | The site presents a catalog of professional medical resources, | library, free access | http: //webmed.irkutsk.ru/ |

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| | | including links to the most authoritative subject sites, journals, societies, as well as useful documents and programs. The site is intended for doctors, students, employees of medical universities and scientific institutions. | | |
| **Databases** | | | | |
| 9. | Worldwide health care organization | The site contains news, statistics on countries that are members of the World Health Organization, fact sheets, reports, WHO publications and much more. | library, free access | http://www.who.int/ru/ |
| 10. | Ministry of Science and Higher Education of the Russian Federation | The website of the Ministry of Science and Higher Education of the Russian Federation contains news, newsletters, reports, publications and more. | library, free access | http://www.minobrnauki.gov.ru |
| 11. | Ministry of Education of the Russian Federation. | The website of the Ministry of Education of the Russian Federation contains news, newsletters, reports, publications and much more. | library, free access | https://edu.gov.ru/ |
| 12. | Federal portal "Russian education" | A single window for access to educational resources. This portal provides access to textbooks on all areas of medicine and health care. | library, free access | http: //www .edu.ru/ http://window.edu.ru/catalog/?prubr=2.2.81.1 |
| **Bibliographic databases** | | | | |
| 13. | BD "Russian Medicine" | It is created in the Central Scientific and Methodological Library and covers the entire collection, starting from 1988. The database contains bibliographic descriptions of articles from domestic | library, free access | http://www.scsml.rssi.ru/ |

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| | | journals and collections, dissertations and their abstracts, as well as domestic and foreign books, collections of institute proceedings, conference materials, etc. Thematically, the database covers all areas of medicine and related areas of biology, biophysics, biochemistry, psychology, etc. | | |
| 14. | eLIBRARY.RU | Russian information portal in the field of science, technology, medicine and education, containing abstracts and full texts of more than 13 million scientific articles and publications. The eLIBRARY.RU platform provides electronic versions of more than 2,000 Russian scientific and technical journals, including more than 1,000 open access journals. | library, free access | http://elibrary.ru/defaultx.asp |
| 15. | Portal Electronic library of dissertations | Currently, the Electronic Library of Dissertations of the Russian State Library contains more than 919,000 full texts of dissertations and abstracts. | library, free access | http://diss.rsl.ru/?menu=disscatalog/ |
| 16. | Medline.ru | Medical and biological portal for specialists. Biomedical journal. Last updated February 7, 2021. | library, free access | http://www.medline.ru |

## 3 .6. Licensed and freely distributed software used in the educational process

| | | |
|---|---|---|
| **I. Commercial software products** | | |
| 1. | Operating system MS Windows 7 Pro | License number 48381779 |
| 2. | Operating system MS Windows 10 Pro, MS Office | AGREEMENT No. 142 A dated December 25, 2019 |
| 3. | MS Office | License number: 43234783, 67810502, 67580703, 64399692, 62795141, 61350919 |
| 4. | KasperskyEndpointSecurity for Business Advanced | Agreement No. 977/20 dated 12/24/2020 |
| 5. | 1C: PROF University | LICENSE AGREEMENT No. 2191 dated 15.10.2020 |
| 6. | 1C: PROF Library | LICENSE AGREEMENT No. 2281 dated 11.11.2020 |
| **II. Freely distributed software** | | |
| 1. | Google Chrome | Freely distributed<br>Distribution conditions:<br>https://play.google.com/about/play-terms/index.html |
| 2. | Yandex Browser | Freely distributed<br>License Agreement for the Use of Yandex Browser Programs<br>https://yandex.ru/legal/browser_agreement/ |
| 3. | Dr.WebCureIt! | Freely distributed<br>License Agreement:<br>https://st.drweb.com/static/new-www/files/license_CureIt_ru.pdf |
| 4. | OpenOffice | Freely distributed<br>License:<br>http://www.gnu.org/copyleft/lesser.html |
| 5. | LibreOffice | Freely distributed<br>License:<br>https://ru.libreoffice.org/about-us/license/ |

## 3.7. Information and telecommunication network resources "Internet"

- Library of Amur State Medical Academy. Access mode: https://amursma.ru/obuchenie/biblioteki/biblioteka-amurskoy-gma/
- Electronic library system "Student consultant". Access mode: http://www.studmedlib.ru/cgi-bin/mb4x
- Electronic library of medical literature. Access mode: https://www.books-up.ru/ru/entrance/97977feab00ecfbf9e15ca660ec129c0/
- Scientific and practical journal "Doctor and information technologies".
- Access mode: http://www.studmedlib.ru/book/1811-0193-2010-01.html
- Clinical guidelines of the Ministry of Health of the Russian Federation. Access mode: https://medi.ru/klinicheskie-rekomendatsii/

- Federal State Budgetary Institution "National Medical Research Center of Endocrinology" of the Ministry of Health of Russia https://www.endocrincentr.ru

# *4. Evaluation Fund*

## 4.1. Current test control (input, initial, output)

Entrance control for the discipline is carried out in the Moodle system , access mode:
https://educ-amursma.ru/mod/quiz/view.php?id=3121
(20 questions).
The total number of test tasks is 120.

**Examples of entrance control test tasks (with standard answers)**
Examples of test tasks in the Moodle system :
Please indicate one correct answer.
Test tasks for ongoing monitoring of academic performance
(with sample answers)

Test tasks for entrance knowledge control
The entrance control of the level of preparedness of students before the start of studying the discipline is carried out at the beginning of the first clinical practical lesson for 10 minutes in the Moodle system.
20 questions are randomly selected from a bank of 120 questions.

**Examples of test tasks for ongoing monitoring of academic performance (with standard answers)**
**Please select one of the suggested answers.**

1. NORMAL THYROID GLAND SIZE
   2) less than 30 ml
   3) in women less than 25 ml, in men less than 18 ml
   4) in women less than 18 ml, in men less than 25 ml
   5) calculation of standards is carried out individually

The correct answer is 3

2. FOR THE DIAGNOSIS OF THYROTOXICOSIS, THE DETERMINATION IN THE BLOOD IS OF PRIOR IMPORTANCE
   1) total and free $T_4$
   2) free fractions $T_3$ and $T_4$
   3) free T3 and thyroid stimulating hormone
   4) thyroid stimulating hormone and free $T_4$

The correct answer is 4

4. THE DURATION OF TREATMENT OF DIFFUSE TOXIC GOITER WITH THYREOSTATICS IS NOT LESS THAN
   1) 12- 18 months
   2) 1-2 months
   3) 3-4 months
   4) 6-9 months

Correct answer 1

**Examples of test tasks for initial and final control (with standard answers)**
Initial, final control for the discipline is carried out in the Moodle system , access mode:
https://educ-amursma.ru/mod/quiz/view.php?id=8025
(10 questions)

The total number of test tasks is 100.
Examples of test tasks in the Moodle system :
Please indicate one correct answer.
1. THE MOST COMMON CAUSE OF DEATH IN TYPE 2 DIABETES IS:
1) hyperosmolar coma
2) myocardial infarction
3) gangrene of the lower extremities
4) diabetic nephropathy
The correct answer is 2

2. PROTEIN SYNTHESIS ENHANCES:
1) cortisol
2) insulin
3) adrenaline
4) thyroxine
The correct answer is 2

3. ABSOLUTE CONTRAINDICATIONS FOR THE USE OF MERCAZOLIL ARE:
1) leukopenia
2) allergic reactions to iodine preparations
3) hypovolemia
4) old age
Correct answer 1

**Examples of test tasks for intermediate control**
**(with sample answers)**

Conducted in the Moodle system **,** access mode:
https://educ-amursma.ru/mod/quiz/view.php?id=370
(100 questions)
Total number of test tasks - 444.

**Please select one of the suggested answers.**

1. THE MOST COMMON CAUSE OF DEATH IN TYPE 1 DIABETES IS:
1) hyperosmolar coma
2) myocardial infarction
3) gangrene of the lower extremities
4) diabetic nephropathy
The correct answer is 4

2. PROTEIN SYNTHESIS ENHANCES:
1) cortisol
2) insulin
3) adrenaline
4) thyroxine
The correct answer is 2

3. ABSOLUTE CONTRAINDICATIONS FOR THE USE OF MERCAZOLIL ARE:
1) agranulocytosis
2) allergic reactions to iodine preparations
3) hypovolemia

4) old age
Correct answer 1

## 4.2. Situational tasks

**Examples of situational tasks of current control**
**(with sample answers)**

**Task #1**

Patient V., 22 years old, complains of dry mouth, thirst, profuse urination (daily diuresis is about 6 liters), skin itching, weight loss over the last month to 14 kg, weakness, decreased ability to work. The disease developed a month after suffering from the flu.

Objectively. Height is 172 cm, weight is 56 kg. Skin is dry, turgor is decreased. There is superficial pyoderma in the back area. In the lungs, breathing is vesicular, no wheezing, respiratory rate is 18 per minute. Heart sounds are loud, rhythmic, heart rate is 96 per minute. Blood pressure is 110/70 mm Hg. Tongue is dry, not coated. Abdomen is soft, painless. Liver is at the lower edge of the costal arch. There is no peripheral edema.

Additional tests. Glucose (capillary blood, day 1 of hospitalization) fasting - 7.1 mmol/l; 2 hours after eating - 11.4 mmol/l. Glucose (capillary blood, day 2 of hospitalization) fasting - 7.6 mmol/l; 2 hours after eating - 12.1 mmol/l. Complete blood count: Hb - 127 g/l; Er - $3.92x10^{12}$ /l; CI - 0.9; Le - $5.8x10^{9}$ /l; ESR - 12 mm/h; p/y-1%; s/y-51%; eosinophils-1%; monocytes-5%; lymphocytes-42%. Urinalysis: no acetone, specific gravity - 1026, protein - no, sugar-2%, leukocytes - single in the field of vision. Blood biochemistry: bilirubin-12.5-9.8-2.7 μmol/l; AST-6.4 units; ALT-4.3 units; cholesterol-3.8 mmol/l; LDL-C-3294 mmol/l; triglycerides-1.5 mmol/l; urea-4.8 mmol/l; creatinine-62 μmol/l; K-3.8 mmol/l; N a-149 mmol/l; Cl -109 mmol/l. Fluorogram: lungs and heart are normal.

**Please provide written answers to the following questions:**

1. Make a preliminary diagnosis.
2. What clinical data support the diagnosis?
3. What laboratory data confirm the diagnosis?
4. Is it possible to diagnose diabetes based on a single increase in blood glucose?
5. What additional research methods need to be carried out to establish a clinical diagnosis?
6. Indicate the probable cause of the disease development.
7. What diseases require differential diagnosis?
8. What are the main principles of treatment for this disease?

**Standard solution to problem #1**

1. Diabetes mellitus type 1, newly diagnosed.
2. The presence of thirst (polydipsia), dry mouth, excessive urination (polyuria), itchy skin, weight loss, weakness.
3. Laboratory diagnostics: increased glycemia (capillary blood) on the 1st and 2nd days of hospitalization on an empty stomach $\geq$ 6.1 mmol/l, 2 hours after eating $\geq$ 11.1 mmol/l.
4. The diagnosis of diabetes mellitus should be confirmed by repeating blood glucose measurements on other days.
5. To establish a clinical diagnosis, additional examination is necessary: ECG, ultrasound examination of internal organs, bacteriological urine culture for flora. Consultation with an ophthalmologist (fundus), consultation with a neurologist, consultation with a dermatologist.
6. Destruction of β-cells that occurs during an autoimmune process triggered by the influenza virus.
7. It is necessary to conduct differential diagnostics with type 2 diabetes mellitus, diabetes insipidus, and psychogenic polydipsia.
8. Complex treatment of type 1 diabetes mellitus is based on the following principles: diet therapy, dosed physical activity, patient education and self-monitoring, insulin therapy, prevention and treatment of late complications of diabetes mellitus.

**Problem #2**

Patient L., 43, suffering from type 1 diabetes mellitus for 17 years, was admitted to the intensive care unit in a coma. It is known from the anamnesis that the day before hospitalization, in the evening, he consumed large amounts of alcoholic beverages, and in the morning of the next day he fell into a coma. The relatives told the emergency doctor that the patient suffered from diabetes mellitus and every morning took 14 units of Actrapid insulin and 34 units of Protafan insulin subcutaneously, but today the patient did not take insulin, as he overslept for the required time. The emergency doctor, assessing the patient's condition as ketoacidotic coma, administered 10 units of short-acting insulin - Actrapid intravenously by jet stream. Due to the unclear diagnosis and the continuing comatose state, the patient was taken to the intensive care unit by air ambulance. On examination in the hospital: the patient is in a coma. The skin is pale, there is pronounced diffuse hyperhidrosis, periodic epileptiform convulsive syndrome, hypertonicity of the muscles of the extremities. The pupils are wide, breathing is normal, there is no smell of acetone in the exhaled air. Meningeal symptoms are negative. Heart sounds are loud, arrhythmic, blood pressure is 145/95 mm Hg, pulse is 128 per minute. The tongue is moist, coated with a gray coating at the root, there is no bite of the tongue.

Additional tests. Blood glucose - 1.1 mmol/l. Complete blood count: Hb - 127 g/l; Er - $3.92 \times 10^{12}$ /l; CI-0.9; Le - $5.9 \times 10^{9}$ /l; ESR-15 mm/h; p/y-2%; s/y-50%; eosinophils-1%; monocytes-5%; lymphocytes-42%. Complete urine analysis: no acetone, specific gravity - 1014, protein - no, sugar - no, leukocytes - single in the field of vision. Blood biochemistry: bilirubin - 12.6-9.8-2.8 μmol/l; AST-7 units; ALT-4.4 units; cholesterol-4.1 mmol/l; LDL-C-4190 mmol/l; triglycerides-1.6 mmol/l; urea-4.6 mmol/l; creatinine-62 μmol/l; K-3.8 mmol/l; N a-150 mmol/l; Cl -110 mmol/l. ABB: blood pH-7.37.

**Please provide written answers to the following questions:**

1. What preliminary diagnosis can be given to the patient?
2. What history and clinical features support the diagnosis?
3. What diseases require differential diagnosis?
4. What is the main test to confirm a clinical diagnosis?
5. What is the error in medical tactics made at the pre-hospital stage?
6. What treatment does the patient need?
7. Name the factors that provoke the development of hypoglycemic coma.
8. Name the possible errors in the treatment of hypoglycemic conditions and hypoglycemic coma.

**Standard solution to problem #2**

1. Diabetes mellitus type 1. Hypoglycemic coma.
2. Anamnesis data: violation of diet (skipping timely meals), alcohol abuse. Clinical data: adrenergic symptoms (pronounced diffuse hyperhidrosis, pale skin, dilated pupils (mydriasis), tachycardia) and neuroglycopenic syndromes (coma, periodic epileptiform convulsions).
3. Epileptic seizure, acute cerebrovascular accident.
4. Blood glucose determination.
5. Insulin was administered without determining blood glucose.
6. Intravenous jet injection of 40% glucose in an amount of 20 to 100 ml until complete recovery of consciousness, followed by drip injection of 5% glucose as needed to normalize the glucose level. An alternative is subcutaneous or intramuscular injection of 1 ml of glucagon solution.
7. Skipping or inadequately eating meals, drinking alcohol, overdosing on insulin and oral hypoglycemic drugs, physical activity (unplanned or without taking appropriate measures to prevent hypoglycemia), impaired liver and kidney function, not having easily digestible carbohydrates (4-5 pieces of sugar, 1.5 tablespoons of honey, 200 ml of sweet fruit juice) for immediate relief of hypoglycemia.
8. The use of products unsuitable for this purpose (bread, chocolate, which do not have a sufficient sugar-raising effect or increase blood glucose, but too slowly) to relieve a hypoglyce-

mic state. An attempt to introduce carbohydrate-containing products (sugar) into the oral cavity of an unconscious patient (there is a risk of aspiration and asphyxia).

**Examples of situational tasks of intermediate control (with sample answers)**

**Task #1**

Patient N., 62, has been suffering from diabetes mellitus type 2 for 12 years. Disease compensation was achieved with 2 tablets of Maninil 3.5 (1 tablet 2 times a day). During the week before hospitalization, the patient developed persistent diarrhea up to 8 times a day, rumbling in the abdomen. After 4 days, she began to notice increasing thirst, more frequent urge to urinate, non-localized abdominal pain, progressive weakness, drowsiness, and then loss of consciousness.

Examination revealed: the patient is in a comatose state, the skin and mucous membranes are dry, the turgor of the eyeballs and skin is reduced. Vesicular breathing, no wheezing, no smell of acetone. Meningeal symptoms are positive. Heart sounds are rhythmic, muffled, the 2nd sound is accentuated on the aorta. Heart rate is 136 per minute. Blood pressure is 70/50 mm Hg. The abdomen is soft and painless on palpation. The liver does not protrude from the hypochondrium.

Additional research methods. Clinical blood test: hemoglobin-145 g/l; leukocytes-$6.1\times10^{9}$ /l; ESR-12 mm/h. Fasting blood glucose-58 mmol/l; K-3.8 mmol/l, N a-151 mmol/l, Cl -110 mmol/l, reaction to acetone in a single portion of urine is negative. Ophthalmologist consultation (fundus): diabetic proliferative retinopathy.

**Please answer the following questions:**

1. Clinical diagnosis.
2. Which laboratory test is most informative for clarifying the diagnosis?
3. What insulin therapy tactics are most preferable in this situation?
4. Which of the following solutions is not advisable to administer to the patient:
   A Hypotonic solution of sodium chloride.
   B Sodium bicarbonate
   C Albumin

**Standard solution to problem #1**

1. Diabetes mellitus type 2. Hyperosmolar coma. Diabetic proliferative retinopathy.
2. Determination of blood serum osmolarity.
3. Intravenous drip administration of short-acting insulin 2-4 units intravenously into the "rubber band" of the infusion system.
4. A.

**Task #2**

Patient N., 42 years old, was admitted to the therapeutic department for examination. Complaints upon admission: lethargy, increased fatigue, dry skin, chilliness, daytime sleepiness, dense swelling on the face, decreased pulse rate to 58 per minute.

On examination: body mass index is 26.7. Face is pale and edematous. Skin is dry. Blood pressure is 100/65 mm Hg. Pulse is 58 per minute. Heart sounds are muffled, rhythm is preserved. Thyroid gland is not palpable.

Clinical blood test: hemoglobin - 102 g/l; erythrocytes - $3.2x10^{12}$ /l, leukocytes - $4x10^{9}$ /l. Cholesterol - 8.7 mmol/l. Thyroid-stimulating hormone content - 16 IU/l, free T 4 - 0.1 nmol/l (ELISA), thyroid gland volume according to ultrasound examination - 16 $cm^{3}$.

**Please answer the following questions:**

1. What disease can you think of?
2. What tests are needed to confirm the diagnosis?
3. Prescribe replacement therapy.

**Standard solution to problem # 2**

1. Primary hypothyroidism. Manifest, st. decompensation.
2. Thyroid-stimulating hormone.
3. L -thyroxine in increasing doses until thyroid stimulating hormone levels are normalized.

## 4.3. List of practical skills that a student should have after mastering the discipline

1. Interpret thyroid gland palpation data.
2. Provide emergency care for ketoacidotic, hyperosmolar, hypoglycemic, lactic acidotic coma; thyrotoxic crisis, hypothyroid coma and acute adrenal insufficiency.
3. Master the technique of insulin administration and dosing.
4. To determine risk factors for diabetes mellitus and interpret the results of the oral glucose tolerance test taking into account the norm.
5. Determine acetone in urine using the express method.
6. Determine glycemia using a glucometer.
7. Interpret radiographs of the sella turcica.
8. To evaluate the results of ultrasound examination methods and fine-needle aspiration biopsy of the thyroid gland.
9. Assess the levels of thyroid stimulating hormone, thyroxine, and triiodothyronine.
10. Assess the glycemic profile.
11. Calculate daily caloric intake, bread units.
12. Calculate insulin doses.
13. Determine your body mass index, waist to hip ratio.
14. To master the technique of conducting a small dexamethasone test and a large dexamethasone test, and to evaluate the results obtained.
15. Analyze the results of magnetic resonance imaging of the adrenal glands and computed tomography of the pituitary gland.
16. Determine the thickness of soft tissues of the feet in acromegaly.
17. Assess the levels of glycosylated hemoglobin and C-peptide.
18. Assess the levels of sodium, potassium, and chlorides in the blood.
19. Interpret lipid, microalbuminuria, and proteinuria values.
20. Assess blood pH levels.
21. Complete a medical history.

## 4.4. List of questions for the test

1. Epidemiology, etiopathogenesis, classification of type 1 diabetes mellitus.
2. Epidemiology, etiopathogenesis, classification of type 2 diabetes mellitus.
3. Clinic, diagnostics, differential diagnostics of type 1 diabetes mellitus.
4. Clinic, diagnostics, differential diagnostics of type 2 diabetes mellitus.
5. Treatment of type 1 diabetes.
6. Treatment of type 2 diabetes.
7. Classification, clinical features, diagnostics, treatment of late microvascular complica-

tions of diabetes mellitus.

8. Classification, clinical features, diagnostics, treatment of late macrovascular complications of diabetes mellitus.
9. Ketoacidotic coma: etiology, pathogenesis, clinical features, diagnostics, differential diagnostics, treatment.
10. Hyperosmolar coma: etiology, pathogenesis, clinical features, diagnostics, differential diagnostics, treatment.
11. Lactic acidotic coma: etiology, pathogenesis, clinical features, diagnostics, differential diagnostics, treatment.
12. Etiology, pathogenesis, clinical picture, diagnostics, differential diagnostics, treatment of hypoglycemic state.
13. Etiology, pathogenesis, clinical picture, diagnostics, differential diagnostics, treatment of hypoglycemic coma.
14. Etiology, pathogenesis, classification, clinical presentation, diagnostics, differential diagnostics, treatment, complications of diffuse toxic goiter.
15. Etiology, pathogenesis, classification, clinical presentation, diagnostics, differential diagnostics, treatment, complications of hypothyroidism.
16. Etiology, pathogenesis, classification, clinical presentation, diagnostics, differential diagnostics, treatment of obesity.
17. Etiology, pathogenesis, classification, clinical features, diagnostics, differential diagnostics, treatment of acromegaly.
18. Etiology, pathogenesis, classification, clinical presentation, diagnostics, differential diagnostics, treatment of Itsenko-Cushing's disease.
19. Etiology, pathogenesis, classification, clinical presentation, diagnostics, differential diagnostics, treatment of chronic adrenal insufficiency.
20. Etiology, pathogenesis, classification, clinical presentation, diagnostics, differential diagnostics, treatment of acute adrenal insufficiency.