

MINISTRY OF HEALTH OF UKRAINE  
ODESA NATIONAL MEDICAL UNIVERSITY  
Department of Internal Medicine №1



CONFIRMED by

Vice-rector for scientific and pedagogical work

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September 1<sup>st</sup>, 2024

WORKING PROGRAM ON DISCIPLINE  
"ENDOCRINOLOGY»

**Level of higher education:** second (master's degree)

**Field of knowledge:** 22 «Health care»

**Specialty:** 222 «Medicine»

**Educational and professional program:** Medicine

The work program is compiled on the basis of the educational and professional program "Medicine", the training of specialists of the second (master's) level of higher education in the specialty 222 "Medicine" of the field of knowledge 22 "Health care", which was approved by the Scientific Council of ONMedU (protocol No. 10 dated 27 June 2024).

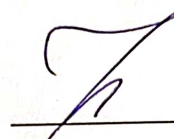
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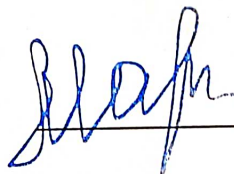
The work program was approved at the meeting of the Department of Internal Medicine No.1 Protocol No. 1 dated 28.08.2024

Head of the department



Yurii KARPENKO

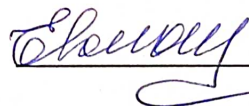
Approved by the guarantor of the educational and professional program



Valeriia MARICHEREDA

Approved by the subject-cycle methodological commission for humanities of ONMedU protocol No. 1 dated 30.08.2024

Head of the subject cycle methodical commission for therapeutic disciplines



Olena VOLOSHYNA

Revised and approved at the meeting of the department \_\_\_\_\_  
protocol No. \_\_ dated «\_\_» \_\_\_\_\_ 20\_\_.

Head of the department \_\_\_\_\_

Revised and approved at the meeting of the department \_\_\_\_\_  
Protocol No. \_\_ dated «\_\_» \_\_\_\_\_ 20\_\_.

Head of the department \_\_\_\_\_ Yurii Karpenko

### 1. Description of the academic discipline

Name of indicators	Field of knowledge, specialty, specialization, level of higher education	Characteristics of the academic discipline
The total number of: Credits: 1 Hours: 30 Content modules: 1	Field of knowledge 22 "Health care"	<i>Full-time education</i>
		<i>Compulsory discipline</i>
		<i>Year of training: 6</i>
	Specialty 222 "Medicine"	<i>Semesters XI-XII</i>
		<i>Lectures (0 hours)</i>
		<i>Seminars (0 hours)</i>
	Level of higher education second (master's degree)	<i>Practical (18 hours)</i>
		<i>Laboratory (0 hours)</i>
		<i>Independent work (12 hours)</i>
		<i>including individual tasks (0 hours)</i>

### 2. The purpose and tasks of the educational discipline, competences, program learning outcomes.

**Purpose:** Acquisition by the acquirer of higher education of knowledge and formation of elements of professional competences in the field of endocrinology and improvement of skills and competences acquired during the study of previous disciplines.

**Tasks:**

1. Formation of skills and abilities in the clinical examination of patients with the main diseases of the endocrine system and to be able to analyze their results;
2. Formation of abilities and skills in substantiating clinical diagnosis, drawing up a plan for laboratory and instrumental research of patients with the most common diseases of the endocrine system and their complications;
3. Mastering the ability to determine treatment tactics and prevent the most common diseases of the endocrine system and their complications.

The process of studying the discipline is aimed at forming elements of the following competencies:

**General (GC)**

GC 1 Ability to abstract thinking, analysis and synthesis.

GC 3 Ability to apply knowledge in practical situations.

GC 4 Knowledge and understanding of subject area and understanding of professional activities.

GC 5 Ability to adapt and act in a new situation.

GC 6 Ability to make informed decisions.

GC 8 Ability to inter-personal interaction.

GC 10. Ability to use information and communication technologies

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

**Special (SC):**

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

SC 2. Ability to determine the necessary list of laboratory and instrumental studies and evaluate their results

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

SC 4. Ability to determine the necessary regime of work and rest in the treatment and prevention of diseases

SC 5. Ability to determine the nature of nutrition in the treatment and prevention of diseases

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

SC 7. Ability to diagnose emergency conditions

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

SC 9. Ability to carry out medical evacuation measures

SC 10. Ability to perform medical manipulations

SC 11. Ability to solve medical problems in new or unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethical responsibility including an early intervention system

SC 15. Ability to carry out a work capacity examination

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

SC 17. Ability to assess the impact of the environment, socio-economic and biological determinants on the state of health of an individual, family, population

SC 25. Adherence to professional and academic integrity, to be responsible for the reliability of the obtained scientific results

**Program learning outcomes (PLO):**

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

PLO 2 - Understanding and knowledge of basic and clinical biomedical sciences, at a level sufficient for solving professional tasks in the field of health care.

PLO 3 - Specialized conceptual knowledge, which includes scientific achievements in the field of health care and is the basis for conducting research, critical understanding of problems in the field of medicine and related interdisciplinary problems. including an early intervention system

PLO 4 - Highlight and identify leading clinical symptoms and syndromes (according to list 1); according to standard methods, using preliminary data of the patient's history, data of the patient's examination, knowledge about the person, his organs and systems, establish a preliminary clinical diagnosis of the disease (according to list 2).

PLO 5 - Collect complaints, history of life and diseases, assess the psychomotor and physical development of the patient, the state of organs and systems of the body, based on the results of laboratory and instrumental studies, evaluate information about the diagnosis (according to list 4), taking into account the age of the patient.

PLO 6 - To establish the final clinical diagnosis by making a reasoned decision and analyzing the received subjective and objective data of clinical, additional examination, differential diagnosis, observing the relevant ethical and legal norms, under the control of the managing physician in the conditions of a health care institution (according to list 2).

PLO 7 - Prescribe and analyze additional (mandatory and optional) examination methods (laboratory, functional and/or instrumental) (according to list 4), patients with diseases of organs and body systems for differential diagnosis of diseases (according to list 2).

PLO 8 - Determine the main clinical syndrome or symptom that determines the severity of the condition of the victim/victim (according to list 3) by making a reasoned decision about the condition of a person under any circumstances (in the conditions of a health care institution, outside its borders) including . in conditions of emergency and hostilities, in field conditions, in conditions of lack of information and limited time.

PLO 9 - Determine the nature and principles of treatment (conservative, operative) of patients with diseases (according to list 2), taking into account the age of the patient, in the conditions of a health care facility, outside its borders and at the stages of medical evacuation, including in field conditions, on the basis of a preliminary clinical diagnosis, observing relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes, in case of the need to expand the standard scheme, be able to substantiate personalized recommendations under the control of the head physician in the conditions of a medical institution.

PLO 10 - Determine the necessary mode of work, rest and nutrition based on the final clinical

diagnosis, observing the relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes.

PLO 14 - Determine tactics and provide emergency medical care for emergency situations (according to list 3) in a time-limited environment according to existing clinical protocols and standards of care.

PLO 15. To organize the provision of medical aid and medical evacuation measures to the population and military personnel in emergency situations and hostilities, including in field conditions

PLO 17 - Perform medical manipulations (according to list 5) in the conditions of a medical institution, at home or at work based on a previous clinical diagnosis and/or indicators of the patient's condition by making a reasoned decision, observing the relevant ethical and legal norms.

PLO 18. To determine the state of functioning and limitations of a person's vital activities and the duration of incapacity for work with the preparation of relevant documents, in the conditions of a health care institution, based on data about the disease and its course, peculiarities of the person's professional activity, etc. Maintain medical documentation regarding the patient and the contingent of the population on the basis of regulatory documents.

PLO 23. Assess the impact of the environment on the state of human health to assess the state of morbidity of the population. PRN24. To organize the necessary level of individual safety (own and the persons he cares for) in case of typical dangerous situations in the individual field of activity.

**As a result of studying the academic discipline, the acquirers of higher education should:**

**To know:** etiology, pathogenesis, symptoms and signs, diagnosis, treatment, prevention of common diseases of the endocrine system.

**Be able to:**

- Collect data on patient complaints, medical history, life history of patients with diseases of the endocrine system and their complications;
- Evaluate information about the diagnosis using a standard procedure, based on the results of laboratory and instrumental studies. Determine the list of necessary clinical laboratory and instrumental studies and evaluate their results (according to list 4).
- Select the leading clinical symptom or syndrome (according to list 1). Establish a preliminary diagnosis, carry out differential diagnosis and determine the clinical diagnosis of the disease (according to list 3).
- Determine the principles of treatment of diseases, the necessary regime of work and rest, the nature of nutrition (according to list 2).
- Diagnose emergency conditions (according to list 3).
- Determine tactics and provide emergency medical aid (according to list 3).

Master the skills:

- Communication and clinical examination of the patient
- Perform medical manipulations (according to list 5) for diseases of the endocrine system.
- Keep medical records.

### **3. Content of the academic discipline**

#### **Content module 1**

**« Management of patients with basic symptoms and syndromes in Endocrinology »**

#### **Topic 1. Management of a patient with metabolic syndrome.**

Definition, classification, diagnostic criteria, relevance of the problem all over the world. Drawing up an examination plan, the role of instrumental and laboratory examination methods. Patient management tactics depending on glycemia, body mass index, blood pressure level. Medical and non-medical treatment. Existing standards of treatment. Primary and secondary prevention.

#### **Topic 2. Management of a patient with chronic complications of diabetes.**

Diabetic angiopathies and neuropathies. Classification. Diabetic nephropathy, stages, diagnosis, differential diagnosis, treatment and prevention. Diabetic retinopathy: stages of the process, diagnosis, prevention and treatment. Diabetic neuropathy, classification, diagnosis and treatment. Diabetic foot syndrome: classification, diagnosis, treatment. Principles of treatment of pregnant women with diabetes. Peculiarities of urgent and planned surgical interventions in patients with diabetes. Regime of insulin therapy: traditional and intensified insulin therapy. Complications of insulin therapy: hypoglycemic states, insulin allergy, post-injection lipodystrophy, insulin resistance, chronic insulin overdose (Somogyi syndrome), insulin edema.

**Topic 3. Management of a patient with goiter syndrome.**

Determination of the size of the thyroid gland. Definition - "goiter". The concept of endemic non-toxic and nodular forms of goiter. Diseases accompanied by thyrotoxicosis. Clinical differences of nodular toxic goiter. Justification of the diagnosis of thyrotoxicosis. Medicinal and surgical treatment of toxic goiter, use of <sup>131</sup>I-iodine for therapeutic purposes. Differential diagnosis of acute and subacute thyroiditis. Chronic thyroiditis. Justification of the diagnosis of autoimmune thyroiditis. Nodular forms of goiter. Monitoring of patients with thyroid nodules. Pathomorphological classification of tumors of the thyroid gland. Justification of the diagnosis of thyroid cancer.

**Content module 2**

**“Emergency conditions in Endocrinology”**

**Topic 4. Management of a patient with hypoglycemic coma. Management of a patient with hyperglycemic (ketoacidemic) coma.**

Standards of diagnosis and management of patients. Differential diagnosis. Patient management tactics.

**Topic 5. Management of a patient with a thyrotoxic crisis.**

Standards of diagnosis and management of patients. Differential diagnosis. Patient management tactics

**Topic 6. Management of a patient with acute adrenal failure.**

Standards of diagnosis and management of patients. Differential diagnosis. Patient management tactics.

**4. The structure of the academic discipline**

Topic name	Number of hours					
	Total	Including				
		lectures	seminars	practical classes	laboratory classes	ISW
<b>Content module 1</b>						
<b>« Management of patients with basic symptoms and syndromes in Endocrinology»</b>						
<b>Topic 1.</b> Management of a patient with metabolic syndrome.	4	0	0	2	0	2
<b>Topic 2.</b> Management of a patient with chronic complications of diabetes.	6	0	0	4	0	2
<b>Topic 3.</b> Management of a patient with goiter syndrome.	6	0	0	4	0	2
<b>Topic 4.</b> Management of a patient with hypoglycemic coma. Management of a	6	0	0	4	0	2

patient with hyperglycemic (ketoacidemic) coma.						
Topic 5. Management of a patient with a thyrotoxic crisis.	4	0	0	2	0	2
Topic 6. Management of a patient with acute adrenal failure.	4	0	0	2	0	2
<b>Hours in general</b>	<b>30</b>	<b>0</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>12</b>

## 5. Topics of lectures / seminars / practical / laboratory classes

### 5.1 Lecture classes are not provided

### 5.2 Topics of practical classes

№	Topic name	Number of hours
1	<b>Topic 1. Practical lesson 1.</b> <b>Management of a patient with metabolic syndrome.</b> Definition, classification, diagnostic criteria, relevance of the problem all over the world. Drawing up an examination plan, the role of instrumental and laboratory examination methods. Patient management tactics depending on glycemia, body mass index, blood pressure level. Drug and non-drug treatment. Existing standards of treatment. Primary and secondary prevention.	2
2	<b>Topic 2. Practical lesson 2.</b> <b>Management of a patient with chronic complications of diabetes.</b> Diabetic angiopathies and neuropathies. Classification. Diabetic nephropathy, stages of development, diagnosis, differential diagnosis, treatment and prevention. Diabetic retinopathy: stages of the process, diagnosis, prevention and treatment. Diabetic neuropathy, classification, diagnosis and treatment. Diabetic foot syndrome: classification, diagnosis, treatment.	2
3	<b>Topic 2. Practical lesson 3.</b> <b>Principles of treatment of patients with diabetes.</b> Regime of insulin therapy: traditional and intensified insulin therapy. Complications of insulin therapy: hypoglycemic states, insulin allergy, post-injection lipodystrophy, insulin resistance, chronic insulin overdose (Somogyi syndrome), insulin edema. Algorithm for the treatment of type 2 diabetes. Principles of treatment of pregnant women with diabetes. Peculiarities of urgent and planned surgical interventions in patients with diabetes.	2
4	<b>Topic 3. Practical lesson 4.</b> <b>Management of a patient with goiter syndrome.</b> Determination of the size of the thyroid gland. Definition of the "goiter". The concept of endemic non-toxic and nodular forms of goiter. Diseases accompanied by thyrotoxicosis. Clinical differences of nodular toxic goiter. Justification of the diagnosis of thyrotoxicosis. Medicinal and surgical treatment of toxic goiter, use of <sup>131</sup> I-iodine for therapeutic purposes.	2
5	<b>Topic 3. Practical session 5.</b> <b>Management of a patient with goiter syndrome.</b> Differential diagnosis of acute and subacute thyroiditis. Chronic thyroiditis. Justification of the diagnosis of autoimmune thyroiditis. Nodular forms of	2

	goiter. Monitoring of patients with thyroid nodules. Pathomorphological classification of tumors of the thyroid gland. Justification of the diagnosis of thyroid cancer.	
6	<b>Topic 4. Practical lesson 6.</b> <b>Management of a patient with hypoglycemic coma.</b> Etiology, differential diagnosis, laboratory studies. Algorithms for providing emergency care in outpatient and inpatient conditions.	2
7	<b>Topic 4. Practical lesson 7.</b> <b>Management of a patient with hyperglycemic (ketoacidemic) coma.</b> Etiology, differential diagnosis, laboratory studies. Algorithms for providing emergency care in outpatient and inpatient conditions.	2
8	<b>Topic 5. Practical lesson 8.</b> <b>Management of a patient with thyrotoxic crisis.</b> Standards of diagnosis and management of patients. Differential diagnosis. Patient management tactics.	2
9	<b>Topic 6. Practical lesson 9.</b> <b>Management of a patient with acute adrenal insufficiency.</b> Standards of diagnosis and management of patients. Differential diagnosis. Patient management tactics.	2
<b>Total</b>		<b>18</b>

### 5.3 Seminar classes are not provided

#### Topics of laboratory classes

Laboratory classes are not provided.

## 6. Self-employment of a higher education acquirers

№	Title of the topic / types of tasks	Number of hours
1	Topic 1. Preparation for practical class 1	2
2	Topic 2. Preparation for practical class 2	2
3	Topic 3. Preparation for practical classes 4-5	2
4	Topic 4. Preparation for practical classes 6-7	2
5	Topic 5. Preparation for practical class 8	2
6	Topic 5. Preparation for practical class 9	2
<b>TOTAL</b>		<b>12</b>

## 7. Teaching methods

**Practical classes:** conversation, role-playing, solving clinical situational problems, practicing patient examination skills, demonstrating and practicing the skills of performing manipulations according to list 5, training exercises on differential diagnosis of diseases of the endocrine system.

**Independent work:** independent work with the recommended basic and additional literature, with electronic information resources, independent work with the bank of test tasks KROK-2, independent mastering of the algorithms of the clinical examination of the patient.

## 8. Forms of control and evaluation methods (including criteria for evaluating learning outcomes)

**Current control:** oral survey, testing, evaluation of performance of practical skills, evaluation of communication skills during role-play, solution of situational clinical tasks, evaluation of activity in class.



**Final control:** credit test

**Evaluation of the current educational activity in a practical session:**

1. Evaluation of theoretical knowledge on the subject of the lesson:
  - methods: survey, solving a situational clinical problem
  - maximum score – 5, minimum score – 3, unsatisfactory score – 2.
2. Evaluation of practical skills and manipulations on the subject of the lesson:
  - methods: assessment of the correctness of the performance of practical skills
  - maximum score – 5, minimum score – 3, unsatisfactory score – 2.
3. Evaluation of work with the patient on the subject of the lesson:
  - methods: assessment of: a) communication skills of communication with the patient, b) the correctness of the appointment and evaluation of laboratory and instrumental studies, c) compliance with the differential diagnosis algorithm, d) substantiation of the clinical diagnosis, e) drawing up a treatment plan;
  - maximum score – 5, minimum score – 3, unsatisfactory score – 2.

The grade for one lesson is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded according to the statistical method.

### Current evaluation criteria in practical training

Estimation	Evaluation criteria
«5»	The applicant is fluent in the material, actively participates in the discussion and solution of the situational clinical problem and interpretation of clinical, laboratory and instrumental research data, expresses his opinion on the subject of the lesson, demonstrates clinical thinking.
«4»	The applicant has a good command of the material, participates in the discussion and solution of a situational clinical problem and interpretation of clinical, laboratory and instrumental research data with some errors, expresses his opinion on the subject of the lesson, demonstrates clinical thinking.
«3»	The applicant does not have sufficient knowledge of the material, is unsure of participating in the discussion and solution of the situational clinical problem and the interpretation of clinical, laboratory and instrumental research data with significant errors.
«2»	The applicant does not own the material, does not participate in the discussion and solution of the situational clinical problem and the interpretation of clinical, laboratory and instrumental research data.

The applicant is admitted to the credit if he meets the requirements of the educational program and if he received at least 3.00 points for the current educational activity.

**Assessment** is carried out at the last lesson after the study of all topics of the section is completed. Acquirers who have completed the curriculum in the discipline in full, have no academic debt, their current grade point average is 3.00 or more, receive credit in the last class, which is presented as **"passed" / "not passed"**.

### 9. Distribution of points received by applicants of higher education

The obtained average score for the academic discipline for applicants who have successfully mastered the work program of the academic discipline is converted from a traditional four-point scale to points on a 200-point scale, as shown in the table:

### Conversion table of a traditional assessment into a multi-point scale

Traditional four-point scale	Multipoint 200-point scale
Excellent ("5")	185 - 200
Good ("4")	151 - 184
Satisfactory ("3")	120-150
Unsatisfactory ("2")	Below 120

A multi-point scale (200-point scale) characterizes the actual success of each applicant in learning the educational component. The conversion of the traditional grade (average score for the academic discipline) into a 200-point grade is performed by the information and technical department of the University.

According to the obtained points on a 200-point scale, the achievements of the applicants are evaluated according to the ECTS rating scale. Further ranking according to the ECTS rating scale allows you to evaluate the achievements of students from the educational component who are studying in the same course of the same specialty, according to the points they received.

The ECTS scale is a relative-comparative rating, which establishes the applicant's belonging to the group of better or worse among the reference group of fellow students (faculty, specialty). An "A" grade on the ECTS scale cannot be equal to an "excellent" grade, a "B" grade to a "good" grade, etc. When converting from a multi-point scale, the limits of grades "A", "B", "C", "D", "E" according to the ECTS scale do not coincide with the limits of grades "5", "4", "3" according to the traditional scale. Applicants who have received grades of "FX" and "F" ("2") are not included in the list of ranked acquirers. The grade "FX" is awarded to applicants who have obtained the minimum number of points for the current learning activity, but who have not passed the final examination. A grade of "F" is assigned to students who have attended all classes in the discipline, but have not achieved a grade point average (3.00) for the current academic activity and are not admitted to the final examination.

Applicants who study in one course (one specialty), based on the number of points scored in the discipline, are ranked on the ECTS scale as follows:

#### Conversion of the traditional grade from the discipline and the sum of points on the ECTS scale

Evaluation on the ECTS scale	Statistical indicator
A	Top 10% applicants
B	The next 25% of applicants
C	The next 30% of applicants
D	The next 25% of applicants
E	The next 10% of applicants

### 10. Methodical support

- Working program of the academic discipline
- Syllabus
- Methodological recommendations for practical classes
- Methodical recommendations for independent work of higher education acquirers
- Multimedia presentations
- Situational clinical tasks
- Scenarios of role-playing games (if necessary)
- Electronic bank of test tasks by subdivisions of the discipline
- **Educational and methodical literature:**

1. Karpenko Y.I., Poliakov A.Ie., Zolotaryova N.A., Savelieva O.V., etc. Endocrinology: methodological recommendations for practical classes for applicants of higher education of the 6th

year of the second master's level of the specialty "Medicine" / methodological recommendations for practical classes Odesa, ONMedU, 2023. 21p.

2. Karpenko Y.I., Poliakov A.Ie., Zolotaryova N.A., Savelieva O.V., etc. Endocrinology: methodological recommendations for independent work of applicants of higher education of the 6th year of the second master's level of the specialty "Medicine" / methodological recommendations for independent work Odesa, ONMedU, 2023. 34 p.

### **11. Questions for preparing for the test.**

1. Management of a patient with metabolic syndrome. Definition, classification, diagnostic criteria, relevance of the problem all over the world. Drawing up an examination plan, the role of instrumental and laboratory examination methods.

2. Tactics of management of patients with metabolic syndrome depending on glycemia, body mass index, blood pressure level. Drug and non-drug treatment. Existing standards of treatment. Primary and secondary prevention.

3. Management of a patient with chronic complications of diabetes. Diabetic angiopathies and neuropathies. Classification. Diabetic nephropathy, stages of the process, diagnosis, differential diagnosis, treatment and prevention. Diabetic retinopathy: stages of the process, diagnosis, prevention and treatment. Diabetic neuropathy, classification, diagnosis and treatment. Diabetic foot syndrome: classification, diagnosis, treatment.

4. Principles of treatment of patients with diabetes. Regime of insulin therapy: traditional and intensified insulin therapy. Complications of insulin therapy: hypoglycemic states, insulin allergy, post-injection lipodystrophy, insulin resistance, chronic insulin overdose (Somogyi syndrome), insulin edema.

5. Type 2 diabetes treatment algorithm. Principles of treatment of pregnant women with diabetes. Peculiarities of urgent and planned surgical interventions in patients with diabetes.

6. Management of a patient with goiter syndrome. Determination of the size of the thyroid gland. Definition of the "goiter". The concept of endemic non-toxic and nodular forms of goiter. Diseases accompanied by thyrotoxicosis. Clinical differences of nodular toxic goiter. Justification of the diagnosis of thyrotoxicosis.

7. Medicinal and surgical treatment of toxic goiter, use of <sup>131</sup>-iodine for therapeutic purposes. Differential diagnosis of acute and subacute thyroiditis. Chronic thyroiditis. Rationale for the diagnosis of autoimmune thyroiditis.

8. Nodular forms of goiter. Monitoring of patients with thyroid nodules. Pathomorphological classification of tumors of the thyroid gland. Justification of the diagnosis of thyroid cancer.

9. Management of a patient with hypoglycemic coma. Etiology, differential diagnosis, laboratory studies. Algorithms for providing emergency care in outpatient and inpatient conditions.

10. Management of a patient with hyperglycemic (ketoacidemic) coma. Etiology, differential diagnosis, laboratory studies. Algorithms for providing emergency care in outpatient and inpatient conditions.

11. Management of a patient with a thyrotoxic crisis. Standards of diagnosis and management of patients. Differential diagnosis. Patient management tactics.

12. Management of a patient with acute adrenal insufficiency. Standards of diagnosis and management of patients. Differential diagnosis. Patient management tactics.

### **12. Recommended Books**

#### **The main one:**

1. Harrison's Principles of Internal Medicine Self-Assessment and Board Review, 20th Edition 20th Edition.- (August 13, 2021). - 736 pages

2. Oxford Textbook of Endocrinology and Diabetes 3e 3rd Edition. by John Wass (Author), Wiebke Arlt (Author), Robert Semple (Author). - June 22, 2022. - 2656 pages

**Additional:**

1. Endocrinology and Diabetes: A Problem Oriented Approach 2nd ed. 2022 Edition. - March 4, 2022. - 513 pages
2. A Case-Based Guide to Clinical Endocrinology 3rd ed. 2022 Edition. by Terry F. Davies (Editor) . - January 5, 2022. - 578 pages
3. Polyendocrine Disorders and Endocrine Neoplastic Syndromes (Endocrinology). – 2021. - 448 page

**13. Electronic information resources**

- 1) <https://diabetes.org/> - American Diabetic Association
- 2) [www.ama-assn.org](http://www.ama-assn.org) – American Medical Association
- 3) [www.who.int](http://www.who.int) – The World Health Organization
- 4) <http://bma.org.uk> – British Medical Association
- 5) <https://www.guidelinecentral.com/> - Guideline central
- 6) <https://www.thyroid.org/professionals/ata-professional-guidelines/> - American Thyroid Association
- 7) <https://www.endocrine.org/clinical-practice-guidelines> - Endocrine Society