Bogomolets National Medical University

Educational and Scientific Institute of Medicine

Department Endocrinology

APPROVED

Vice-Rector of the Higher Education Institution

Bogomolets National Medical University

for Research, Academic and Education Affairs,

Doctor of Medical Sciences, Professor

Oleh VLASENKO

Working program of the academic discipline

EC 4.3 Endocrinology and Diabetology

Level of higher educational Second (master`s degree)

Areas of knowledge 22 Health Care

Specialty 222 Medicine

Program EPP Medicine

2026-2027 academic year

The work program of the Elective discipline "Endocrinology and Diabetology" for students at the secodnd (master`s) level of education, specialty 222 "Medicine", 4th year

Developers: Head of the Department of Endocrinology, Professor, Doctor of Medicine Komisarenko Y.I., Associate Professor, Doctor of Medicine Mykhalchyshyn G.P.

The work program was approved at the meeting of the Department of Endocrinology
Protocol of August 26, 2026 № 1
Head of the Department of Endocrinology
Professor, Doctor of Medicine _____ Komisarenko Y.I.

The work program was approved by the Central Methodical Commission of Therapeutic Disciplines
Protocol of August 27, 2026 № 1
Chairman of CMC of Therapeutic Disciplines
Professor, Doctor of Medicine _____ Iaremenko O.B.

Reapproved:

on 20___/ 20___ ac.year. _____ _____ "___"___ 20__ protocol №
(signature) (full name)

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Discipline description

<table>
<tr><td rowspan="2">Name
of indicators</td><td rowspan="2">Area of knowledge, education level</td><td>Characteristics of the course</td></tr>
<tr><td>full-time education</td></tr>
<tr><td>Number of credits 3</td><td>Area of knowledge
22 «Health Care»</td><td>Normative</td></tr>
<tr><td>Modules – 1</td><td rowspan="5">Specialty
222 "Medicine"</td><td>Year of training</td></tr>
<tr><td>Content Modules – 1</td><td>4 th</td></tr>
<tr><td>Individual tasks of the research (title)</td><td>Semester</td></tr>
<tr><td rowspan="2">Total hours 90</td><td>7,8</td></tr>
<tr><td>Lectures</td></tr>
<tr><td rowspan="10">Weekly hours for full-time study:
classroom - 30
independent work of the student – 60</td><td rowspan="10">Educational level
Master's degree</td><td></td></tr>
<tr><td>Practical</td></tr>
<tr><td>5/6 hours</td></tr>
<tr><td>Laboratory</td></tr>
<tr><td>hours</td></tr>
<tr><td>SSW</td></tr>
<tr><td>60 hours</td></tr>
<tr><td>Individual task:</td></tr>
<tr><td></td></tr>
<tr><td>Type of control</td></tr>
<tr><td>Differentiated credit</td></tr>
</table>

1. The purpose, expected learning outcomes and criteria for evaluating learning outcomes

Purpose: Formation of the ability to apply the acquired knowledge, skills, abilities and understanding to solve typical tasks of the doctor in the field of health care, the scope of which is provided by certain lists of syndromes and symptoms of diseases, emergencies and diseases that require special tactics; laboratory and instrumental research, medical manipulations.

In accordance with the requirements of the EPP, the discipline provides acquisition by students

competencies:

- integral:

ability to solve typical and complex specialized tasks and practical problems in professional activities in the field of health care, or in the learning process, which involves research and/or innovation and is characterized by complexity and uncertainty of conditions and requirements.

- *general*:

GC 1. Ability to abstract thinking, analysis and synthesis.

GC 2. Ability to learn and master modern knowledge.

GC 3. Ability to apply knowledge in practical situations.

GC 4. Knowledge and understanding of the subject area and understanding of professional activity.

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

GC 6. Ability to make informed decisions.

GC 9. Ability to communicate in the state language both orally and in writing.

GC 11. Skills in the use of information and communication technologies.

GC 12. Definiteness and perseverance in terms of tasks and responsibilities.

GC 13. The ability to act socially responsibly and consciously.

GC 15. Ability to act on the basis of ethical considerations (motives).

- *special (professional, subject):*

SC 1. Skills of interviewing and clinical examination of the patient.

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

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

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

SC 7. Ability to diagnose emergencies.

SC 8. Ability to determine the tactics of emergency medical care.

SC 9. Emergency care skills.

SC 11. Skills to perform medical manipulations.

SC 15. Ability to determine the tactics of management of persons subject to dispensary supervision.

SC 17. Ability to keep medical records.

SC 19. Ability to assess the impact of the environment, socio-economic and biological determinants on the state of health of the individual, family, population.

SC 21. Ability to conduct activities for the organization and integration of medical care and marketing of medical services.

Learning results

Program learning results

PLR 1. Evaluate the data on patient complaints, medical history, life history according to the standard scheme of the patient's survey, according to the established algorithms to conduct and evaluate the results of physical examination.

PLR 2. Evaluate information on the diagnosis, using a standard procedure, based on the results of laboratory and instrumental studies.

PLR 3. Highlight the leading clinical symptom or syndrome. Establish the most probable or syndromic diagnosis of the disease. Assign laboratory and instrumental examination of the patient. Carry out differential diagnosis of diseases. Establish a preliminary and clinical diagnosis.

PLR 6. To determine the principles and nature of treatment (conservative, operative) of the disease.

PLR 7. Determine the tactics of emergency medical care on the basis of a diagnosis of emergency.

PLR 8. Provide emergency medical care on the basis of an emergency

diagnosis.

PLR 11. Perform medical manipulations.

PLR 16. Prepare an annual report on personal production activities, maintain medical records of the patient and the population.

PLR 18. Identify negative environmental factors; analyze the state of health of a certain contingent; determine the relationship between the state of the environment and the state of health of a particular contingent; develop preventive measures based on data on the relationship between the state of the environment and the state of health of a particular contingent. Carry out analysis of morbidity of the population, identifying risk groups, risk areas, time of risk, risk factors. Assess the impact of socio-economic and biological determinants of the individual, family, population.

PLR 19. Carry out the selection and use of unified clinical protocols for the provision of medical care, developed on the basis of evidence-based medicine; develop and use local health care protocols.

PLR 20. Organize the work of medical staff; to form rational medical routes of patients; organize interaction with colleagues, organizations and institutions; apply tools to promote medical services.

PLR 21. Form goals and determine the structure of personal activities.

PLR 22. Adhere to a healthy lifestyle, use the techniques of self-regulation and self-control.

PLR 23. To be aware of and guided in its activities by civil rights, freedoms and responsibilities, to raise the general educational and cultural level.

PLR 24. Adhere to the requirements of ethics, bioethics and deontology in their professional activities.

PLRN 25. To organize the necessary level of individual safety (own and persons cared for) in case of typical dangerous situations in the individual field of activity.

To be able to know

- Methods and standard schemes of questioning and physical examination of a patient with the most common diseases of the endocrine system.
- Algorithms for the selection of the leading symptom or syndrome in the most common diseases of the endocrine system.
- Algorithms for diagnosing the most common endocrine system.
- Standard methods of examination (laboratory and instrumental) of a patient with the most common diseases of the endocrine system.
- Differential diagnosis of the most common diseases of the endocrine system.
- Criteria for the diagnosis of the most common diseases of the endocrine system.
- Algorithms and standard schemes for the treatment of the most common diseases of the endocrine system.
- Criteria for diagnosis and principles of emergency medical care in emergencies in the most common diseases of the endocrine system.
- Algorithms for providing emergency medical care in emergencies in the most common diseases of the endocrine system.
- Algorithms for performing medical manipulations.
- Principles of organization of rational nutrition, mode of activity and rest of patients with the most common diseases of the endocrine system.
- Primary and secondary prevention, prognosis and efficiency of patients with the most common diseases of the endocrine system.
- Know the system of official document management in the professional work of a doctor, including modern computer information technology.

To be able to carry out:

- Evaluate the data on patient complaints, medical history, life history according to the standard scheme of the patient's survey, according to established algorithms to conduct and evaluate the results of physical

examination of patients with the most common diseases of the endocrine system.

- Make an informed decision about the selection of the leading clinical symptom or syndrome in the most common diseases of the endocrine system.
- Establish a preliminary diagnosis of the most common diseases of the endocrine system.
- Prescribe laboratory and instrumental examination of the patient with the most common diseases of the endocrine system.
- Evaluate diagnosis information using a standard procedure based on the results of laboratory and instrumental studies.
- Carry out differential diagnosis in the most common diseases of the endocrine system.
- Establish a clinical diagnosis of the most common diseases of the endocrine system.
- Determine the necessary mode of work and rest, the nature of nutrition in the treatment of the most common diseases of the endocrine system.
- Determine the principles and nature of treatment, prescribe non-drug and drug treatment, including prognostic-modifying, in the most common diseases of the endocrine system.
- Determine the tactics of emergency medical care based on the diagnosis of emergency.
- Provide emergency medical care based on an emergency diagnosis.
- Carry out primary and secondary prevention in the most common diseases of the endocrine system.
- Determine the prognosis and assess the performance of patients with the most common diseases of the endocrine system.
- Be able to keep medical records.
- Adhere to the requirements of ethics, bioethics and deontology in their professional activities.

Criteria for evaluating learning outcomes

Current and final control are control measures carried out at the Bogomolets National Medical University (NMU) to determine the level of knowledge acquired by students, skills and abilities to the requirements of regulations on higher education and provide timely adjustment of the educational process in the relevant areas of training and specialties of NMU.

For each stage of the lesson and the element of current control, the student receives the traditional grade "5-4-3-2", from which the teacher forms the arithmetic mean for the lesson, which is converted into points according to the scale (distribution) provided by the working curriculum. If during the formation of the arithmetic mean traditional grade for the lesson the student receives "2", then this grade is converted into 0 points.

The results of control of the level of knowledge, each component of the lesson, in particular, tests are evaluated according to this scale:

59% or less correct answers - grade "2"

60% - 74% correct answers - grade "3"

75% -89% correct answers - grade "4"

90-100% correct answers - grade "5".

Evaluation criteria:

Grade "5" is given if the student:

1. performed the work without errors and shortcomings;

2. admitted no more than one defect.

Grade "4" is given if the student has completed the work completely, but admitted in it:

1. not more than one gross error and one defect;

2. no more than two shortcomings.

Grade "3" is given if the student correctly performed at least half of the work or allowed:

1. not more than two gross errors or not more than one gross and one

a minor error and one shortcoming;

2. not more than two or three gross errors or one non-gross error and three shortcomings;

3. in the absence of errors, but in the presence of four or five defects.

Grade "2" is given if the student:

1. made a number of errors (deficiencies) that exceed the criteria at which a grade of "3" can be set.
2. if correctly performed less than half of the tasks;
3. did not start performing tasks;
4. correctly performed no more than 10% of all tasks.

The final control is carried out in the form of the differentiated. The evaluation of the results of the differentiated test is carried out according to the 200-point system of knowledge control adopted by the university and the national scale and are reflected in the relevant information.

The final control is conducted in the form of a pass-fail assessment. The results of the pass-fail assessment are assessed on a 200-point knowledge control system adopted by the university and the national scale and reflected in the relevant information.

3. The work program of the Elective discipline "Endocrinology and Diabetology"

Total hours 90 / credits 3 (practical classes – 30, SSW – 60)

Topic 1. Diabetes mellitus, classification. Specific types of diabetes. Injection therapy of diabetes mellitus.

Epidemiology of diabetes mellitus in Ukraine and worldwide, prognosis of morbidity, prevalence of diabetes mellitus amongst different age group. Etiology and pathogenesis of diabetes mellitus. Diabetes mellitus, type 1: role of viral infection and autoimmune processes, genetic predisposition. Diabetes mellitus,

type 2: role of genetic predisposition, obesity, external factors. Insulineresistance and disturbance of insulin secretion. Specific types of diabetes. Criteria of diagnosis of diabetes mellitus and other forms of hyperglycemia disturbances.

Main principles of therapy of diabetes mellitus. Criteria of compensation of glucose control in diabetes mellitus, type 1. Insulintherapy. Classification of insulin preparations, indications to their usage. Insulin analogues. Calculation of daily dose of insulin. Correction of dose of insulin according to bread units. Regimes of insulintherapy: traditional (convential), intensified (basic – bolus), pump therapy. Complications of insulintherapy: hypoglycemic states, allergic reactions, lypodystrophy, insulinresistance syndrome, Somogie syndrome, insulin oedema. Recreation treatment. Guidelines for management of diabetes mellitus type 1.

Topic 2. Management of diabetes mellitus type 2. International recommendations. Interdisciplinary integration. The role of vitamin D deficiency in metabolic disorders.

Algorythm of treatment of diabetes mellitus type 2. Main principles of management: diet, controlled physical activity, self- control, medical preparations. Diet: physiological base, energy, restriction of simple carbohydrates, fibers, microelements, vitamins. Controlled physical activity and rules for its indications. Medical preparations: insulin sensitizers (metfomin, tiazolidinediones), secretagogues (sulfonylurea derivates, glinides), incretines (GLP- 1 analogues, DPP-4 inhibitors), α-glucosidase inhibitors, gliflosines, insulintherapy. Guidelines for management of Diabetes mellitus type 2. Interdisciplinary integration. The role of vitamin D deficiency in metabolic disorders. Algoritm of screening and treatment of patients with vitamin D deficiency.

Topic 3. Syndrome of hypo- and hyperthyroidism. Nodular forms of goiter. Thyroid cancer.

Hypothyroidism: etiology, pathogenesis, clinical features, diagnosis and differential diagnosis, treatment. Primary, central, periferial, subclinical, transient. Proper diagnosis of congenital hypothyroidism. Age impact on clinical course of

hypothyroidism. Hypothyroidism as a part of autoimmune poliendocrinopathies. Subclinical hypothyroidism. Treatment of hypothyroidism. Pregnancy and hypothyroidism. Thyroidites, clinical signes, diagnosis, treatment.

Diseases with thyrotoxocosis. Etiology, pathogenesis, clinical features of Grave's disease, endocrine ophtalmopathy, diagnosis and differential diagnosis, treatment: medicines, radiiodine I_{131}. Comlications of treatment of Grave's disease.

Nodular goiter. Management of nodules in thyroid gland.

Pathomorphological classification of tumors in thyroid gland. Dagnosis of thyroid cancer. Impact of Chernobyl catastrophe in 1986 on thyroid cancer morbidity. Modern treatment and rehabilitation of the patients with thyroid cancer.

Topic 4. Endocrine arterial hypertension.

Classification, diagnostic criteria and differential diagnosis of endocrine arterial hypertension (Cushing syndrome and disease, phaeochromocytoma, aldosteroma, acromegaly, diabetic kidney disease). Examination plan, the role of instrumental and laboratory examination methods. Management, drug and non-drug treatment. Standarts of treatment. Prevention.

Topic 5. Autoimmune polyglandular syndrome. Multiple endocrine neoplasia syndrome.

Autoimmune polyglandular syndrome. Types of autoimmune polyglandular syndrome. Screening. Clinical manifistations. Features of therapy. Multiple endocrine neoplasia (MEN) syndrome. Characteristics of the MEN 1, 2A, 2B syndrome. Diagnosis and differential diagnosis, treatment.

4. The structure of the Elective discipline "Endocrinology and Diabetology"

Names of content modules and topics	Number of hours					
	Full-time					
	total	including				
		Lec	Prac	Lab.	Ind	SSW

Topic 1. Diabetes mellitus, classification. Specific types of diabetes. Injection therapy of diabetes mellitus.			6			12
Topic 2. Management of Diabetes mellitus type 2. International recommendations. Interdisciplinary integration. The role of vitamin D deficiency in metabolic disorders.			6			12
Topic 3. Syndrome of hypo- and hyperthyroidism. Nodular forms of goiter. Thyroid cancer.			6			12
Topic 4. Endocrine arterial hypertension.			6			12
Topic 5. Autoimmune polyglandular syndrome. Multiple endocrine neoplasia syndrome.			6			12
Total	90		30			60

5. Thematic plan of lectures

№	**Theme of the lecture**	**Number of hours**
1		
2		
	Total	

6. Thematic plan of seminars classes

№	Topic	**Number of hours**
1		

7. Thematic plan of practical classes

№	Topic	Hours
1	Diabetes mellitus, classification. Specific types of diabetes. Injection therapy of diabetes mellitus.	6
2	Management of diabetes mellitus type 2. International recommendations. Interdisciplinary integration. The role of vitamin D deficiency in metabolic disorders.	6
3	Syndrome of hypo- and hyperthyroidism. Nodular forms of goiter.	6

	Thyroid cancer.	
4	Endocrine arterial hypertension.	6
5	Autoimmune polyglandular syndrome. Multiple endocrine neoplasia syndrome.	6
	Total	30

8. Laboratory topics

№	Topic	Hours
1		
2		

9. SELF-STUDY WORK FOR PRACTICAL CLASSES

№ з/п	Topic	Hours
1.	- Preparation for practical classes on the topic №1 "Diabetes mellitus, classification. Specific types of diabetes. Injection therapy of diabetes mellitus." - Mastering the skills of interpretation of biochemical blood tests (glycemia level, glycemic profile, glyceted hemoglobin, ketonemia and ketonuria).	12
2.	- Preparation for practical classes on the topic №2 "Management of diabetes mellitus type 2. International recommendations. Interdisciplinary integration. The role of vitamin D deficiency in metabolic disorders." - Mastering the skills of interpretation of biochemical blood tests, glycemic profile, glyceted hemoglobin,of writing the prescriptions on main antidiabetic drugs. - Mastering the skills of prescribing vitamin D preparations depending on the initial level.	12
3.	Preparation for practical classes on the topic №3 "Syndrome of hypo- and hyperthyroidism. Nodular forms of goiter. Thyroid cancer." - Mastering the skills of interpretation of hormone test – TSH, fT_3, fT_4, ATPO, calcitonin, anti-rTSH, thyreoglobulin.	12

4.	Preparation for practical classes on the topic №4 "Endocrine arterial hypertension." -Mastering the skills of interpretation of hormone test – ACTH, cortosol, aldosteron, rennin, electrolytes, GH, ILF-1, prolactin, gonadotropins, metanephrines in urine.	12
5.	Preparation for practical classes on the topic №5 "Autoimmune polyglandular syndrome. Multiple endocrine neoplasia syndrome." -Mastering the skills of interpretation of hormone test by topic.	12
Total		60

10. LIST OF THEORETICAL ISSUES TO FINAL CONTROL

- Diabetes mellitus, classification, etiology, pathogenesis, clinical presentation, diagnosis. Guidelines for diagnosis.
- Diabetes mellitus, type 1 and 2, modern therapy. Guidelines for treatment.
- Iodine deficiency diseases of thyroid gland. Signs of endemic region by WHO. Cinical features, diagnosis, profilaxis, treatment. Hypothyroidism and thyroiditis. Classification, clinical features, diagnosis and differential diagnosis. Guidelines for treatment
- Thyrotoxicosis. Clinical forms. Diagnosis, treatment. Thyroid cancer. Classification, clinical features, diagnosis and differential diagnosis. Guidelines for treatment. Disorders of parathyroid glands.
- Guidelines for diagnosis and treatment of thyrotoxicosis, thyroid cancer, hyper– and hypoparathyroidism.
- Obesity. Metabolic syndrome.
- The role of vitamin D deficiency in metabolic disorders.
- Autoimmune polyglandular syndrome.
- Multiple endocrine neoplasia syndrome.

11. Teaching methods

Practical, visual, verbal, work with a book, video method, group work, discussions, solving situational problems, cases, application of methods for modeling clinical situations, problem-oriented learning.

Verbal, explanatory-demonstration, reproductive, research, practical, visual, work with a book, video method, group work, discussions, solving situational problems, cases, application of methods of modeling clinical situations, problem-oriented learning.

12. Methods and forms of control, distribution of points received by students, assessment

Methods of control: oral, written, test, programmed control, practical examination.

Regulations for assessing the current and final control of the discipline

Initial control of knowledge involves determining the initial level of knowledge of students in related disciplines, which is necessary to master the discipline studied by the student. The results of the initial control of knowledge are not taken in to account in the current learning of the student, because they are only introductory for the teacher.

Current control involves 100% survey of students in the group in a practical lesson with a mandatory assessment of all components of the lesson - test control, oral examination, solving situational problems, description of drugs, etc. Each lesson topic also involves monitoring practical skills.

For each stage of the lesson and the element of current control, the student receives the traditional grade "5-4-3-2", from which the teacher forms the arithmetic mean for the lesson, which is converted into points according to the scale (distribution) provided by the working curriculum, which was compiled and approved before the study of the discipline. If a student receives "2", this score is converted to 0 points.

The sum of points accumulated by the student as a result of the ongoing study is a component of the overall grade in the discipline according to the types of

final control of knowledge. The maximum number of points for the ongoing study is 200 points.

The ongoing control consists of all points that the student has accumulated during all auditorial classes. Missed material from practical classes is processed by the student independently without scoring points in accordance with the Regulation "On the procedure for assessing students' knowledge during the ongoing and final control of the discipline at Bogomolet's National Medical University". Accordingly, the minimal score for admission to the final discipline control is not established for the ongoing control.

The procedure for calculating points in the discipline

During the evaluation of mastery of each topic of the module, the student is given grades on a 5-grade (traditional) scale and on a multi-point scale using accepted and approved evaluation criteria for the discipline. All types of work provided by methodical guide of the topic are taken in to account. The student must

receive a grade in each topic. The grades given on a traditional scale are converted into points.

Grades given on a traditional scale are converted into points depending on the number of topics in the module. The number of points corresponding to the grade "5" is calculated by dividing the maximum number of points of the ongoing educational activity (200) on number of practical classes. To calculate the grade "3", the number of points is calculated, which is 60% of the maximum number of points for the ongoing educational activity.

The number of points should be equal for all topics within the same module.

Forms of assessment of ongoing educational activities should be standardized and include control of theoretical and practical training.

Evaluation of current educational activities

The current educational activity and independent work *		Total
Traditional scale	Conversion into points	
5	40	0-200
4	32	
3	24	
2	0	

Note. * - 50% of the points are allocated for SRS (for each topic)

The final score for the current activity is defined as the arithmetic sum of the scores for each lesson.

Final control

The final control is carried out in the form of a differentiated credit. Assessment is a form of final control, which involves assessing learning material on the basis of current control with assigning a grade. The final score for the current activity is defined as the arithmetic sum of the scores for each lesson.

Assessment of the results is carried out according to the 200-point knowledge control system adopted by the university and is reflected in the relevant information.

Score in points	Rating by national scale	Score on a scale ECTS	
		Rating	Explanation
170-200	Perfectly	A	Perfectly (excellent execution with only minor errors)
155-169	Fine	B	Very well (above average with multiple errors)
140-154		C	Fine (overall correct execution with a certain number of material errors)

125-139	Satisfactorily	D	Satisfactorily (not bad, but with many drawbacks)
111-124		E	Enough (performance meets the minimum criteria)
60-110	Unsatisfactorily	FX	Unsatisfactorily (reassembly)
1-59		F	Unsatisfactorily (with compulsory re-study of discipline)

13. Methodological support

1. Textbooks, study guides
2. Plans of practical lessons
3. Tasks for independent work (see above, p. 9)
4. Methodical recommendations for practical classes for students and teachers
5. Video films
6. Workbooks on the topics of practical classes
7. Test questions, situational tasks, format A test tasks for current control of students' knowledge and skills

Course Policy: Compulsory adherence to academic integrity by students, namely:

-independent performing all types of work, tasks, forms of control provided for by the work program of this discipline;

-links to information sources when using ideas, developments, statements, information;

-compliance with copyright and related legislation;

-providing reliable information on the results of their own educational (scientific, creative) activities, research methods used and sources of information.

14. RECOMMENDED READING

Basic

1. Ендокринологія: підручник (Ю.І. Комісаренко, Г.П. Михальчишин, П.М. Боднар та ін.) За ред. професора Ю.І. Комісаренко, - Вид. 5, перероб. та доп. – Вінниця: Нова Книга, 2020. – 536с.

2. Уніфікований клінічний протокол первинної та спеціалізованої медичної допомоги «Цукровий діабет 2 типу у дорослих». Наказ МОЗ України від 24 липня 2024 року № 1300.

3. Уніфікований клінічний протокол первинної, екстреної та спеціалізованої медичної допомоги «Цукровий діабет 1 типу у дорослих». Наказ МОЗ України від 26 січня 2023 року №151.

4. Стандарти медичної допомоги "Ожиріння у дорослих". Наказ МОЗ України від 03 березня 2023 року № 427.

5. Davidson’s Principles and Practice of Medicine. 24th editionm, Editors: Ian D Penman, Stuart H. Ralston, Mark W J Strachan, Richard Hobson. Elsevier, 2023, 1428 p.

Additional

1. Діагностика, профілактика та лікування дефіциту вітаміну D у дорослих: Консенсус українських експертів. Григор’єва, Н. В., Тронько, М. Д., Коваленко, В. М., Комісаренко, С. В., Татарчук, Т.Ф. та ін. Журнал "Біль. Суглоби. Хребет" 2023; 13(2):60-76. https://doi.org/10.22141/pjs.13.2.2023.368

2. American Diabetes Association (2026). 2. Diagnosis and Classification of Diabetes: Standards of Care in Diabetes—2026. Diabetes Care 2026; 49 (Supplement 1): S27–S49. https://doi.org/10.2337/dc26-S002

3. American Diabetes Association (2026). 3. Prevention or Delay of Diabetes and Associated Comorbidities: Standards of Care in Diabetes—2026. *Diabetes Care* 2026;49(Supplement 1): S50–S60. https://doi.org/10.2337/dc26-S003

4. American Diabetes Association (2026). 6. Glycemic Goals, Hypoglycemia, and Hyperglycemic Crises: Standards of Care in Diabetes—2026. *Diabetes Care* 2026; 49(Supplement 1): S132–S149. https://doi.org/10.2337/dc26-S006

5. American Diabetes Association (2026). 7. Diabetes Technology: Standards of Care in Diabetes—2026. *Diabetes Care* 2026;49(Supplement 1): S150–S165. https://doi.org/10.2337/dc26-S007

6. American Diabetes Association (2026). 8. Obesity and Weight Management for the Prevention and Treatment of Type 2 Diabetes: Standards of Care in Diabetes–2026. *Diabetes Care* 2026;49(Supplement 1): S166–S182. https://doi.org/10.2337/dc26-S008

7. American Diabetes Association (2026). 9. Pharmacologic Approaches to Glycemic Treatment: Standards of Care in Diabetes—2026. *Diabetes Care* 2026; 49(Supplement 1): S183–S215. https://doi.org/10.2337/dc26-S009

8. American Diabetes Association (2026). 15. Management of Diabetes in Pregnancy: Standards of Care in Diabetes—2026. *Diabetes Care* 2026; 49(Supplement 1): S321–S338. https://doi.org/10.2337/dc26-S015

9. 2023 European Thyroid Association Clinical Practice Guidelines for thyroid nodule management. European Thyroid Journal. 2023; 14;12(5):e230067. https://doi: 10.1530/ETJ-23-0067.

10. Davidson's Principles and Practice of Medicine. 24th editionm, Editors: Ian D Penman, Stuart H. Ralston, Mark W J Strachan, Richard Hobson. Elsevier, 2023, 1428 p.

11. Williams Textbook of Endocrinology. Editors: Shlomo Melmed, Richard J. Auchus, Allison B. Goldfine, Clifford J. Rosen, Peter A. Kopp. 15 edition, 2024. – 1862 p.

Information resourses

1. http://www.diabetes.org
2. https://www.youtube.com/c/EndoTime
3. https://www.endokrynologia. com.ua

4. http://jcees.endocenter.kiev.ua
5. https://diabetesjournals.org/care