

**MINISTRY OF HEALTH OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY**

International faculty

Department of Family Medicine and Polyclinic Therapy

**Syllabus in the discipline
"Management of diabetes in the practice of a family doctor"**

Amount	Total number of hours per discipline: 90 hours 3.0 credits. XI-XII semesters. 6th year.
Days, time, place	According to the class assignments. Department of family medicine and polyclinic therapy Odesa, str. Pishonivska, 1, Premises base of the Department of Family Medicine and Polyclinic Therapy, 5th floor.
Teacher(s)	Tsyunchyk Y. G., PhD in Medicine, Associate Professor Lahoda D. O., PhD, Associate Professor Bazhora Ya. I., PhD, Associate Professor Nazarian V. M., assistant
Contact Information	Help by phone: Danylchuk Halyna Oleksandrivna, head teacher of the department 097 305 4035 Tsyunchyk Yuliia Genadiivna, responsible for organizational and educational work with students of the department 050 333 5888 E-mail: galina.danylchuk72@gmail.com Face-to-face consultations: from 2:00 p.m. to 5:00 p.m. every Thursday, from 9:00 a.m. to 2:00 p.m. every Saturday Online consultations: from 4:00 p.m. to 6:00 p.m. every Thursday, from 9:00 a.m. to 2:00 p.m. every Saturday. The link to the online consultation is provided to each group during classes separately.

COMMUNICATION

Communication with the student will be conducted in the classroom (face-to-face).

During distance learning, communication is carried out through the Microsoft Teams platform, as well as through e-mail correspondence, and Viber or Telegram messengers (through groups created in Viber or Telegram for each group, separately through the head of the group).

COURSE ANNOTATION

The subject of study of the discipline is the peculiarities of assessing the risk factors for the development of type 2 diabetes, the principles of its diagnosis, treatment, the possibility of developing complications, and the development of measures to prevent them.

Prerequisites and post-requisites of the discipline (the place of the discipline in the educational program):

Prerequisites: Ukrainian language (by professional direction), foreign language (by professional direction), Latin language and medical terminology, medical and biological physics, human

anatomy, histology, physiology, life safety; basics of electrophysiology, pathomorphology, pathophysiology, pharmacology, cardiology, endocrinology.

Post-requisites: general practice - family medicine, internal medicine, cardiology, gastroenterology, endocrinology, infectious diseases, epidemiology and principles of evidence-based medicine, anesthesiology and intensive care, emergency and critical care.

Purpose: deepening, expanding and concretizing by the student of higher education knowledge and formation of elements of professional competences in the field of endocrinology, in particular the essence of type 2 diabetes, etiopathogenesis, risk factors, management tactics for acute and chronic complications, approaches to diagnosis and the appointment of hypoglycemic therapy with the aim of achieving compensation of carbohydrate metabolism, maintenance of normal body weight and prevention of specific complications of diabetes.

The tasks of the discipline are the following:

1. To improve the skills and abilities of diagnosing disorders of carbohydrate metabolism and its complications.
2. To expand the knowledge about non-drug treatment of patients living with diabetes.
3. To improve the skills in the correct selection of hypoglycemic therapy to achieve compensation of carbohydrate metabolism and prevent complications.
4. To acquire the skills in timely prevention of acute and chronic complications of type 2 diabetes.
5. To expand the knowledge about the role of the family doctor in the management of patients with diabetes.

Expected results:

As a result of studying the discipline, the student has to

Know:

- etiology and pathogenesis and risk factors for the development of type 2 diabetes
- basic clinical-instrumental and laboratory methods of research for the detection of type 2 diabetes
- diagnostic criteria for diagnosing type 2 diabetes
- signs and principles of diagnosis of acute and chronic complications of type 2 diabetes.
- principles of treatment and prevention of type 2 diabetes
- principles of prescribing insulin therapy for a patient with type 2 diabetes

Be able:

- to diagnose type 2 diabetes and draw up a patient examination plan.
- to conduct a differential diagnosis between type 1 and type 2 diabetes.
- to carry out differential diagnoses of various emergency conditions in type 2 diabetes.
- to determine the tactics and provide emergency medical care in case of emergencies, and the need for hospitalization.
- to draw up a treatment plan for a patient with type 2 diabetes.
- to apply what you have learned in a clinical situation.
- to keep medical documentation.

COURSE DESCRIPTION

Forms and methods of education

It will teach the discipline as seminars classes (30 classroom hours) and organization of the student's independent work (60 hours).

Teaching methods: conversation, role-playing, solving clinical situational problems, tests, checking the skills of working with a glucometer.

The content of the educational discipline

Content module 1. Diabetes. Etiology. Pathogenesis. Clinic. Diagnosis and differential diagnosis.

Theme 1. Type 2 diabetes, epidemiology, etiology, pathogenesis, and classification

Definition of type 2 diabetes. Epidemiology of diabetes in the world, the prognosis of morbidity. Etiology and pathogenesis of diabetes. Type 2 diabetes: role of genetic predisposition, obesity, external risk factors. Insulin resistance and impaired insulin secretion. Current classification of diabetes according to the American Diabetes Association and the World Health Organization.

Theme 2. Clinic, diagnosis and differential diagnosis, screening of type 2 diabetes

The main clinical symptoms of diabetes. Diagnosis of diabetes. Screening for type 2 diabetes and testing for risk factors. Diagnostic criteria for diabetes and other categories of hyperglycemia. Additional research methods. Differential diagnosis of type 2 diabetes with other diseases.

Theme 3. Type 1 diabetes: epidemiology, etiology, pathogenesis and classification

Definition of type 1 diabetes. Epidemiology of diabetes in the world, prognosis of morbidity. Etiology and pathogenesis of diabetes. Type 1 diabetes: role of genetic predisposition, obesity, external risk factors. Insulin resistance and impaired insulin secretion. Current classification of diabetes according to the American Diabetes Association and the World Health Organization.

Theme 4. Clinic, diagnosis and differential diagnosis, screening of type 1 diabetes

The main clinical symptoms of diabetes. Diagnosis of diabetes. Screening for type 1 diabetes and testing for the presence of risk factors for the disease. Diagnostic criteria for diabetes and other categories of hyperglycemia. Additional research methods. Differential diagnosis of type 1 diabetes with other diseases.

Content module 2. Principles of pharmacological and non-pharmacological treatment of patients.

Theme 5. Modification of the lifestyle of patients with diabetes as a method of compensating for the disease and preventing complications and improving the prognosis

Management of diabetes. Lifestyle modification of type 2 diabetes patients, namely physical activity, balanced diet, weight control, and rejection of bad habits. Glycemic goals in diabetes.

Theme 6. Treatment of type 2 diabetes and indications for switching to insulin therapy. Methods of controlling the level of glucose in the blood

Algorithm to treat type 2 diabetes. Drug therapy: modern drugs to treat type 2 diabetes, their mechanism of action, features of use, and contraindications. Indications for insulin therapy. Blood glucose monitoring. Glucometer and rules for working with it. Modern methods of controlling the level of glucose in the blood.

Content module 3. Acute and chronic complications of type 2 diabetes. Treatment and prevention.

Theme 7. Acute complications of type 2 diabetes, their treatment, and prevention

Acute complications of type 2 diabetes. Ketoacidosis states with diabetic coma. Peculiarities of their course, symptoms and differential diagnosis, methods of diagnosis, and treatment. Hyperosmolar diabetic coma. Etiology, pathogenesis, clinic, diagnosis, differential diagnosis, treatment. Hypoglycemic coma, hypoglycemic states. Etiology, pathogenesis, clinic, diagnosis, treatment.

Theme 8. Chronic complications of type 2 diabetes, their treatment, and prevention

Chronic complications of diabetes. Micro- and macrovascular complications of type 2 diabetes. Diabetic nephropathy, clinic, differential diagnosis, diagnosis, treatment, and prevention. Diabetic retinopathy: stages of the process, diagnosis, prevention, and treatment. Diabetic neuropathy, classification, clinic, diagnosis, and treatment. Diabetic foot: classification, diagnosis, treatment. Prognosis of type 2 diabetes.

Theme 9. The role of the family doctor in the management of patients with type 2 diabetes

Peculiarities of management of patients with type 2 diabetes mellitus by a family doctor. The concept of reimbursement. Prescribing sugar-lowering drugs under the "Affordable Medicines" program. Indications for referral of a patient with type 2 diabetes to narrow specialists.

Theme 10. Psychological aspects in the management of patients living with a chronic disease, namely diabetes.

Psychological prerequisites for the occurrence of diseases of the endocrine system, namely diabetes. Psychological characteristics of people with type 2 diabetes. Screening questionnaires on the "quality of life" of people with type 2 diabetes. Peculiarities of psychological management of patients with type 2 diabetes.

Content module 4. Intensification of treatment of type 2 diabetes.

Theme 11. Basic principles of insulin therapy.

Characteristics of the insulins. Indications and contraindications for insulin therapy. Classification of insulins of ultrashort, short, intermediate and long action, insulin analogues. Regimes of insulin therapy.

Theme 12. General rules of insulin therapy.

Principles of starting insulin therapy. Insulin injection technique. Typical errors of insulin therapy. Choosing the right dose of insulin. Rules for correction of insulin dose. Schemes of titration of different insulins in type 2 diabetes.

Theme 13. Complications of insulin therapy.

Complications of insulin therapy: hypoglycemic states, insulin allergy, post-injection lipodystrophy, insulin resistance, chronic insulin overdose (Somoji syndrome), insulin edema and their prevention.

Theme 14. Modern devices for insulin therapy.

Devices for insulin injection. Rules of their use. Insulin pump: advantages and disadvantages. Rules of use. Devices for monitoring glycemia.

Theme 15. Myths related to insulin.

Myths and phobias that arise in patients at the beginning of insulin treatment. Methods of their debunking by a family doctor.

Recommended literature

Basic:

1. American Diabetes Association Professional Practice Committee; 2. Classification and Diagnosis of Diabetes: Standards of Medical Care in Diabetes—2022. Diabetes Care 1 January 2022; 45 (Supplement_1): S17–S38. <https://doi.org/10.2337/dc22-S002>

2. American Diabetes Association Professional Practice Committee; 9. Pharmacologic Approaches to Glycemic Treatment: Standards of Medical Care in Diabetes—2022. Diabetes Care 1 January 2022; 45 (Supplement_1): S125–S143. <https://doi.org/10.2337/dc22-S009>
3. Amboss. Diabetes mellitus. [Electronic resource]. Available at: <https://next.amboss.com/us/article/3g0SE2#Lce3258caade66b268ab5a8ffecc84361>
4. Amboss. Complications of diabetes mellitus. [Electronic resource]. Available at: <https://next.amboss.com/us/article/3s0Suh#L428d3f2697b2c804ca98c62ec3ad6c18>
5. Family Medicine: in 3 books. Book 3. Special Part. Multidisciplinary General Medical Practice: textbook / O.M. Hyrina, L.M. Pasiyeshvili, L.S. Babinets et al. Kyiv, 616 P., 2020
6. International Diabetes Federation. IDF Diabetes Atlas, 10th ed, issue 2021. [Electronic resource]. Available at: <http://www.diabetesatlas.org>

Additional:

1. BMJ Best Practice. Amar Puttanna, Partha Kar. Type 2 diabetes in adults. [Electronic resource]. Available at: <https://bestpractice.bmj.com/topics/en-gb/24/guidelines>
2. Harrison's Principles of Internal Medicine, Twenty-First Edition (Vol.1 & Vol.2). Joseph Loscalzo, Anthony Fauci, Dennis Kasper, Stephen Hauser, Dan Longo, J. Larry Jameson. – McGraw Hill / Medical. 2022. – 2 / 15164 p.

Electronic information resources

1. American Diabetes Association. <https://www.diabetesjournals.org>
http://care.diabetesjournals.org/content/41/Supplement_1/S1
2. European Association for the study of Diabetes. <https://www.easd.org>
3. Centers for Disease Control and Prevention <https://www.cdc.gov/>
4. NICE | The National Institute for Health and Care Excellence <https://www.nice.org.uk/>
5. <https://pubmed.ncbi.nlm.nih.gov/28526183/>
6. <https://pubmed.ncbi.nlm.nih.gov/29412061/>
7. <https://pubmed.ncbi.nlm.nih.gov/27622231/>
8. <https://pubmed.ncbi.nlm.nih.gov/31345518/>
9. <https://pubmed.ncbi.nlm.nih.gov/27453739/>
10. On-line calculators: [Body mass index calculator, BMI](#)
[Glomerular filtration rate](#)
[PROCAM, SCORE, Framingham, IRIS II](#)

EVALUATION

Forms of control and evaluation methods: oral survey, testing, assessment of performance of practical skills, solution of situational clinical tasks, assessment of activity in class.

Ongoing control:

- oral control: individual survey on the theme;
- written control: assessment of the situational task solutions (including calculation), assessment of the performance of an individual task;
- test control: assessment of performance of tests on the theme.

Final control: Credit Test.

Assessment of the ongoing learning activity at the practical classes:

1. Assessment of the theoretical knowledge on the theme:
 - methods: individual survey on the theme, participation of the students in the discussion of problem situations; assessment of performance of tests on the theme;

- the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of practical skills on the theme:
- methods: assessment of the solution of situational tasks (including calculation) on the theme;
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

Assessment of the individual work:

1. Assessment of the quality of the performance of the individual work:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.
2. Assessment of the presentation and defense of an individual work, participation in the assessment of the business plan of the competitors and its critical analysis:
 - the maximum score – 5, the minimum score – 3, the unsatisfactory score – 2.

The score for one practical class is the arithmetic average of all components and can only have an integer value (5, 4, 3, 2), which is rounded statistically.

Criteria of ongoing assessment at the seminar class

Score	Assessment criterion
Excellent «5»	<p>The student participates actively in the seminar class. He/she demonstrates profound knowledge and provides full and detailed answers. He/she participates actively in discussing problem situations. He/she uses additional educational and methodological and scientific literature. The student knows how to form his attitude to a certain issue and conveys his/her attitude to the issue, gives appropriate examples. He/she knows how to find the most adequate forms of conflict resolution.</p> <p>The tests are completed in full, all 100% of the answers are correct, the answers to the open questions are complete and justified.</p> <p>The student freely solves situational tasks (including calculations), confidently demonstrates practical skills on the theme of seminar class and correctly interprets the data obtained. He/she expresses his own creative opinion on the theme, demonstrates creative thinking.</p>
Good «4»	<p>The student participates in the seminar class. He/she have mastered the material of the seminar class and shows the necessary knowledge, but answers the questions with some mistakes. He/she participates in discussing problem situations. He/she uses the basic educational and methodological and scientific literature. The student expresses his own opinion on the theme of seminar class.</p> <p>The tests are completed in full, not less than 70% of the answers are correct, the answers to the open questions are generally correct, but there are some mistakes in definitions.</p> <p>The student correctly solves situational tasks (including calculations), but admits minor inaccuracies and demonstrates more standardized practical skills on the theme of seminar class with correct interpretation of the received data. He/she expresses his own opinion on the theme, demonstrates creative thinking.</p>
Satisfactory «3»	<p>The student sometimes participates in the seminar class. He/she partially intervenes and asks questions, answers the questions with mistakes. He/she passively works in practical exercises. He/she demonstrates fragmentary knowledge of the conceptual apparatus and literary sources.</p> <p>The tests are completed in full, not less than 50% of the answers are correct, the answers to the open questions are illogical, with obvious significant errors in</p>

	<p>definitions.</p> <p>The student does not have sufficient knowledge of the material to solve situational problems (including calculations). He/she uncertainly demonstrates practical skills on the theme of seminar class and interprets the data with significant errors, does not express his/her opinion on the topic of the situational problem.</p>
Unsatisfactory «2»	<p>The student does not participate in the seminar class, just observes the learning process. He/she never speaks out or asks a question. He/she is disinterested in the study of the material. The student gives incorrect answers to questions, demonstrates poor knowledge of the conceptual apparatus and literary sources.</p> <p>The test has not been completed.</p> <p>The situation task has not been completed.</p>

Credit Test is considered, if the student has completed all the tasks of the working program of the educational discipline. He/she took actively participated in the practical exercises, and completed an individual work. The student has an average current rating of at least 3.0 and has no academic debt.

Distribution of points, obtained by the student

The average grade in the discipline is converted to the national grade and converted to points on a multi-point scale (200-point scale).

Conversion of traditional assessment into 200-point is carried out by the information and technical department of ONMedU by the special program by the formula:

$$\text{Average score (current academic performance)} \times 40.$$

Conversion table of traditional to multi-point

National score for the discipline	The sum of scores for the discipline
Excellent («5»)	185 – 200
Good («4»)	151 – 184
Satisfactory («3»)	120 – 150
Unsatisfactory («2»)	Less than 120

Possibility and conditions for obtaining additional (bonus) points: not provided.

Independent work of students

Independent work involves preparation for each seminar class.

EDUCATIONAL DISCIPLINE POLICY

Deadline and re-take policy

- Absences of classes for non-respectable reasons are worked out according to the schedule of the teacher on duty.
- Absences due to valid reasons are processed according to an individual schedule with the permission of the dean's office.

Academic Integrity Policy:

Students must observe academic integrity, namely:

- independent performance of many works, tasks, forms of control provided for by the work program of this educational discipline;
- references to sources of information with using ideas, developments, statements, information;
- compliance with the legislation on copyright and related rights;
- provision of reliable information about the results of one's own educational (scientific) activity, used research methods and sources of information.

Unacceptable in educational activities for participants of the educational process are:

- using family or official ties to get a positive or higher grade during any form of control of learning outcomes or academic performance;
- use of prohibited auxiliary materials or technical means (cheat sheets, notes, micro-earphones, telephones, smartphones, tablets, etc.) during control measures;
- passing procedures for control of training results by fake persons.

For violation of academic integrity, students may be held to the following academic responsibility:

- a decrease in the results of an assessment of control work, assessment in class, credit, etc.;
- retaking the assessment (control work, credit, etc.);
- appointment of additional control measures (additional individual tasks, control works, tests, etc.);
- inspecting other works by the violator.

Attendance and Tardiness Policy:

Uniform: a medical gown that completely covers the outer clothing, or medical pajamas, a cap, a mask, and a change of shoes.

Equipment: notebook, pen.

State of health: students suffering from acute infectious diseases, including respiratory diseases, are not allowed to attend classes.

A student who is late for class can attend it, but if the teacher has put "nb" in the journal, he must re-take it in the general order.

Mobile devices

Mobile devices may be used by students with the permission of the instructor if they are needed for the assignment.

Behavior in the audience:

The behavior of students and teachers in the classrooms must work and calm, strictly comply with the rules established by the Regulations on academic integrity and ethics of academic relations at Odessa National Medical University, under the Code of Academic Ethics and University Community Relations of Odessa National Medical University, Regulations on Prevention and detection of academic plagiarism in the research and educational work of students of higher education, scientists and teachers of Odessa National Medical University.