

**Odessa National Medical University  
Department of Internal Medicine No. 2**

**Syllabus of the course  
AGE- AND GENDER-RELATED DIFFERENCIES IN CARDIOVASCULAR  
DISEASES**

<b>Amount</b>	4 credits / 120 hours
<b>Semester, year of study</b>	IV semester 2 <sup>nd</sup>
<b>Days, time, place</b>	Monday - Friday 4 - 6 acad. hours, according to the schedule Auditoriums of the Center for Reconstructive and Recovery Medicine (University Clinic) ONMedU, Department of Internal Medicine No 2
<b>Teacher(s)</b>	<b>Head of the department:</b> Shtanko Vasyl Andriyovych, MD, Ph.D, Associate Professor, Honored Doctor of Ukraine, <b>Professor of the department:</b> Tikhonova Susanna Adolfivna, MD, Ph.D, professor, cardiologist of the highest category, professional member of the European Society of Cardiologists, member of the All-Ukrainian Association of Cardiologists of Ukraine
<b>Contact phone numbers</b>	+38048 715 38 64 +380 50 316 43 38 (head of study work)
<b>E-mail</b>	<a href="mailto:imedicine2@ukr.net">imedicine2@ukr.net</a>
<b>Work area</b>	Center for Reconstructive and Recovery Medicine: 1. 4 <sup>th</sup> floor: department of Internal Medicine: room No. 24, 35a, lecture audience 2. basement floor - docent's room; 3. 1 <sup>st</sup> floor: room for practicing practical skills.
<b>Consultations</b>	On-site: Thursday - 14.00 - 16.00; Saturday - 09.00 - 13.00 Online (on Microsoft Teams platform): Thursday - 14.00 - 16.00; Saturday - 09.00 - 13.00

### COMMUNICATION

On-site in the department's classrooms, remotely on the Microsoft Teams platform, in individual cases with prior warning - in Viber groups.

### COURSE ANNOTATION

### ***Subject of discipline study***

The subject of study of the elective educational discipline (EED) "AGE- AND GENDER-RELATED DIFFERENCES IN CARDIOVASCULAR DISEASES" for postgraduate students of the III educational and scientific level is gender and age features of the clinical course of cardiovascular diseases (CVD), pathogenic mechanisms of their development and progression, optimization strategies and tactics of patient management based on evidence-based medicine, potential side effects of cardiac drugs in age and gender groups, features of non-drug interventions, primary and secondary prevention of CVD.

### ***Prerequisites and post-requisites of the course (The place of the discipline in whole educational program)***

EED is based on the acquired knowledges from the educational programs "Internal Medicine", "Propaedeutics of Internal Medicine", propaedeutics of pediatrics, general surgery and basic disciplines (human anatomy and pathomorphology, physiology and pathophysiology, microbiology, virology and immunology, radiology and pharmacology).

In addition, the study of EED provides the holders of the PhD with deepening of knowledge in the following disciplines: "Academic integrity", "Professional ethics of scientific activity in the field of health care" and "Pedagogy of higher education".

Acquired knowledge, skills, abilities and competences from EED will become the basis for deepening knowledge in Internal Medicine, especially in cardiology, and will form the basis for further continuous postgraduate education.

### ***The purpose of the course***

The aim of EED is to form specialist who are capable of competently solving complex problems in the field of professional and research innovative activities when planning and carrying out their own research, and to prepare PhD doctors for the high-quality performance of functional duties related to the selection of optimal non-medicamental and medicament strategies and tactics of management in cardiac profile patients of different age groups and depending on gender, which should increase the efficiency and safety of treatment, improve patient's quality of life and survival.

### ***Tasks of the discipline***

The main tasks of the EED are to provide the holders of PhD degree with knowledge about:

- features of gender- and age-related risk factors for the development and progression of CVD;
- gender- and age-related features of CVD pathogenesis;
- gender- and age-related features of clinical manifestation of CVD and progression of its;
- modern methods of predicting the course and complications of CVD in patients of different age groups and depending on gender:
- symptoms of overdose with cardiac drugs depending on age, their side effects, likely course and ways of preventing and correcting side effects;

- optimization of the management in cardiovascular patients of different age groups and gender using modern standards of drug and non-drug treatment.

### ***Expected results***

As a result of training the EED, the candidate for tPhD degree ***should know:***

- and systematically understand the problem of gender and age features of CVDs development and progression for future professional and scientific activities;
- methods and criteria for assessing gender and age-related phenomena and processes in cardiology;
- basic principles of analysis and generalization of the results of scientific research in the field of gender and age-related cardiology;
- clinical epidemiology, principles, methods and achievements of evidence-based medicine in the field of gender and age-related cardiology;
- modern research methods, biomarkers of various processes and conditions in the field of gender and age medicine, their informativeness.

### ***should be able to:***

- demonstrate knowledge of research methodology and methods in gender and age-related cardiology;
- independently and critically analyze and synthesize scientific data in the field of gender and age-related cardiology;
- choose modern methods of diagnosis, treatment and prevention of CVDs, taking into account gender and age;
- to use the results of scientific research in the field of gender and age-related cardiology, and pharmaceutical practice;
- to present the results of scientific research in the area of gender and age-related cardiology in oral and written form in the scientific community, according with national and international standards;
- use ethical principles in communication with patients of different age groups and genders, adhere to scientific and medical ethics;
- demonstrate academic integrity and act responsibly regarding the reliability of the obtained scientific results;
- evaluate information about the diagnosis based on the results of laboratory and instrumental investigations: determine the list of necessary clinical, laboratory and instrumental methods of investigation, and estimate their results in patients of different age groups and gender;
- determine the principles of treatment of CVDs, optimal mode of work and rest, healthy nutrition in patients of different age groups and gender.

## **COURSE DESCRIPTION**

### ***Forms and methods of education***

EED "AGE- AND GENDER-RELATED DIFFERENCES IN CARDIOVASCULAR DISEASES" consists of 4 ECTS credits (120 hours), each credit contains 15 audience hours and 15 out audience (OA). Totaly - 60 audience hours and 60 out audience hours for OA/

### ***The methods of the study***

The study of GNI is implemented on the basis of the following teaching methods:

- dominant measures of study: visual, verbal, practical, learning;
- management of thematic patients;
- poll;
- group discussions on problematic clinical and scientific situations;
- individual control interview;
- situational clinical tasks ("case method");
- performance of individual clinical studies.

All types of classes are provided by methodical developments, presentations, information resources of the department. Demonstrations of thematic patients, analysis of disease histories of the thematic patients from the bank of the department, simulation trainings are used.

At the 1st practical lesson (PL), the trainee is provided with a detailed plan of work in the clinic and the conditions for its implementation are provided. The plan includes: a list of studies that the student should master; a list of thematic patients, whose supervision he must perform during the study of the EED; determining the time of consultations with the teacher, and the time to participate in clinical rounds, practical conferences.

Trainees are encouraged to take simulation training using the Harvey Cardiorespiratory Patient Simulator (CPR), which provides an opportunity to practice 50 clinical scenarios in cardiopulmonary auscultation skills.

### ***Content of studied discipline***

Topic 1. Gender and age characteristics of risk factors for cardiovascular diseases

Topic 2. Gender characteristics of the age-related evolution of blood pressure levels and the pathogenesis of arterial hypertension.

Topic 3. Gender characteristics of dyslipidemias and metabolic disorders

Topic 4. Gender and age characteristics of arterial hypertension manifestations.

Topic 5. Gender and age characteristics of the course of chronic coronary syndromes.

Topic 6. Gender and age characteristics of the course of acute coronary syndromes.

Topic 7. Gender and age characteristics of the course of heart failure/

Topic 8. Gender and age characteristics of heart rhythm and conduction disorders

Topic 9. Management in the patients with hypertension taking into account age and gender characteristics

Topic 10. Management of patients with chronic coronary syndromes taking into account age and gender characteristics

Topic 11. Management of patients with heart failure taking into account age and gender characteristics/

Tema 12. Management of patients with rhythm and conduction disorders jf heart taking into account age and gender characteristics.

Topic 13. Final lesson.

***List of references:***

***a) main:***

1. 2021 ESC Guidelines on cardiovascular disease prevention in clinical practice: Developed by the Task Force for cardiovascular disease prevention in clinical practice with representatives of the European Society of Cardiology and 12 medical societies With the special contribution of the European Association of Preventive Cardiology (EAPC). *European Heart Journal*, Vol. 42 (34), 7 September 2021: 3227–3337, <https://doi.org/10.1093/eurheartj/ehab484>.
2. 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure: Developed by the Task Force for the diagnosis and treatment of acute and chronic heart failure of the European Society of Cardiology (ESC) With the special contribution of the Heart Failure Association (HFA) of the ESC. *European Heart Journal*, Vol. 42 (36), 21 September 2021:3599–3726, <https://doi.org/10.1093/eurheartj/ehab368>.
3. 2020 ESC Guidelines for the diagnosis and management of atrial fibrillation developed in collaboration with the European Association for Cardio-Thoracic Surgery (EACTS): The Task Force for the diagnosis and management of atrial fibrillation of the European Society of Cardiology (ESC) Developed with the special contribution of the European Heart Rhythm Association (EHRA) of the ESC. *European Heart Journal*, Vol. 42(5), 1 February 2021: 373–498, <https://doi.org/10.1093/eurheartj/ehaa61.2>.
4. 2020 ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation: The Task Force for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation of the European Society of Cardiology (ESC), *European Heart Journal*, Vol. 42(14), 7 April 2021: 1289–1367, <https://doi.org/10.1093/eurheartj/ehaa575>.
5. 2019 ESC Guidelines on diabetes, pre-diabetes, and cardiovascular diseases developed in collaboration with the EASD: The Task Force for diabetes, pre-diabetes, and cardiovascular diseases of the European Society of Cardiology (ESC) and the European Association for the Study of Diabetes (EASD). *European Heart Journal*, Vol. 41(2), 7 January 2020: 255–323, <https://doi.org/10.1093/eurheartj/ehz486>.
6. 2019 ESC/EAS Guidelines for the management of dyslipidaemias: *lipid modification to reduce cardiovascular risk*: The Task Force for the management of dyslipidaemias of the European Society of Cardiology (ESC) and European Atherosclerosis Society (EAS). *European Heart Journal*, Vol. 41 (1), 1 January 2020:111–188, <https://doi.org/10.1093/eurheartj/ehz455>.

7. 2019 ESC Guidelines for the management of patients with supraventricular tachycardia. The Task Force for the management of patients with supraventricular tachycardia of the European Society of Cardiology (ESC): Developed in collaboration with the Association for European Paediatric and Congenital Cardiology (AEPC), *European Heart Journal*, Vol. 41(5), 1 February 2020: 655–720, <https://doi.org/10.1093/eurheartj/ehz467>.
8. 2019 ESC Guidelines for the diagnosis and management of chronic coronary syndromes: The Task Force for the diagnosis and management of chronic coronary syndromes of the European Society of Cardiology (ESC). *European Heart Journal*, Vol. 41(3), 14 January 2020: 407–477, <https://doi.org/10.1093/eurheartj/ehz425>.
9. 2018 ESC/ESH Guidelines for the management of arterial hypertension: The Task Force for the management of arterial hypertension of the European Society of Cardiology (ESC) and the European Society of Hypertension (ESH). *European Heart Journal*, Vol. 39(33), 01 September 2018: 3021–3104, <https://doi.org/10.1093/eurheartj/ehy339>.
10. 2018 ESC Guidelines for the management of cardiovascular diseases during pregnancy: The Task Force for the Management of Cardiovascular Diseases during Pregnancy of the European Society of Cardiology (ESC). *European Heart Journal*, Vol. 39(34), 07 September 2018: 3165–3241, <https://doi.org/10.1093/eurheartj/ehy340>.

***b) additional***

1. Sobanski PZ, Krajnik M, Goodlin SJ. Palliative Care for People Living With Heart Disease-Does Sex Make a Difference? *Front Cardiovasc Med*. 2021 Feb 5;8:629752. doi: 10.3389/fcvm.2021.629752.
2. Pacheco C, Mullen KA, Coutinho T, Jaffer S, et al. The Canadian Women's Heart Health Alliance Atlas on the Epidemiology, Diagnosis, and Management of Cardiovascular Disease in Women - Chapter 5: Sex- and Gender-Unique Manifestations of Cardiovascular Disease. *CJC Open*. 2021 Nov 23;4(3):243-262. doi: 10.1016/j.cjco.2021.11.006.
3. Cífková R., Johnson M.R., Kahan T. et al.(2020) Peripartum management of hypertension: a position paper of the ESC Council on Hypertension and the European Society of Hypertension. *Eur. Heart J. Cardiovascular Pharmacotherapy*, <https://doi.org/10.1093/ehjcvp/pvz08>).
4. Odening KE, Deiß S, Dilling-Boer D, Didenko M, Eriksson U, et al. Mechanisms of sex differences in atrial fibrillation: role of hormones and differences in electrophysiology, structure, function, and remodelling. *Europace*. 2019 Mar 1;21(3):366-376. doi: 10.1093/europace/euy215.
5. Regitz-Zagrosek V., Roos-Hesselink J.W., Bauersachs J. et al.(2018) ESC Scientific Document Group. 2018 ESC Guidelines for the management of cardiovascular diseases during pregnancy. *Eur. Heart J.*, 39: 3165–3241.
6. Shufelt CL, Pacheco C, Tweet MS, Miller VM. Sex-Specific Physiology and

- Cardiovascular Disease. *Adv Exp Med Biol.* 2018;1065:433-454. doi: 10.1007/978-3-319-77932-4\_27.
7. Roy-O'Reilly M, McCullough LD. Age and Sex Are Critical Factors in Ischemic Stroke Pathology. *Endocrinology.* 2018 Aug 1;159(8):3120-3131. doi: 10.1210/en.2018-00465.
  8. Lodi E, Carollo A, Martinotti V, Modena MG. Hypertension and Pharmacological Therapy in Women. *High Blood Press Cardiovasc Prev.* 2018 Jun;25(2):147-150. doi: 10.1007/s40292-018-0257-0.
  9. El Khoudary SR, Aggarwal B, Beckie TM, Hodis HN, Johnson AE, Langer RD, Limacher MC, Manson JE, Stefanick ML, Allison MA; American Heart Association Prevention Science Committee of the Council on Epidemiology and Prevention; and Council on Cardiovascular and Stroke Nursing. Menopause Transition and Cardiovascular Disease Risk: Implications for Timing of Early Prevention: A Scientific Statement From the American Heart Association. *Circulation.* 2020 Dec 22;142(25):e506-e532. doi: 10.1161/CIR.0000000000000912.
  10. Leonard EA, Marshall RJ. Cardiovascular Disease in Women. *Prim Care.* 2018 Mar;45(1):131-141. doi: 10.1016/j.pop.2017.10.004.

***Electronic information resources:***

1. American College of Cardiology <http://www.acc.org/>
2. American Heart Association <http://news.heart.org/>
3. BMJ Clinical Evidence <http://clinicalevidence.bmj.com>
4. European Society of Cardiology <http://www.escardio.org/>
5. Medscape from WebMD <http://www.medscape.com>
6. National Institute for Health and Clinical Excellence (NICE) <https://www.nice.org.uk/>
7. The Cochrane Collaboration The Cochrane Library <http://www.cochrane.org/>
8. Ресурс по прогнозуванню міжлікарських взаємодій (на базі інструкцій FDA, англійською) URL: <http://www.drugs.com>

***Informative support:***

ONMedU electronic library: links to attached methodological developments of lectures and software, methodological recommendations.

ONMedU repository: scientific journals, abstracts of dissertations

## **EVALUATION**

***Control methods of current knowledges:***

Control is carried out during PL in accordance with the formulated tasks for each topic.

When evaluating educational activities, preference is given to standardized methods of control: oral survey, evaluation of a report on the clinical analysis of thematic patients, evaluation of the ability to participate in a discussion on problematic issues.

When mastering each topic for the current educational activity, the student is given traditional grades on a 4-point scale.

The current academic success is calculated as the average current score, i.e. the arithmetic average of all grades received by the post-graduate student on a traditional scale, rounded to 2 (two) decimal places, for example 4.75.

### ***Assessment of current knowledges control of discipline***

#### ***Evaluation criteria:***

– ***"excellent"***: the post-graduate student shows special creative abilities, knows how to independently acquire knowledge, finds and processes the necessary information without the help of a teacher, knows how to use the acquired knowledge and skills to solve problems, is able to produce innovative ways of solving problems, convincingly argues answers, independently reveals his own gifts and inclinations.

– ***"good"***: the post-graduate student is fluent in the studied amount of material, applies it in practice, freely solves tasks and problems in standard situations, independently corrects the mistakes made, the number of which is insignificant.

– ***"satisfactory"***: the post-graduate student is able to master a significant part of the theoretical material, but mainly in a reproductive form, demonstrates knowledge and understanding of the main provisions, can analyze the educational material with the help of the teacher, correct errors, among which there are a significant number of essential ones.

– ***"unsatisfactory"***: the post-graduate student has mastered the material at the level of some fragments, which constitute an insignificant part of the educational material.

Only those post-graduate students who have no academic debt and have an average score for current academic activities of at least 3.50 are admitted to the final certification.

#### ***Forms and methods of final control:***

The final control is in the form of an individual interview is carried out at the final lesson after successful mastering of all topics of EED.

Post-graduate students who have attended all practical lessons by EED, completed the entire volume of learning and have an average score for the current educational activity of at least 3.51 are admitted to the final control.

The grade for the discipline is the arithmetic average of two components: the average current knowledge score as the arithmetic average of all current grades; and traditional score for final control.

The average score for the discipline is translated into a traditional evaluation of the discipline on a 4-point scale and is considered as the ratio of this arithmetic average to the percentage of assimilation of the required amount of knowledge in the given subject.

***Conversion of the traditional grade*** from the discipline on a multi-point scale: performed by the information and computing center of the University. The obtained



average grade for the discipline by multiplying it by 40 (the obtained grade is rounded to whole numbers) is converted into a grade on a 200-point scale, which, in turn, is converted into a traditional grade on a discipline on a 4-point scale.

Average point by discipline	Estimation by 200-point scale	Traditional grade on a discipline on a 4-point scale (traditional)
4,62–5,0	185–200	5
3,77–4,61	151–184	4
3,0–3,76	120–150	3

### ***Applicant's independent work***

Takes 50% of the EED volume and includes: pre-auditory and extra-auditory preparation for lectures, PL in accordance with thematic plans; work in clinic departments, including laboratories and the department of functional diagnostics, interpretation of data from laboratory and instrumental investigations related to the problems of gender and age-related cardiology in extracurricular time; learning practical skills with the help of a phantom, working with patients; individual work: speech at the clinic's scientific and practical conference, writing articles, etc.

The teachers of the department provide the opportunity to carry out this post-graduate student's work, control of it during PL and final control lesson.

### **COURSE POLICY** ("rules of the game")

#### ***Deadlines and Rescheduling Policy.***

Tasks must be completed on time according to the deadline (class schedule). For untimely completion of the assignment, the post-graduate student receives an unsatisfactory grade.

If post-graduate student was absent from practical lesson for any reason, the practice is carried out within the deadlines set by the teacher in accordance with «Положення про організацію освітнього процесу в ОНМедУ» ( is available on the university's website: <https://onmedu.edu.ua/wp-content/uploads/2020/01/osvitnijproces.pdf>).

The rescheduling of final control is carried out according with the schedule approved by the dean's office.

#### ***Academic Integrity Policy***

Політика освітньої компоненти ґрунтується на засадах академічної доброчесності (is available on the university's website: <https://onmedu.edu.ua/wp-content/uploads/2020/07/polozhennja-prodobrochesnist.pdf>) and is determined by the system of requirements that the teacher presents to the post-graduate student when studying the educational component: a) independent performance of tasks, tasks of current and final control of learning results (for persons with special educational needs, this requirement is applied taking into account their individual needs and capabilities); b) references to sources of information in case of use of ideas, developments, statements, information.

#### ***Attendance and lateness policy***

In order to receive a satisfactory grade, it is mandatory to attend and work during all audience lessons. Late arrivals are not welcome. A postgraduate student is allowed to be late for significant reason for no more than 10 minutes.

***Mobile devices***

Using phones and computers without permission of the teacher is a violation of discipline. Mobile devices are allowed to be used only during online testing.

***Behavior in the audience***

The course involves working in a team (group, members of the department's staff, employees of the department's clinical base). All communication environments are friendly, creative, open to constructive criticism. The following values are supported: respect for colleagues; tolerance for others; receptivity and impartiality; argumentation of agreement or disagreement with the opinion of other participants in the discussion, as well as one's own opinion; respecting the dignity of the opponent's personality during communication; compliance with the ethics of academic relationships

***Developers:***

Head

of Internal Medicine Department No. 2,  
MD, PhD, Associate Professor,  
Honored Doctor of Ukraine

V. Shtanko

Professor

of Internal Medicine Department No. 2,  
MD, PhD, Professor

S. Tykhonova

Chief of study work

of Internal Medicine Department No. 2,  
MD, PhD, Associate Professor

O. Khyzhyak