

Odessa National Medical University
Medical Faculty
Department of Internal Medicine #2 with postgraduate training

Syllabus
of the elective discipline
"CARDIAC EMERGENCIES"

Credit hours	90 h (3.0 credits)
Semester, year	XI–XII 6
Days, time, place	Monday – Friday 9 acad. hours, from 08.30 to 13.30 Center of Reconstructive and Restorative Medicine (University clinic) ONMedU, Department of Internal Diseases
Tutors	The Head of the Department: Voloshyna Olena Borysivna, Doctor of Medicine, Professor. Professor of the Department: Tykhonova Susanna Adolfivna, Doctor of Medicine, Professor. Associate professors of the Department: Khyzhnyak Olena Volodymirivna, PhD in Medicine; Kholopov Leonid Semenovich, PhD in Medicine; Iablonska Victoriia Borysivna, PhD in Medicine.
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Working place	Center of Reconstructive and Restorative Medicine (University clinic) ONMedU, 4-th floor: Department of Internal Diseases: rooms №№ 24a-b, 25, 30, 31, 35a, 35b (methodical); Ground floor – Associate professor’s room; 1-st floor: 3 study rooms and 1 room for practical skills mastering.
Consultation	<i>Face-to-face:</i> every Thursday from 14.00 to 17.00, Saturday from 09.00 to 14.00. <i>On-line:</i> every Thursday from 16.00 to 18.00 (the tutor of the group determines the time and applicants quantity that can clear academic dept and receive consultation), Saturday from 09.00 to 14.00.

COMMUNICATION

In person in the classrooms and offices of the department, online via MicrosoftTeams, in some cases with prior notice - in chat groups (Telegram, WhatsApp, Viber).

COURSE ANNOTATION

Subject of study of the discipline

The subject of the elective discipline (ED) "Emergency Conditions in Patients with Cardiovascular Diseases with Analysis of Clinical Cases" for applicants of the second educational and professional level is the risk factors, pathogenesis, clinical course and algorithms for providing emergency care for major emergencies in patients

with cardiovascular diseases (CVD), optimisation of strategies and tactics for managing such patients based on the principles of evidence-based medicine.

Prerequisites and post-requisites of the course (Place of the discipline in the educational programme)

The ED is based on the knowledge of applicants in the educational programmes "Internal Medicine", "Propedeutics of Internal Medicine", general surgery and basic disciplines (human anatomy and pathomorphology, physiology and pathophysiology, pharmacology).

The acquired knowledge, skills, abilities and competences in the ED will become the basis for deepening knowledge in internal medicine, in particular cardiology, and will form the basis for further continuous postgraduate education.

Aim of the course

The purpose of the ED is to train specialists who are able to competently solve complex problems in the field of emergency cardiology, professional activity in general and to prepare applicants for the quality performance of functional duties related to the choice of modern optimal non-pharmacological and medical strategies and tactics for the management of cardiac patients in the development of emergency conditions, which should increase the effectiveness and safety of treatment, increase patient survival, increase their life expectancy with maintaining its quality.

Objectives of the discipline

The main objectives of the ED are to provide applicants with knowledge about:

- risk factors and pathogenetic mechanisms of development of major emergencies inpatients with CVD;
- clinical course of major emergencies in patients with CVD;
- modern methods of predicting the course and outcome of major emergencies in cardiology;
- ways to optimize the management of cardiac patients with emergency conditions using modern standards of medical and nonmedical treatment.

Outcome results:

As a result of mastering the content of the EPD, the applicant should

know:

- the system of organization of emergency care for major emergency conditions inpatients with CVD in the world;
- current national and international guidelines, guidelines, regulations in the field of emergency cardiology;
- risk factors, pathogenesis and clinical manifestations of major emergencies inpatients with CVD;
- modern diagnostic methods and criteria for assessing the severity of emergency conditions in patients with CVD;
- modern methods of examination of patients with emergency conditions, diagnostic informativeness of markers and risk scales in various conditions, their advantages and limitations;
- sequence and content of modern algorithms for emergency care in cardiology.

Be able to:

- demonstrate knowledge of examination methodology and perform examination of patients with cardiac emergencies in accordance with modern standards;
- choose modern methods and techniques for diagnosis, treatment and prevention of major emergency conditions in patients with CVD;
- use the results of scientific research in the field of emergency cardiology and pharmaceutical practice;
- to carry out differential diagnosis of the main syndromes encountered in emergency cardiology in clinical practice;
- to formulate a diagnosis based on the results of laboratory and instrumental studies, determine the list of necessary mandatory clinical laboratory and instrumental studies, the optimal time for their implementation; evaluate and interpret their results in

patients with emergency conditions;

- determine the treatment plan for a patient with an emergency and, after stabilisation of the patient's condition, to provide recommendations on the necessary work and rest regime, nutrition and medication to prevent recurrence of the emergency condition;
- present the results of examination of a patient with an emergency condition in oral and written forms in the professional community, in accordance with national and international standards;
- to use ethical principles in working with patients in an emergency in an emergency situation, to adhere to medical ethics;
- demonstrate academic integrity and act responsibly with regard to the reliability of performance results.

COURSE DESCRIPTION

Forms of training

The ED is composed with 3 ECTS credits (90 hours), each credit (30 hours) includes practical hours and hours for independent work (IW). In total - 30 seminar hours and 60 hours of independent work. The course will be taught in the form of practical lessons (PL) with the analysis of clinical cases - 30 hours, organization of independent work - 60 hours.

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

- dominant teaching methods: visual, verbal, practical, independent research and educational work;
- clinical analysis of thematic patients;
- situational tasks ("case method");
- group discussions on problematic clinical situations;
- individual-controlled interview.

All types of classes are supported by methodological materials, visual teaching aids (presentations), and the department's information resource. Demonstrations of thematic patients, analysis of case histories of thematic patients from the department's bank, and simulation training are used.

At the 1st practical lesson, the applicant is provided with a detailed plan of work in the clinic and the conditions for its implementation. The plan includes: a list of studies to be mastered; a list of case studies to be supervised during the course of the ED; determination of the time for consultations with the tutor, and time for participation in clinical rounds and practical conferences.

Applicants are recommended to take simulation trainings using the Harvey Cardiorespiratory Patient Simulator (CRPS), which provides an opportunity to practice 50 clinical scenarios on cardiopulmonary auscultation skills.

Content of the discipline

Topic 1: Key symptoms and syndromes in emergency cardiology (heart pain, dyspnoea, syncope).

Topic 2. Acute coronary syndrome (ACS).

Topic 3. Acute heart failure and pulmonary edema. Topic 4. Cardiogenic shock.

Topic 5. Circulatory arrest and sudden cardiac death.

Topic 6. Acute aortic syndrome (dissecting aortic aneurysm).

Topic 7. Acute thromboembolism of the pulmonary artery branches. Topic 8. Paroxysmal cardiac rhythm and conduction disorders.

Topic 9. Complicated hypertensive crises.

Topic 10. Acute pericarditis and cardiac tamponade. Final lesson. Credit.

List of recommended literature.

Basic:

1. Unger T., Borghi C., Charchar F. et al. (2020) 2020 International Society of Hypertension Global Hypertension Practice Guidelines. *Hypertension*, 75(6):1334–1357.
2. Рекомендації Європейського товариства кардіологів (European Society of Cardiology) і Європейського товариства з гіпертензії з лікування артеріальної гіпертензії 2018 р. *Артеріальна гіпертензія*, 2018; 5 (61): 58-172.
3. Наказ МОЗ України № 441 від 09.03.2022 р. Про затвердження порядку надання домедичної допомоги особам при невідкладних станах, <https://zakon.rada.gov.ua/laws/show/z0356-22#Text>.
4. Наказ МОЗ України від 14 вересня 2021 р. №1936 УНІФІКОВАНИЙ КЛІНІЧНИЙ ПРОТОКОЛ ЕКСТРЕНОЇ, ПЕРВИННОЇ, ВТОРИННОЇ (СПЕЦІАЛІЗОВАНОЇ), ТРЕТИННОЇ (ВИСОКОСПЕЦІАЛІЗОВАНОЇ) МЕДИЧНОЇ ДОПОМОГИ ТА КАРДІОРЕАБІЛІТАЦІЇ «ГОСТРИЙ КОРОНАРНИЙ СИНДРОМ З ЕЛЕВАЦІЄЮ СЕГМЕНТА ST» https://www.dec.gov.ua/wpcontent/uploads/2021/09/2021_1936_ykpm_d_gkszelev.pdf.
5. Наказ Міністерства охорони здоров'я України від 15 вересня 2021 р. №1957 УНІФІКОВАНИЙ КЛІНІЧНИЙ ПРОТОКОЛ ЕКСТРЕНОЇ, ПЕРВИННОЇ, ВТОРИННОЇ (СПЕЦІАЛІЗОВАНОЇ), ТРЕТИННОЇ (ВИСОКОСПЕЦІАЛІЗОВАНОЇ) МЕДИЧНОЇ ДОПОМОГИ ТА КАРДІОРЕАБІЛІТАЦІЇ «ГОСТРИЙ КОРОНАРНИЙ СИНДРОМ БЕЗ ЕЛЕВАЦІЇ СЕГМЕНТА ST»
6. Наказ МОЗ України від 15 січня 2014 р. №34 «Про затвердження та впровадження медико-технологічних документів зі стандартизації екстреної медичної допомоги «Гіпертонічний криз», «Раптова серцева смерть», «Гостра дихальна недостатність», «Гіповолевмічний шок», «Гострі отруєння», «Тромбоемболія легеневої артерії».
7. Невідкладні стани при серцево-судинних захворюваннях: алгоритми діагностики та лікування. Адаптовано за матеріалами Асоціації з невідкладної серцево-судинної допомоги Європейського товариства кардіологів, Українська асоціація з невідкладної кардіології, Асоціація кардіологів України, 2023 /За редак. члена-кор. НАМН України проф. О.М. Пархоменка, Видання третє, - 153 с.
8. Серцево-судинні захворювання. Класифікація, стандарти діагностики та лікування / за ред. В. М. Коваленка, М. І. Лутая, Ю. М. Сіренка, О. С. Сичова. – К.: МОРІОН, 2021. – 192 с.
9. Електрокардіографічна діагностика і лікування в невідкладній кардіології. 2-е видання, доповнене. Скибчик В.А., Скибчик Я.В.. - Л:Простір – М, 2020. – 164 с.
10. Невідкладні стани в кардіології: навчально-методичний посібник для здобувачів ступеня доктора філософії за третім освітньо-науковим рівнем в галузі знань 22 "Охорона здоров'я" спеціальності 222 "Медицина" навчальна дисципліна "Сучасна кардіологія" / В.Д. Сиволап, С.М. Кисельов, Д.А. Лашкул. – Запоріжжя :ЗДМУ, 2020. – 137 с.

Additional:

1. Thygesen K, Alpert JS, Jaffe AS, et al. Fourth universal definition of myocardial infarction (2018). *J Am Coll Cardiol*. 2018 Oct 30;72(18):2231-64.
2. McDonagh TA, Metra M, Adamo M, et al. 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. *Eur Heart J*. 2021 Sep 21;42(36):3599-726.
3. Heidenreich PA, Bozkurt B, Aguilar D, et al. 2022 AHA/ACC/HFSA guideline for the management of heart failure: a report of the American College of Cardiology/American Heart Association joint committee on clinical practice guidelines. *Circulation*. 2022 May 3;145(18):e895-1032.
4. Bossone E, LaBounty TM, Eagle KA. Acute aortic syndromes: diagnosis and management, an update. *Eur Heart J*. 2018 Mar 1;39(9):739-49d.

5. van Diepen S, Katz JN, Albert NM, et al. Contemporary management of cardiogenic shock: a scientific statement from the American Heart Association. *Circulation*. 2017 Oct 17;136(16):e232-68.
6. Brignole M, Moya A, de Lange FJ, et al. 2018 ESC guidelines for the diagnosis and management of syncope. *Eur Heart J*. 2018 Jun 1;39(21):1883-948.
7. Zeppenfeld K, Tfelt-Hansen J, de Riva M, et al. 2022 ESC Guidelines for the management of patients with ventricular arrhythmias and the prevention of sudden cardiac death. *Eur Heart J*. 2022 Oct 21;43(40):3997-4126.
8. Panchal AR, Bartos JA, Cabañas JG, et al. Part 3: adult basic and advanced life support: 2020 American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. *Circulation*. 2020 Oct 20;142(16_suppl_2):S366-S468.
9. Konstantinides SV, Meyer G, Becattini C, et al. 2019 ESC guidelines for the diagnosis and management of acute pulmonary embolism developed in collaboration with the European Respiratory Society (ERS). *Eur Heart J*. 2020 Jan 21;41(4):543-603.
10. О.М. Пархоменко. Лікування пацієнтів із гіпертензивними кризами: можливості та перспективи. *Кардіологія, Ревматологія, Кардіохірургія*. 2021.3(76): 37.

Electronic information resources

- [American College of Cardiology](http://www.acc.org/) <http://www.acc.org/>
- [American Heart Association](http://news.heart.org/) <http://news.heart.org/>
- [BMJ Clinical Evidence](http://clinicalevidence.bmj.com) <http://clinicalevidence.bmj.com>
- [European Society of Cardiology](http://www.escardio.org/) <http://www.escardio.org/>
- [Medscape from WebMD](http://www.medscape.com) <http://www.medscape.com>
- [National Institute for Health and Clinical Excellence \(NICE\)](https://www.nice.org.uk/) <https://www.nice.org.uk/>

Information support:

Electronic library of ONMedU: links to the attached methodological guides for practical lessons and independent work.

ONMedU repository: scientific journals, dissertation abstracts.

EVALUATION

Current control: oral questioning, assessment of communication skills, solving situational clinical problems, assessment of activity in the classroom.

Final control: credit for assessing the completeness of the discipline programme with an additional oral examination.

Assessment of current learning activities in a practical class:

1. Assessment of theoretical knowledge on the topic of the lesson:

methods: survey, evaluation of activity in the classroom

maximum grade - 5, minimum grade - 3, unsatisfactory grade - 2.

2. Evaluation of solving clinical situational tasks:

Assessment methods: a) completeness and correctness of appointment and interpretation of laboratory and instrumental studies, c) compliance with the algorithm of differential diagnosis, d) justification of clinical diagnosis, e) drawing up a plan of emergency care plan in accordance with modern standards;

maximum grade - 5, minimum grade - 3, unsatisfactory grade - 2.

The grade for one practical class is the arithmetic mean of all components and can only have an integer value (5, 4, 3, 2), which is rounded by the statistical method.

Criteria for current assessment during the practical class

Grade	Assessment criteria
Excellent "5"	The applicant is fluent in the material, takes an active part in the discussion and solution of a situational clinical problem, confidently demonstrates practical skills in interpreting clinical, laboratory and instrumental research data, expresses his/her opinion on the topic of the class, demonstrates clinical thinking.
Good "4"	The applicant has a good understanding of the material, participates in the discussion and solution of a situational clinical problem, demonstrates practical skills in interpreting clinical, laboratory and instrumental research data with some errors, expresses his/her opinion on the topic of the class, demonstrates clinical thinking.
Satisfactory "3"	The applicant has insufficient knowledge of the material, is uncertain about participating in the discussion and solving a situational clinical problem, demonstrates practical skills in interpreting clinical, laboratory and instrumental research data with significant errors.
Unsatisfactory "2"	The applicant does not know the material, does not participate in the discussion and solution of a situational clinical problem, does not demonstrate practical skills in interpreting data from clinical, laboratory and instrumental studies.

Credit is assigned to an applicant who has completed all the tasks of the work programme of the discipline, actively participated in practical classes and has a current average grade of at least 3.0 and has no academic debt.

The test is taken at the last class of the discipline. The grade for the test is the arithmetic mean of all components on a traditional four-point scale and has a value that is rounded by the statistical method with two decimal places.

Independent work (IW) of applicants

It includes work in the departments of the clinical base of the departments, in particular in the intensive care units of the Department of Internal Medicine and Neurology, and the Department of Anaesthesiology and Intensive Care, in the offices of the functional diagnostic department (electro- and echocardiographic diagnostics), clinical laboratory, computer diagnostic methods, interpretation of laboratory and instrumental research methods; mastering practical skills with the help of phantoms, in particular, practicing skills using Cardiorespiratory Patient Simulator.

COURSE POLICIES

Policy on deadlines and retakes:

- Unexcused absences will be made up as scheduled by the instructor on duty.
- Excused absences are made up on an individual schedule with the permission of the dean.

Policy on academic integrity.

It is obligatory to observe academic integrity by applicants, namely

- independent performance of all types of work, tasks, forms of control provided by the work program of this discipline;
- references to sources of information in case of using ideas, developments, statements, information;
- compliance with copyright and related rights legislation;
- providing reliable information about the results of their own educational (scientific) activities, used research methods and sources of information.

Unacceptable in educational activities for participants in the educational process

are:

- the use of family or official ties to obtain a positive or higher grade during any form of control of learning outcomes or advantages in scientific work;
- use of prohibited auxiliary materials or technical means (cribs, notes, micro-headphones, smartphones, tablets, etc.) during control measures;
- passing the procedures of control of learning outcomes by fictitious persons

For violation of academic integrity, applicants may be held academically liable:

- lowering the results of the assessment of control work, assessment in the classroom, test, etc;
- repeated passing of assessment (control work, test, etc.);
- appointment of additional control measures (additional individual tasks, tests, tests, etc.);
- conducting an additional check of other works of the offender's authorship.

Policies for attendance and being late

Attendance of classroom classes (practical lessons) is a mandatory component for assessing the completeness of the discipline. For objective reasons (for example, illness, epidemic circumstances, international internships), training can take place remotely in agreement with the head of the department, dean. The completed tasks according to the thematic plan should be presented in consultation with the teacher.

Uniform: medical gown that completely covers the outerwear, or medical pajamas, cap, mask, changeable shoes.

Equipment: notebook, pen, phonendoscope.

Health status: applicants with acute infectious diseases, including respiratory diseases, are not allowed to attend the class.

All tasks provided by the program must be completed on time in accordance with the schedule.

An applicant who is late is considered to have missed the lesson for an unexcused reason, on the topic of the lesson is evaluated in additional hours of working off academic debt, while having the right to attend the lesson.

Mobile devices

Usage of telephones and computers without teacher's permission is a violation of discipline. In this case applicant does not receive a mark for the lesson and is obliged to rework such a lesson. Mobile devices may be used during online testing only.

Behaviour in auditorium

The course involves teamwork (academic group, department staff, staff of the clinical base of the department). All communication environments are friendly, creative, open to constructive criticism.

The behaviour of applicants and teachers in the classrooms should be working and calm, strictly comply with the rules established by the Regulations on Academic Integrity and Ethics of Academic Relations in Odesa National Medical University, in accordance with the Code of Academic Ethics and Relations of the University Community of Odesa National Medical University, the Regulations on the Prevention and Detection of Academic Plagiarism in the Research and Educational Work of Higher Education Applicants, Researchers and Teachers of Odesa National Medical University.