

DANYLO HALYTSKY LVIV NATIONAL MEDICAL UNIVERSITY

Department of Anesthesiology and Intensive Care

“APPROVED”



First Vice-Rector on
Scientific and Pedagogical Work
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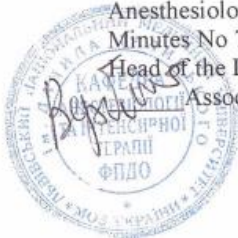
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PROGRAM of the ACADEMIC DISCIPLINE

**OK 42.2 “Emergency Medical Care”
5th year of education**

**Second (master’s) degree of higher education
Field of Knowledge 22 “Healthcare”
Specialty 222 “Medicine”**

Discussed and approved at the educational-
methodical meeting of the Department of
Anesthesiology and Intensive Care
Minutes No 7/2/23 dated 21 Mar 2023
Head of the Department
Assoc.Prof. Roman Verbovsky



Approved
by the Profile Methodical Board on Surgical
Disciplines
Minutes No 20 dated 27 Apr 2023
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INTRODUCTION

The study program of the academic discipline "Emergency and urgent medical care" is compiled in accordance with the Standard of Higher Education of Ukraine of the second (master's) level field of knowledge 22 "Health care" specialty 222 "Medicine".

Description of the academic discipline (abstract)

The concept of "urgent medical care" and "emergency medical care" is interpreted by the Law as the same type in essence and defines them as a type of medical care provided at the pre-hospital stage at the scene of the incident or in the emergency (urgent) medical care department to a patient in an urgent condition by emergency medical workers (emergency medicine specialists) on the basis of clinical protocols and standards for emergency medical care.

"Emergency medical care" as an educational discipline lays the foundations of theoretical knowledge and practical skills in the organization and providing of emergency medical care to patients in emergency conditions at the pre-hospital and early hospital stages, including during emergency situations in peacetime.

Types of educational activities of students are: a) lectures, b) practical classes, c) independent work of students, in the organization of which teachers' consultations play a significant role.

Practical clinical classes include:

- mastering special practical skills on phantoms and mannequins;
- practical use of diagnostic methods and intensive treatment;
- solving clinical situational problems and tests.

Current educational activities of students are monitored in practical classes in accordance with specific goals and during individual work of the teacher with students.

It is recommended to apply the following methods of determining the level of students' training:

1. computer tests;
2. solving clinical cases;
3. assessment and interpretation of clinical laboratory and instrumental examinations;
4. control of practical skills
5. oral survey.

The final control of the learning of the module is carried out after its completion at the final control session.

The evaluation of the student's success in the discipline is a rating and is presented on a multi-point scale as the average arithmetic evaluation of the module's mastery and is defined according to the ECTS system and the traditional scale adopted in Ukraine.

Content of Academic Program on Emergency Medical Care

Structure of discipline	Hours, in particular:				Year of education	Control type
	Total	Auditory		Independent work		
		Lectures	Practical classes			
	45	-	24	21	5th	Differentiated credit (final MSQ test)
Credits ECTS	1,5					

The subject of the academic discipline is management of emergency situations and the implementation of medical and evacuation measures in emergency situations, the provision of emergency medical care at the pre-hospital stage at the scene of the incident or in the department of emergency (urgent) medical care to a patient in an emergency condition based on clinical protocols and standards of emergency medical care assistance, including during emergency situations and elimination of their consequences.

Interdisciplinary connections: the study of the discipline "Emergency medical care" is based on the study of biology, human anatomy and physiology, pharmacology, hygiene, pathological anatomy, pathological physiology, emergency medicine, therapy, surgery, and other clinical disciplines and is integrated with these disciplines.

1. PURPOSE AND OBJECTIVES OF THE EDUCATIONAL DISCIPLINE

1.1. The purpose of studying emergency and emergency medical care:

- diagnosis of emergency conditions: under any circumstances (at home, on the street, in a medical institution, etc.), in conditions of lack of information and limited time, using standard examination methods and possible anamnesis data, knowledge about a person, his organs and systems, observing the relevant ethical and legal norms, by making a reasoned decision and assessing the person's condition, make a diagnosis;

- carrying out medical evacuation measures: in emergency situations, including martial law, during the deployed stages of medical evacuation, taking into account the existing system of medical and evacuation support, to organize medical and evacuation measures among the population and military personnel;

- determining the tactics of emergency medical care: under any circumstances, using knowledge about a person, his organs and systems, observing the relevant ethical and legal norms, by making a reasoned decision, based on the diagnosis of an emergency condition in a limited time using standard schemes to determine emergency medical care tactics;

- provision of emergency medical aid: under any circumstances, using knowledge about a person, his organs and systems, observing the relevant ethical and legal norms, by making a reasoned decision, based on the diagnosis of an emergency condition in a limited time, according to the defined tactics, using standard schemes, provide emergency medical assistance.

1.2. The main tasks of studying the discipline "Emergency medical care" are:

- to teach students the main syndromes accompanying severe violations of vital functions;
- diagnose and provide medical assistance in emergency situations;
- interpret the general principles of intensive therapy in emergency situations;
- draw up an examination plan and interpret the results of laboratory and instrumental examination methods;

- demonstrate the ability to perform the necessary medical manipulations;

- be able to establish a diagnosis of clinical death and carry out resuscitation measures;

- demonstrate the ability to maintain medical documentation;

- possess the moral and deontological principles of professional subordination.

1.3 Competencies and learning outcomes, the formation of which contributes to the discipline (interrelationship with the normative content of the training of higher education applicants, formulated in terms of learning outcomes in the Standard).

According to the requirements of the standard, the discipline ensures students' acquisition competencies:

Integral: The ability to solve complex problems, including those of a research and innovation nature in the field of medicine. Ability to continue learning with a high degree of autonomy..

General competencies:

1. ability to abstract thinking, analysis and synthesis;

2. the ability to learn and master modern knowledge;

3. ability to apply knowledge in practical situations;

4. know and understand the subject area and understand professional activity;

5. ability to adapt and act in a new situation;

6. ability to make a decision;

7. ability to work in a team;

8. ability to interpersonal communication.

11. ability to search, process and analyze information from various sources.

12. determination and persistence in relation to assigned tasks and assumed responsibilities.

Special (professional) competencies:

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

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

their results.

3. The ability to establish a preliminary and clinical diagnosis of the disease.
5. The ability to determine the nature of nutrition in the treatment and prevention of diseases.
6. Ability to determine the principles and nature of treatment and prevention of diseases.
7. Ability to diagnose emergency conditions.
8. Ability to determine tactics and provide emergency medical care.
9. Ability to carry out medical evacuation.
10. Ability to perform medical manipulations.
11. Ability to solve medical problems in new or unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethical responsibility.
16. Ability to maintain medical documentation, including electronic forms.
18. The ability to analyze the activity of a doctor, unit, health care institution, ensure the quality of medical care and increase the efficiency of the use of medical resources.
21. Clearly and unambiguously communicate one's own knowledge, conclusions and arguments on health care problems and related issues to specialists and non-specialists, in particular to students.
22. Ability to manage healthcare workflows that are complex, unpredictable and require new strategic approaches.
23. Ability to develop and implement scientific and applied projects in the field of health care.
24. Compliance with ethical principles when working with patients and laboratory animals.
25. Observance of professional and academic integrity, bear responsibility for the reliability of the obtained scientific results.

Detailing of competencies in accordance with the descriptors in the form of "Matrix of competencies".

№	Competence	Knowledge	Skill	Communication	Autonomy and responsibility
1	2	3	4	5	6
Integral competence					
The ability to solve complex problems, including those of a research and innovation nature in the field of medicine. Ability to continue learning with a high degree of autonomy.					
General Competence					
1	Ability to abstract thinking, analysis and synthesis	Know the ways of analysis, synthesis and further modern teaching	To be able to analyze information, make substantiated decisions, to be able to accept modern knowledge	Establish corresponding connections for achieving goals.	Be responsible for timely acquisition of modern knowledge
2	Ability to learn and master modern knowledge	Know and analyze modern trends of development of the industry	Be able to analyze professional information, make substantiated decision to acquire modern knowledge	Establish corresponding connections for achieving goals	Be responsible for timely acquisition of modern knowledge
3	Ability to apply knowledge in practical situations	Have specialized conceptual knowledge, acquired in the process of learning	Be able to solve complex tasks and problems which arise in professional activity	Clear and unambiguous presentation of conclusions, knowledge and explanations to specialists and non-specialists	To be responsible for decision-making in difficult conditions
4	To know and understand the subject area and understand professional activity	Have knowledge of the structure professional activity	Be able to carry out professional activity that needs update and integration of knowledge	Ability effectively form communication strategy in professional activity	Be responsible for professional development, ability to further professional learning with high level of autonomy
5	Ability to adapt and act in a new situation	Know the types and methods of adaptation,	Be able to apply self-regulation, to be	Establish appropriate connections to	Be responsible for timely using of

		principles of action in a new situation	able to adapt to new situations (circumstances) of life and activity	achieve results	methods self-regulation
6	Ability to make a decision	Know communication tactics and strategies, laws and methods communicative behavior	Be able to accept justified decision, choose methods and communication strategies for ensuring effective teamwork	Use communication strategies and skills interpersonal interaction	To be responsible for the choice and tactics of the method of communication that ensures decision-making
7	Ability to work in a team	Know communication tactics and strategies, laws and methods communicative behavior	Be able to accept justified decision, choose methods and communication strategies for ensuring effective teamwork	Use communication strategies	To be responsible for the choice and tactics of the method of communication
8	Ability to an interpersonal communications	Know the laws and methods of interpersonal interaction	To be able to choose methods and strategies communication for interpersonal interaction	Use interpersonal skills	To be responsible for the choice and tactics of the method of communication
11	Ability to search, process and analyze information from various sources	Have knowledge in the field of information technologies, which are used in professional activity	Be able to use informative and in professional industry that needs update and integration of knowledge	Use information in professional activity	To be responsible for development professional knowledge and skills
12	Determination and persistence in relation to assigned tasks and assumed responsibilities	Know the responsibilities and ways of implementation assigned tasks	To be able to determine purpose and task, to be persistent and conscientious in the performance responsibilities	Establish interpersonal relationships for effective performance and responsibilities	To be responsible for quality performance assigned tasks
Special (professional) competences					
1	Ability to collect medical information about the patient and analyze clinical data	Know complaints and sequence information taking about the disease in the patient	Be able to consistently collect all information about the patient's illness	Ability establish interpersonal relationships	To be responsible for the implementation of ethical and deontological norms

2	Ability to determine the necessary list of laboratory and instrumental studies and evaluate their results	Have specialized knowledge about laboratory and instrumental research (according to the list 4)	To be able to analyze the results of laboratory and instrumental research methods (according to the list 4)	The ability to convey to the patient, the patient's relatives and specialists conclusions regarding the list and results of research (according to the list 4)	Be responsible for correctness and timeliness conducting relevant assessments and interpretation of their results
3	Ability to establish preliminary and clinical diagnosis of the disease	Have specialized knowledge about a person, her bodies and systems; knowledge of standard survey methods; disease diagnosis algorithms; algorithms for selection of leading symptoms or syndromes (according to list 1); preliminary and clinical diagnoses (according to list 2); knowledge of laboratory methods and instrumental examination (according to the list 3); knowledge about the assessment of the human condition.	Be able to establish the most likely or syndromic diagnosis (according to list 2) by making a reasoned decision, with the help of juxtaposition with standards, do I use previous patient history data and patient examination data, on on the basis of the leading clinical symptom or syndrome, I use the knowledge about the person, his organs and systems, observing the appropriate ones ethical and legal norms.	On the basis of regulatory documents, conduct medical patient documentation (outpatient/inpatient card, etc.)	Adhering to ethical and legal norms, bear responsibility for making informed decisions and actions regarding the correctness of the established preliminary clinical diagnosis of the disease
5	The ability to determine the nature of nutrition in the treatment and prevention of diseases	Have specialized knowledge about a person, his organs and systems, anatomic-physiological and age-related features; algorithms and standard schemes for the appointment of food - in the treatment of diseases (according to list 2)	Be able to determine the nature of nutrition on the basis of a preliminary and clinical diagnosis, the nature of nutrition in the treatment of diseases (according to list 2)	Form and convey to the patient conclusions about nutrition - in the treatment of diseases (according to list 2)	To be responsible for the reasonableness of determining nutrition - in the treatment of a disease (according to list 2)

6	Ability to determine the principles and nature of treatment and prevention of diseases	Have specialized knowledge of algorithms and standard disease treatment schemes (according to list 2)	Be able to determine the principles and nature of disease treatment (according to list 2)	Form and convey to the patient own conclusions regarding the principles and nature of treatment (according to list 2)	Be responsible for making a decision regarding the principles and nature of the treatment of the disease (according to list 2)
7	Ability to diagnose emergency conditions	Have knowledge of clinical manifestations and stages of development of acute medical conditions	Be able to quickly detect and diagnose acute medical conditions, be able to organize the appropriate diagnostic program	Use communication strategies and skills of the interpersonal interaction	Be responsible for timely detection and evaluation of urgent medical condition of the patient
8	Ability to determine tactics and provide emergency medical care	Have specialized knowledge about urgent medical conditions; know algorithms for providing the first medical aid	Be able to consistently and correctly perform the measures of the first medical help according to urgent condition	Use communication strategies and skills of the interpersonal interaction	Be responsible for correctness and consistency providing the first medical assistance
9	Ability to carry out medical evacuation.	Have knowledge of methods of evacuation of the patient	Be able to evaluate possibility of transportation of the patient and choose adequate method for this	Use communication strategies and skills of interpersonal interaction	Be responsible for the correct assessment of the possibility of transporting the patient and choice of ways of evacuation
10	Ability to perform medical manipulations.	Have specialized knowledge of anatomy and normal physiology. To know algorithms of performance of medical manipulations: measurement and interpretation arterial pressure, venipuncture, catheterization of ulnar vein, external	To be able to perform medical procedure or perform a medical manipulation according to the algorithm	Reasonably form and bring conclusions to the patient of necessity of performing of medical procedures or manipulations	To be responsible for quality of performance of medical procedures or manipulations

		jugular vein, intraosseous access, intravenous infusion, subcutaneous, intramuscular injection, catheterization of urinary bladder, washing stomach			
11	Ability to solve medical problems in new or unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethical responsibility	Have specialized knowledge about a person, his organs and systems, anatomo-physiological and age-related features; knowledge of immunopathological syndromes	Be able to diagnose an immune-dependent disease or allergic reaction, make decisions about further outpatient or inpatient treatment	Reasonably formulate and prove to the patient or his legal representative the need to find the nearest medical facility and conduct the most necessary examinations there	To be responsible for the correctness of establishing the patient's condition, the degree of its severity and the tactics of the primary examination
16	Ability to maintain medical documentation, including electronic forms.	Know the system of official document flow in the work of a doctor, including modern computer information technologies	Be able to determine the source and location of the required information depending on its type; Be able to process information and analyze the received information	Obtain the necessary information from a specified source and, based on its analysis, form appropriate conclusions	Be responsible for the completeness and quality of information analysis and conclusions based on its analysis
18	The ability to analyze the activity of a doctor, unit, health care institution, ensure the quality of medical care and increase the efficiency of the use of medical resources.	Know the main indicators that characterize the activities of security institutions/units health; medical-organizational factors that affect the activity of the doctor of the unit, health care institution; characteristics and quality of medical care; components of improving the quality of medical	Be able to calculate the main indicators of the activity of a doctor, unit, health care institution and evaluate them dynamically. Be able to detect activity defects and the reasons for their formation. Be able to: choose an appropriate unified clinical protocol for	Receive information from relevant sources about the activities of a doctor, unit, health care institution, inform relevant officials to ensure conditions for providing quality medical care. Formulate conclusions regarding the justification of the form organization of medical assistance.	To be responsible for the validity of decisions regarding the improvement of the activities of the doctor and the health care institution; increasing the efficiency of the use of available resources of the unit, institution, health care system.

		care; basic requirements for standardization of medical care. Know the effectiveness of various forms of organization of medical assistance;	providing medical care; to develop a general scheme of the local protocol for the provision of medical assistance; calculate indicators of the structure, process and results of activity		
21	Clearly and unambiguously communicate one's own knowledge, conclusions and arguments on health care problems and related issues to specialists and non-specialists, in particular to students.	Know the main approaches to the organization of training students on health care problems and related issues	To be able to organize the education of students on the problems of health care and related issues	Reasonably formulate and prove the need for training specialists and non-specialists in health care problems and related issues	To be responsible for the reasonableness of conveying one's own knowledge, conclusions and arguments
22	Ability to manage healthcare workflows that are complex, unpredictable and require new strategic approaches.	Know the main approaches to the organization of complex work processes in the field of health care	To be able to organize and manage complex and unpredictable processes in the field of health care	Reasonably formulate and prove the complexity of health care organization	Be responsible for the validity of new strategic approaches
23	Ability to develop and implement scientific and applied projects in the field of health care.	Know the main approaches to the development and implementation of scientific and applied projects in the field of health care	To be able to organize scientific and applied projects in the field of health care	Reasonably formulate the expediency of developing scientific and applied projects in the field of health care	To be responsible for the validity of scientific projects in the field of health care
24	Compliance with ethical principles when working with patients and laboratory animals.	To know the main approaches to the presentation of permission documents for work with patients, laboratory animals and animals to ethics commissions	To be able to organize the work of ethics commissions	Reasonably formulate the expediency of using biomaterials in scientific research	To be responsible for the validity of one's actions
25	Observance of professional and	Know the basics of	To be able to ensure	To justify the expediency of	To justify the expertise of

academic integrity, bear responsibility for the reliability of the obtained scientific results.	professional and academic integrity	professional and academic integrity in the team	observing professional and academic integrity	observing professional and academic integrity
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	GC1	GC2	GC3	GC4	GC5	GC6	GC7	GC8	GC9	GC10	GC11	GC12	GC13	GC14	GC15
OK 42.1	+	+	+	+	+	+	+	+			+	+			

	SC1	SC2	SC3	SC4	SC5	SC6	SC7	SC8	SC9	SC10	SC11	SC12	SC13	SC14	SC15	SC16	SC17	SC18	SC19	SC20	SC21	SC22	SC23	SC24	SC25
OK 42.1	+	+	+		+	+	+	+	+	+	+					+		+			+	+	+	+	+

Learning outcomes:

Integrative final program learning outcomes, the formation of which is facilitated by the educational discipline "Emergency medical care":

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

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

3. Specialized conceptual knowledge, which includes scientific achievements in the field of health care and is the basis for conducting research, critical understanding of problems in the field of medicine and interdisciplinary problems related to it.

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

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

6. To establish a final clinical diagnosis by making a reasoned decision and analyzing the received subjective and objective data of clinical and additional examinations, to carry out differential diagnosis; comply with relevant ethical and legal norms; to work under the supervision of a managing physician in the conditions of a health care institution (according to list 2).

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

8. Determine the leading clinical syndrome or establish what determines the severity of the condition of the victim/victim (according to list 3) by making a reasoned decision and assessing the person's condition under any circumstances (in the conditions of a health care facility and outside its borders, in including in conditions of an emergency and hostilities, in field conditions, in conditions of lack of information and limited time).

9. Determine the nature and principles of treatment of patients (conservative, operative) with diseases according to list 2, taking into account the age and gender of the patient, in the conditions of

the health care facility and outside its boundaries, including at the stages of medical evacuation and in field conditions, on the basis of a pre-established clinical diagnosis, observing relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes; in the case of the need to expand the standard scheme, be able to substantiate personalized recommendations under the control of the head physician in the conditions of a medical institution.

14. Determine tactics and provide emergency medical care in emergency situations (according to list 3) in limited time in accordance with existing clinical protocols and standards.

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

16. Form rational medical routes for patients; to organize interaction with colleagues in their own and other institutions, organizations and institutions; apply tools for the promotion of medical services in the market based on the analysis of the needs of the population, in the conditions of the health care institution, its division and in a competitive environment.

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

21. Find the necessary information in the professional literature and databases of other sources, analyze, evaluate and adequately apply this information.

24. To ensure the necessary level of individual safety (your own and those you care about) in case of typical dangerous situations in the individual field of activity.

25. Clearly and unambiguously communicate one's own knowledge, conclusions and arguments on health care problems and related issues to specialists and non-specialists.

Learning outcomes for the discipline:

As a result of studying the academic discipline "Emergency and urgent medical care", the student should know (in accordance with the OPP appendix):

- etiology, pathogenesis, pathophysiology of clinical death and terminal conditions;
- methods of diagnosis and clinical course of the main syndromes accompanying severe violations of vital functions;
 - algorithms for intensive therapy of emergency conditions (pain syndrome, abdominal pain, loss of consciousness, hemorrhagic syndrome, suffocation and asphyxia (including newborns), dizziness, cyanosis (diffuse and local), hypertensive crisis, acute respiratory failure, acute cardiac failure, acute poisoning, "acute" abdomen, electric shock, fainting, external bleeding, collapse, coma, larynx edema, Quincke's edema, burns and frostbite, convulsions, drowning, shock, heart failure, cardiac arrhythmia; presence of a pacemaker, epilepsy, coma with diabetes);
 - diagnostic and treatment equipment of the emergency medical care team;
 - diagnostic and treatment equipment of the emergency medical care department of a multidisciplinary hospital;
 - peculiarities of providing emergency medical aid in case of mass injuries;
 - defined protocols for providing emergency medical care to victims (patients) at the pre-hospital and early hospital stages.

As a result of studying the academic discipline "Emergency medical care", the student should be able to (according to the OPP appendix): indirect heart massage, artificial respiration, defibrillation using a manual automatic defibrillator-cardioverter, registration of a standard 12-lead ECG, temporary stoppage of external bleeding, hemostatic tourniquets and use hemostatic agents, including in field conditions, to install nasogastric and orogastric probes, transport immobilization, administration of medicinal substances (intravenous jet and drip, intraosseous), incl. in field conditions, provide peripheral venous access, measure blood pressure, restore airway patency, bladder catheterization with a soft probe, pleural puncture, determine blood groups, Rh status, transfuse blood components and blood substitutes, take smears on bacterioscopic, bacteriological, cytological research.

2. Volume of the academic discipline – 1,5 ECTS credits/45 hours.

3. Structure of the discipline

Topics	Lectures	Practice classes	Self-work
Organization of emergency medical care in Ukraine. The initial aid by medical team in emergency.	-	2	2
Airways management and mechanical ventilation in adults.	-	2	3
The emergency care to victims at the prehospital stage. The primary examination of a patient.	-	4	2
The emergency care to victims at the prehospital stage. The secondary examination of a patient.	-	4	2
Cardiac arrest. Cardio-pulmonary resuscitation.	-	4	4
Emergency diagnosis and treatment at the scene.	-	4	4
Emergency care in trauma.	-	2	2
Emergency care in multiple casualty incidents.	-	2	2
Final Test	-		
Total hours	-	24	21

Independent work

Topics	Hours
Organization of emergency medical care in Ukraine. The initial aid by medical team in emergency.	2
Airways management and mechanical ventilation in adults.	3
The emergency care to victims at the prehospital stage. The primary examination of a patient.	4
The emergency care to victims at the prehospital stage. The secondary examination of a patient.	4
Cardiac arrest. Cardio-pulmonary resuscitation.	4
Emergency diagnosis and treatment at the scene.	4
Emergency care in trauma.	2
Emergency care in multiple casualty incidents.	2
Total hours	21

Theme 1. Organization of emergency medical care in Ukraine. The initial aid by medical team in emergency.

1. Organization of the Emergency Medical Care Service of Ukraine (normative and legal basis).
2. Organizational structure, main tasks and functions of the center of emergency medical care.
3. The main tasks, functions, rights and responsibilities of the Emergency Medical Team.
4. The medical equipment and personal safety equipment of the Emergency Medical Team.
5. Organizational structure, main tasks, functions and equipment of the emergency department of the hospital.
6. Purpose, ethical, deontological and legal aspects of emergency medical care for victims at the prehospital stage.
7. An overview of the scene, personal safety of the medical staff, the safety of the witnesses of the case and the victim (patient).
8. Ergonomic principles in the work of the emergency medical team, teamwork.

9. Criteria for distinguishing the emergency and non-emergency cases depending on the patient's condition.
10. Standards for the arrival of emergency medical team to the scene.

Theme 2. Current airways management and mechanical ventilation in adults.

1. Causes, diagnosing and treatment of airways obstruction in adults.
2. Airway management using the combination of head tilt, chin lift and jaw thrust (the triple airway manoeuvre).
3. Airway management in patients with neck injury.
4. Examination and oropharyngeal suctioning using suction apparatus or manually.
5. Symptoms of mild and severe foreign body airway obstruction, technical description of treatment, abdominal thrusts (Heimlich maneuver).
6. Oropharyngeal airway: insertion and using.
7. Nasopharyngeal airway: insertion and using.
8. Mechanical ventilation with a face mask and Ambu bag.
9. Oxygen delivery devices.
10. Tracheal intubation: indications and technique.
11. Alternative devices usage for airways management: laryngeal mask airway, laryngeal tube, esophageal-tracheal combitube.
12. Cricothyroid puncture and cricothyroidotomy: indications and technique.
13. Portable mechanical ventilator. Introduction to using.

Theme 3. Providing the emergency care to victims at the prehospital stage. The primary examination of a patient.

1. Primary examination. The ABCDE approach. Basic principles.
2. Rules of primary examination in conscious and unconscious victims (control of bleeding, immobilization, airway management, assessment of consciousness by AVPU scale, assessment of breathing, assessment of pulse, temperature and colour of skin, capillary refill).
3. Schanz collar, oxygen therapy, treatment of life-threatening disorders (treatment of asphyxia, control of bleeding, cardio-pulmonary resuscitation).
4. "Load and go" category, the "Golden hour".
5. Different mechanisms of injury. Report to the emergency centre.
6. Removing victims from a car. Peculiarities of spinal immobilization and transportation.
7. Intravenous and intraosseous injections.

Theme 4. Prehospital emergency care. Secondary examination of the patient.

1. Principles of ABCDE approach.
2. Consequence of secondary examination (head and neck, chest, back/spine, abdomen, pelvis, genitalia, extremities).
3. Consciousness assessment. Neurological assessment. Glasgow Coma Scale and its pediatric modifications.
4. Assessment of breathing.
5. Assessment of circulation.
6. Disability and exposure assessment.
7. Principles of taking patient's history in emergency (complaints, allergies, medication, meal, previous diseases, tetanus vaccination, alcohol intake, details of injury).
8. Confirming diagnosis of emergency.
9. Auxiliary diagnostics: ECG principles, pulseoxymetry principles, glucometry principles.
10. Active and passive movements.
11. Local examination

Theme 5. Cardiac arrest. Cardio-pulmonary resuscitation.

1. Causes of cardiac arrest.

2. Chain of survival.
3. Stages of cardiopulmonary and cerebral resuscitation.
4. Signs of cardiac arrest. Airway management. Rescue ventilation. Chest compression.
5. Estimation of quality of cardio-pulmonary resuscitation.
6. Advanced life support. Fatal arrhythmias. EKG diagnostics during cardiac arrest. Medication. Indication for defibrillation and direct cardiac massage. Safety principles during defibrillation.
7. Postresuscitation care. Decortication, decerebration and brain death diagnosis.
8. Ethic and deontological considerations in communication with relatives and other specialists. Legal issues in case of death.
9. Cardio-pulmonary resuscitation in children and in elderly patients.

Theme 6. Emergency diagnosis and treatment at the scene.

1. Acute coronary syndrome.
2. Cardiogenic shock.
3. Acute hypertension.
4. Anaphylactic shock, Quincke edema, larynx edema.
5. General hypothermia.
6. Drowning.
7. Electric shock.
8. Coma of unknown origin.
9. Diabetic coma.
10. Unknown gas poisoning.
11. Unknown substance poisoning.

Theme 7. Emergency care in trauma.

1. Prehospital care in skull, spine, chest, abdominal, pelvic trauma, injuries of extremities.
2. Emergency care in multiple injuries, crash syndrome, external and internal bleeding, traumatic and hemorrhagic shock, hemo- and pneumothorax.
3. Algorithm for emergency care in motor-vehical accidents.
4. The technique of stopping external bleeding.
5. Prehospital transport immobilization.
6. Pleural cavity decompression and sealing in case of tension pneumothorax.

Theme 8. Emergency care in multiple casualty incidents.

1. Sequence of action of emergency medical team (EMT) at the place of mass casualty incident.
2. Responsibilities and interaction between medical and rescue services.
3. Organization of medical sorting (triage). Medical sorting area, medical aid area, and evacuation area.
4. Triage according to the START system.
5. Rules of using the triage tags and bracelets.

List of Practical Skills

1. Airway management techniques.
2. Manual artificial ventilation.
3. Indirect heart massage by chest compressions.
4. Electrical defibrillation.
5. Mechanical ventilation using the Ambu bag and S-tube.
6. Methods of oxygen delivery.
7. Determination of the type and degree of a respiratory failure.
8. Central venous pressure measurement.
9. Calculation of water balance and determining the degree of dehydration.
10. Calculation of deficiency of the main electrolytes.

11. Diagnosis of acid-base disorders. Calculation of infusion volume.
12. Methods of detoxication (gastric lavage, forced diuresis).
13. Evaluation of consciousness level.
14. Methods of mechanical ventilation of newborns and infants.
15. Chest compression technique used for newborns and infants.

LIST OF OPEN QUESTIONS FOR FINAL CONTROL

1. Organisation of EMS in Ukraine.
2. Organisational structure, main tasks and functions of the center of emergency medical care and disaster medicine.
3. The main tasks, functions, rights and responsibility of the Emergency medical team.
4. Equipments and personal safety equipments of the emergency medical team.
5. Structure, main tasks, functions and equipments of the emergency department in multi-profile hospital.
6. Purpose, ethical, deontological and legal aspects of emergency medical care for victims at the pre-hospital stage.
7. An examination of the place of the event, the personal safety of the medical staff, the safety of the place of the event and the victim.
8. Ergonomic principles in the work of the team (when working indoors, outdoors), work in the team.
9. Primary examination (ABC). The methodology of management of an unconscious patient.
10. Providing of medical care during the initial examination. Determine further tactics at the scene.
11. The task of the secondary examination. Indications for a secondary examination at the scene and during the evacuation. Secondary examination (ABCDE) of the victim.
12. Pathogenesis, clinic, diagnostics and treatment of respiratory airway obstruction in patients of different age.
13. Ensuring the passage of the respiratory tract by head tilting or jaw tilting. Triple maneuver by Safar.
14. Patency of respiratory tract in the trauma of the cervical spine.
15. Revision and cleansing of the oral cavity manual and hardware methods.
16. Using of oropharyngeal and nasopharyngeal tubes.
17. Ventilation of the victim through a mask using a manual device for artificial ventilation of lungs (Ambu), oxygen supplying.
18. Indications and techniques of intubation of the victim.
19. The use of alternative methods of ensuring the patterns of the respiratory tract with a help of a laryngeal mask, a laryngeal tube, a combitube.
20. Symptoms of partial and complete airways obstruction by a foreign body, methods of its restoration. Heimlich's maneuver.
21. Indications and techniques of conicopuncture and conicotomy.
22. Terminal states. Diagnosis of clinical death. Absolute and relative signs of biological death.
23. Causes of ineffective blood circulation. Diagnosis of sudden death.
24. Classification and evaluation of cardiac rhythm at cardiac arrest.
25. Technology of cardio-pulmonary resuscitation at ventricular fibrillation in adults.
26. Technology of cardio-pulmonary resuscitation at ventricular tachycardia in adults.
27. Technology of cardiopulmonary resuscitation in the pulseless electric activity in adults.
28. Technology of cardiopulmonary resuscitation in adults with asystoly.
29. Diagnosis of potentially reversal causes of cardiac arrest - four "H": hypoxia, hypovolemia, hyper / hypokaliemia, acidosis, hypothermia; four "T": tension pneumothorax, cardiac tamponade, thrombembolia, toxic overdose.
30. Pharmacotherapy at cardiac arrest.
31. The technology of cardiopulmonary resuscitation in the presence of an automatic defibrillator.
32. Duration of cardiopulmonary resuscitation, signs indicating its effectiveness and termination.
33. Post-resuscitation support.
34. Errors and complications during cardiopulmonary resuscitation.
35. Legal and ethical aspects of cardiopulmonary resuscitation.

36. Diagnostics and emergency medical care in acute coronary syndrome.
37. Diagnostics and emergency medical care in case of cardiogenic shock.
38. Diagnosis and emergency medical care in a hypertensive crisis.
39. Diagnosis and emergency medical care in anaphylactic shock.
40. Diagnosis and emergency medical care in hypothermia.
41. Diagnosis and emergency medical care after drowning.
42. Diagnosis and emergency medical care in case of electric shock trauma.
43. Diagnosis and emergency medical care in coma of unclear cause.
44. Diagnosis and emergency medical care in diabetes mellitus.
45. Diagnosis and emergency medical care in poisoning with unknown gas.
46. Diagnostics and emergency medical care in poisoning with an unknown substance.
47. Diagnostics and emergency medical care in mechanical damage to the skull.
48. Diagnostics and emergency medical care in mechanical damage of the spine.
49. Diagnostics and emergency medical care in mechanical damage of the chest.
50. Diagnostics and emergency medical care in mechanical damage of the abdominal cavity, pelvic and pelvic organs.
51. Diagnosis and emergency medical care in mechanical damage of extremities.
52. Diagnosis and emergency medical care in case of polytrauma.
53. Diagnosis and emergency medical care of long-term compression and fracture syndrome.
54. Diagnostics and emergency medical care of traumatic shock.
56. Diagnostics and emergency medical care of a hemorrhagic shock.
57. Diagnosis and emergency medical care of hemo- and pneumothorax.
58. Algorithm of the action of the emergency medical team in car accident.
59. General principles of detoxication therapy at the pre-hospital stage. Use of antidotes.
60. The order of the action of the emergency medical team in MCI.
61. Primary medical triage using the START system.
62. Triage bracelets and tags.
63. A teams of permanent readiness, specialized teams of second-round permanent readiness, mobile "field" teams, their formation and tasks.
64. The role of emergency departments of multidisciplinary hospitals in optimizing the provision of medical care for mass injuries.

Forms of Control

The forms of control and evaluation system are carried out in accordance with the requirements of the discipline program and the Instructions for evaluating the students' educational activity in the context of the implementation of the European Credit Transfer System for the organization of the educational process approved by Ukrainian Ministry of Health 15.04.2014. Current control is carried out in the course of studying a specific topic to determine the level of formation of individual skills or abilities, the quality of assimilation of a specific portion of the material. Final control - examination is carried out after the completion of the study of discipline in the IX semester.

Current control is carried out on each practical lesson according to the specific goals of each topic. In assessing the student's educational activity, it is necessary to give preference to standardized methods of control: testing, structured written work, structured according to the procedure for controlling practical skills in conditions that are close to real ones.

When assessing the mastering of each subject in the current educational activity, the student is awarded an assessment on the 4-point (traditional) scale, taking into account the approved evaluation criteria for the discipline concerned. It takes into account all types of works provided for by the curriculum. The student should get an assessment on each topic. Forms of assessment of the current academic activity should include the control of theoretical and practical training.

Criteria for assessing student's current academic activity:

Students' knowledge is assessed both from theoretical and practical training on the following criteria:

Excellent ("5") - Student answered correctly on 90-100% of tests in format A. Correctly, clearly, logically fully answers all standardized issues of the current topic, including issues of lecture course and independent work. Closely connects theory with practice and correctly performs practical work writing a conclusion on the results. Freely reads the results of laboratory studies, solves situational problems of increased complexity, is able to generalize material, possesses methods of laboratory research to the extent necessary.

Well ("4") - The student answered correctly on 70-89% of the tests of format A. Correctly and essentially corresponds to standardized questions of the current topic, lecture course and independent work. Demonstrates performance (knowledge) of practical skills. Correctly uses theoretical knowledge in solving practical problems. Is able to solve light and medium complexity situational tasks. Has the necessary practical skills and techniques and execution in a volume that exceeds the necessary minimum.

Satisfactory ("3") - The student correctly answered 50-69% of tests of format A.

Incomplete, with additional questions, answers to standardized issues of current topics, lectures and independent work. Can not independently build a clear, logical answer. When answering and demonstrating practical skills, the student makes mistakes. Student solves only the easiest tasks, has only a minimum of research methods

Failed ("2") - The student answered no less than 50% of the A format tests. Do not know the material of the current topic. Student can not construct a logical answer, does not answer the questions, does not understand the content of the material. During the response and demonstration of practical skills makes significant mistakes.

The maximum number of points that can be earned for the current semester for entry to the exam is 120 points. The minimum number of points that a student must score for the current study activity per semester for admission to the exam is 72 points.

The calculation of the number of points is based on the student's assessment of the traditional scale during the study of discipline, by calculating the average arithmetic, rounded to two decimals. The resulting value is converted to a score on a multi-score scale in the following way:

$$X = CA \times 120/5$$

Recalculation the average score for current activity in a multi-score scale (final examination)

5	120	4.45	107	3.91	94	3.37	81
4.95	119	4.41	106	3.87	93	3.33	80
4.91	118	4.37	105	3.83	92	3.29	79
4.87	117	4.33	104	3.79	91	3.25	78
4.83	116	4.29	103	3.74	90	3.2	77
4.79	115	4.25	102	3.7	89	3.16	76
4.75	114	4.2	101	3.66	88	3.12	75
4.7	113	4.16	100	3.62	87	3.08	74
4.66	112	4.12	99	3.58	86	3.04	73
4.62	111	4.08	98	3.54	85	3	72
4.58	110	4.04	97	3.49	84	Менше 3	Недос- татньо
4.54	109	3.99	96	3.45	83		
4.5	108	3.95	95	3.41	82		

Assessment of independent work:

Assessment of students' independent work, which is envisaged in the topic along with classroom work, is carried out during the current control of the topic at the appropriate classroom session.

The evaluation of topics that are made only for independent work and not included in the topics of classroom training is controlled by the final module control.

Final control (differentiated assessment):

Differentiated assessment is a form of final control of the student's assimilation of theoretical and practical material from the discipline "Anesthesiology and Intensive Care" for the semester, which is conducted as a control measure.

Students who have attended all classroom training sessions and have scored at least the minimum number of points (72 points) for the studied subjects are admitted to the final examination.

Differentiated assessment is conducted in written and oral form during the examination session, according to the schedule. The form of differential assessment is standardized and includes control of theoretical and practical training.

Regulation of differential assessment.

Differentiated assessment is carried out after the completion of study of all topics provided for in the program of the academic discipline, in the last control lesson in the discipline "Anesthesiology and intensive care".

Students who have attended all the classroom training sessions provided for by the program of the academic discipline and have scored at least 72 points on a 200-point scale according to the results of the current control are allowed to take a differentiated assessment.

Differentiated assessment is carried out in written form according to standardized versions of tasks compiled in accordance with the curriculum of the academic discipline. Differentiated assessment is conducted by a teacher assigned to the appropriate group of students.

Differentiated crediting includes:

40 test questions with one correct answer and 40 written multiple-choice questions. In extended-choice tasks, 50% of correct responses from the total number of distractors are assumed. Students must score between 50 and 80 points for differential credit. Practical skills are assessed by a teacher assigned to the appropriate group of students and assessed on a two-point scale: "passed" or "failed".

For disciplines, the form of final control is differentiated assessment:

The maximum number of points that a student can score for the current educational activity while studying the discipline is 120 points.

The minimum number of points that a student must score for the current educational activity to enroll in the discipline is 72 points.

The calculation of the number of points is carried out on the basis of the grades received by the student on a traditional scale during the study of the discipline during the semester, by calculating the arithmetic average (SA), rounded to two decimal places. The obtained value is converted into points on a multi-point scale as follows:

$$x = (CA \times 120) / 5$$

For convenience, a calculation table is given on a 200-point scale:

Table 2 Recalculation of the average grade for the current activity into a multi-point scale for disciplines ending with an exam (differentiated grading)

4- балльная шкала	200- балльная шкала	4- балльная шкала	200- балльная шкала	4- балльная шкала	200- балльная шкала	4- балльная шкала	200- балльная шкала
5	120	4.45	107	3.91	94	3.37	81
4.95	119	4.41	106	3.87	93	3.33	80
4.91	118	4.37	105	3.83	92	3.29	79
4.87	117	4.33	104	3.79	91	3.25	78
4.83	116	4.29	103	3.74	90	3.2	77
4.79	115	4.25	102	3.7	89	3.16	76
4.75	114	4.2	101	3.66	88	3.12	75
4.7	113	4.16	100	3.62	87	3.08	74
4.66	112	4.12	99	3.58	86	3.04	73
4.62	111	4.08	98	3.54	85	3	72
4.58	110	4.04	97	3.49	84	Менше 3	Недо- статочно
4.54	109	3.99	96	3.45	83		
4.5	108	3.95	95	3.41	82		

Score points for students who have successfully completed the program are converted into a traditional 4-point scale by the absolute criteria listed in the table.

Points	Score according to 4-score system
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170-200	5
140-169	4
122 -139	3
Less than 122 points	2

10. Methodical support.

1. Educational-professional program of training specialist in the specialty 7.110101 "Therapeutic", direction of preparation 1101 "Medicine".
2. Educational and qualification characteristic of a specialist in the specialty 7.110101 "Medical business", direction of preparation 1101 "Medicine".
3. Recommendations on the development of educational curricula of educational disciplines (Order of the Ministry of Health of Ukraine dated October 12, 2004, No. 492).
4. Presidential Decree of 08.08.2000. 963/2000 "On additional measures for improvement of medical care to the population of Ukraine".
5. Methodological recommendations for teachers and students on each topic of practical classes.
6. Methodological recommendations for independent work of students.
7. Normal-methodical documents.
8. Visual materials, instructions for the use of technical means of training (devices and equipment)

References

1. European Resuscitation Council Guidelines for Resuscitation 2021 / <https://cprguidelines.eu/>
2. Intensive Care Medicine, 6th Edition. Irwin R.S., Rippe J.M. – Lippincott Williams & Wilkins. – 2008;
3. ICU Book, 3rd Edition. P. Marino. – Lippincott Williams & Wilkins. – 2007;
4. ITLS for Emergency Care Providers – 9th Edition. Roy L. Alson, Kye Han, John E. Campbell.
5. ATLS – Advanced Trauma Life Support – 10th Edition <https://medbooksvn.org/atls-advanced-trauma-life-support-10th-edition-2018-pdf/>