



CD 8.5.1 DISCIPLINE CURRICULUM

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FACULTY OF MEDICINE
STUDY PROGRAM 0912.1 MEDICINE
CHAIR OF EMERGENCY MEDICINE

APPROVED

at the meeting of the Commission for Quality Assurance and Evaluation of the Curriculum faculty _____
Minutes No. 8 of 15 03 2018

Chairman associate professor, ph. degree
Suman Serghei _____
(signature)

APPROVED

at the Council meeting of the Faculty _____
Minutes No. 4 of 20 03 2018

Dean of Faculty associate professor, ph. degree
Betiu Mircea _____
(signature)

APPROVED

at the meeting of the chair Emergency Medicine
Minutes No. 30_ from 30th of Aug 2017

Head of chair professor, ph. degree
Ciobanu Gheorghe _____
(signature)

SYLLABUS
DISCIPLINE MEDICAL EMERGENCIES

Integrated studies

Type of course: **Compulsory**

Chisinau, 2018



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INTRODUCTION

- **General presentation of the discipline: place and role of the discipline in the formation of the specific competences of the professional / specialty training program**

Course of Emergency Medicine represents a significant element in the clinical training and the main objectives are to study medical emergencies in adult and children age, to analyze clinical assessment and stabilization peculiarities of patients in the prehospital and emergency medicine department.

The subjects of the course are structured and standardized to form a unique approach of assessment and stabilization of patients with medical emergencies depending on severity of clinical status and settings of providing emergency medical care. Course includes cardiopulmonary and cerebral resuscitation in adults, children, infants and pregnant women; clinical assessment and treatment of emergencies caused by environmental factors, trauma, burns, electrocution, drowning, poisoning and hypothermia; states of hypovolemic shock (hemorrhagic, traumatic, post-combustion) and anaphylactic; sudden cardiac death; acute coronary syndromes (AMI-STEMI) NSTEMI and unstable angina) and stroke.

- **Curriculum mission (purpose) in professional training**

The main objective of the course is to identify medical emergencies as major, II, III grade and provide primary and secondary evaluations of patient depending on age and severity of clinical status.

The second objective is focused on providing cardiopulmonary and cerebral resuscitation in sudden cardiac and non-cardiac arrest, primary respiratory arrest reliant to the age group with highlighting on quality, efficacy and possible complications.

The third objective is the rapid diagnosis and treatment of shock states in poisoning, burns, trauma; acute coronary syndromes and stroke focusing on hemodynamic stabilizing maneuvers and immobilization techniques.

The fourth objective is to earn, practice and demonstrate ability in applying standardized practical skills in the management of upper and lower airways, defibrillation technique, hemostasis and temporary immobilization procedures, extrication, stabilization of patients with acute coronary syndromes and strokes, communication and cooperation with other specialists in the team for a multidisciplinary approach to the medical emergencies.

- Language (s) of the course: Romanian, Russian, English, French;

- Beneficiaries: students of the V year, faculty Medicine I and Medicine II, specialty GENERAL MEDICINE

I. MANAGEMENT OF THE DISCIPLINE

Code of discipline	S.10.O.096		
Name of the discipline	Medical emergencies		
Person(s) in charge of the discipline	Professor , ph. degree Gh. Ciobanu		
Year	V	Semester/Semesters	X
Total number of hours, including:	60		
Lectures	16	Practical	20
Seminars	20	Self-training	4
Form of assessment	CD	Number of credits	2

II. TRAINING AIMS WITHIN THE DISCIPLINE

At the end of the discipline study the student will be able to:

At the level of knowledge and understanding:

- Recognize the clinical manifestations of major II and III dr. medical and surgical emergencies
- Understand procedures of general exam, primary and secondary evaluation of patient with medical and surgical emergencies
- Identify clinical manifestations of sudden cardiac and non-cardiac arrest, cooperation with emergency medical services.
- Know Basic Life Support and Advanced Life Support •



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- Know the etiology, epidemiology, pathophysiology and clinical manifestations of sudden cardiac arrest and algorithm of emergency medical care. •
- Understand the etiology, pathophysiology, classification and clinical manifestations of ACS-AMI-STEMI and NSTEMI; unstable angina pectoris; algorithm of evaluation, stabilization and selection of patients for medication or mechanical thrombolysis. •
- Identify hypovolemic and anaphylactic shock: etiology, classification, pathophysiology, techniques of fluid volume stabilization and resuscitation of patient, methods of hemostasis and provisory immobilization.
- Know emergencies caused by environmental factors, skeletal thoracic and abdominal trauma, burns electric shock, hypothermia and drowning, pathophysiology, classification, clinical manifestations and emergency medical care. •
- Know the principles of triage on the pre-hospital and Emergency Medicine department levels, techniques of extrication and transportation of patients to hospital •
- Know the etiology, epidemiology, pathophysiology and clinical manifestations of stroke, providing emergency care and selection of patients for thrombolytic therapy

at the application level:

- Recognize and identify critical surgical and medical emergencies
- Carry out accurate general examination, primary and secondary evaluation; to apply maintaining vital functions procedures.
- Apply technics of Basic Life Support
- Apply technics of Advanced Life Support
- Identify and carry out of Shockable and Non-Shockable rhythms during Cardiac arrest and apply algorithm of cardiopulmonary and cerebra resuscitation.
- Put on practice procedures of temporary hemostasis and immobilization, fixation on long rigid stretcher.
- Evaluate patients with acute coronary syndrome: interpretation of ECG and determining biomarkers of myocardial necrosis
- Evaluate clinical and laboratory patients with stroke.

at the integration level:

- Be able to clarify the circumstances ,mechanism, pointed history in assessing medical and surgical emergencies
- Ensure appropriate application of cardiorespiratory and cerebral resuscitation procedures
- Be able to use automated external defibrillators in children and adult age and to provide security measures.
- Be able to assess the scene using the triage method based on the severity of clinical symptoms giving priorities in providing emergency medical care.
- Be able to accurately communicate with the staff involved in providing emergency care and know how to manage emergency medical care.
- Be able to apply clinical, practical and theoretical knowledge in other clinical disciplines.
- Be able to use new information technologies, mobile self-directed learning, access to new recommendations and guidelines of the global and European Societies training in the emergency medical care.

III. PROVISIONAL TERMS AND CONDITIONS

Student of the V year requires the following:

- Knowledge of teaching language
- Skills confirmed in basic and clinical emergencies received in other clinical disciplines during III-IV years
- Digital skills: Internet Explorer, document processing, electronic tables and presentations
- Communication and team work abilities
- Knowledge of physical parameters of respiration, circulation, and diuresis according to the age.
- Knowledge of standard ECG, methods of blood pressure and pulse monitoring, , pulse oximetry principle, and blood sugar measurements
- Quality: compassion, tolerance, initiative.



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IV. THEMES AND ESTIMATE ALLOCATION OF HOURS

Lectures, practical hours/ laboratory hours/seminars and self-training

No. d/o	THEME	Number of hours		
		Lectures	Practical hours	Self-training
1.	Cardiopulmonary Cerebral Resuscitation. Adult Basic Life Support: airways management, optimal ventilation, chest compressions, defibrillation.	2	2	2
2.	Sudden death. Cardiopulmonary and Cerebral Resuscitation. Adult Advanced Life Support. Peculiarities in pregnancy.	2	2	2
3.	Cardiopulmonary and Cerebral Resuscitation of new born, infant and child 1-8 years old. Pediatric Advanced Life Support	2	2	2
4.	Primary and secondary survey (evaluation) in adult and child age. Normal vital signs and their significance in medical and surgical emergencies.	1		
5.	Management of acute coronary syndromes in prehospital and emergency medicine department's settings. ECG in the major cardiovascular emergencies. Fatal cardiac arrhythmias. Shockable and Non-Shockable rhythms	2	2	2
6.	Management of strokes in prehospital and emergency medicine department's settings	2		
7.	Hypovolemic shock in trauma patient: traumatic hemorrhagic shock	2	2	2
8.	Thoracic trauma: life-threatening thoracic trauma clinical manifestations, stabilization and treatment in prehospital and emergency medicine department's settings. Pleural decompression methods: thoracentesis, thoracostomy, thoracotomy. Pericardiocentesis-decompression methods. Immobilization methods and occlusive dressing application in the flail chest		2	2
9.	Techniques and methods of extrication of trauma patients from vehicles. Application of the cervical collar. Immobilization on short and long rigid stretcher.		2	2
10.	Anaphylaxis and anaphylactic shock.	1		
11.	Acute poisoning with drugs, alcohol, mushrooms, carbon monoxide etc. in adult and child age.	1		
12.	Heat emergencies, drowning, electrocution, burns, lightning trauma.	1	2	2
13.	Triage as procedure in pre-hospital and emergency department settings in incident with multiple victims		2	2
14.	UCSMT (University Center for Simulation in Medical Training)		4	
Total		16	22	18

V. REFERENCE OBJECTIVES OF CONTENT UNITS

Objectives	Content units
Theme (chapter) 1. Cardiopulmonary and Cerebral Resuscitation	
<ul style="list-style-type: none"> • To define the concepts of Basic Life Support, Advanced Life Support, Pediatric Advanced Life Support. Chain of survival and Cardiopulmonary and Cerebral Resuscitation in adults and children • To know the steps of Cardiopulmonary and Cerebral Resuscitation and intra-organizational interactions of management of emergency medical care. • To know the physiological parameters of vital signs (respiration, circulation, consciousness and methods for determining according to the age groups) • To define sudden death and cardio-respiratory arrest 	1 Sudden death and cardio-respiratory arrest in adult age 2 Cardio-respiratory arrest- definition, etiology, clinical signs. 3 Cardiopulmonary and Cerebral Resuscitation components, pediatric and adult chain of survival, pathophysiology of cardiopulmonary arrest, ethical and legal aspects of basic resuscitation procedures. 4 Adult and pediatric Cardiopulmonary and Cerebral Resuscitation techniques



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Objectives

- To apply Basic Life Support technics in adults, pregnant women and children over 8 years.
 - To know and apply Pediatric Advanced Life Support in neonates, infants and children 1-8 years.
 - To demonstrate procedures of management of upper and lower airways.
 - To apply algorithms RCR and C.
 - To encourage theoretical and practical quality and effectiveness criteria RCR and C.
 - To apply knowledge into other clinical disciplines
 - Effective teamwork and constructive communication
- To express conclusions

Content units

- 5 Defibrillation.
- 3 Medication in Cardiopulmonary and Cerebral Resuscitation

Theme (chapter) 2. Evaluation of patient with medical and surgical emergencies

- To define general evaluation, primary and secondary survey of adult and child with medical and surgical emergency
- To define peculiarities of the primary and secondary survey of adult and child with cardiovascular and trauma emergencies.
- To define primary and secondary survey methods in adult and child with respiratory, cardiovascular and trauma emergencies
- To demonstrate knowledge of physiological parameters of vital signs, methods of determination and their impact in medical and surgical emergencies.
- To apply appropriate resuscitation measures during primary and secondary survey.
- To know the peculiarities of primary and secondary survey in critical trauma patient
- To apply knowledge within other clinical disciplines

- 1 General evaluation and components: color of skin, level of consciousness, respiratory pattern.
- 2 Primary survey (evaluation) with ABCD components and implementations of resuscitation procedures in case of cardio-respiratory arrest emphasizing on chest compressions techniques.
- 3 Primary survey (evaluation) with ABCD components of the patient with respiratory, trauma cardiovascular emergencies, peculiarities and characteristics according to the age group.
- 4 Secondary survey (evaluation) with ABCD components of the patient with respiratory, trauma cardiovascular emergencies, peculiarities and characteristics according to the age group.

Theme (chapter) 3. Major cardiovascular emergencies

- To define acute coronary syndrome and its components, AMI-STEMI and NSTEMI.
- To know the etiology, pathophysiology, clinical symptoms, complications and emergency medical care in acute coronary syndrome
- To apply components of survival chain in acute coronary syndrome
- To define sudden cardiac death and fatal cardiac arrhythmias.
- To know the pathophysiology of cardiovascular and cerebral resuscitation algorithm in shockable and non-shockable rhythms.
- To apply the Cardiopulmonary and Cerebral Resuscitation algorithm in cardiac sudden death.
- To demonstrate knowledge in ECG identification of acute coronary syndrome and cardiac arrest.
- To know automated external defibrillators, monophasic and biphasic defibrillator
- To apply defibrillation technique
- To define stroke

- 1 Anatomical structure and age peculiarities of airways.
- 2 Obstruction of airways - definition, classification.
- 3 The algorithm of emergency care of foreign bodies' airway obstruction and drowning in children and adults.
- 4. The techniques and measures used in foreign bodies' airway obstruction



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Objectives

- To know the etiology, pathophysiology, clinical presentation and treatment of stroke
- To integrate stroke in chain of survival
- To apply skills taught within other clinical disciplines

Content units

Theme (chapter) 4. Environment emergencies

- To define trauma patient and hypovolemic shock (hemorrhagic and traumatic)
- To know the pathophysiological classification, clinical symptoms and treatment of trauma patient with hypovolemic shock
- To apply evaluation and stabilization procedures of trauma patient with hypovolemic shock
- To define life threatening, immediate and frequent chest trauma.
- To know the etiology, classification, clinical signs and treatment of thoracic trauma.
- To apply evaluation and stabilization procedures of chest trauma patient
- To define skeletal trauma /extension of limbs, pelvic bones, spine
- To know the classification, pathophysiology, clinical manifestations and treatment of skeletal trauma on pre-hospital and emergency department seating
- To apply the methods of pelvis, legs and spine immobilization
- To define wounds and external bleedings
- To know the classification, pathophysiology, clinical manifestations and treatment wounds and bleedings on pre-hospital and emergency department seating
- To apply provisional hemostasis measures.
- To define burns, heat emergencies, drowning, electrocution, hypothermia and lightning injuries
- To know the classification, pathophysiology, clinical manifestations and treatment of burns, heat emergencies, drowning, electrocution, hypothermia and lightning injuries on pre-hospital and emergency department seating
- To know the peculiarities of cardio and cerebral resuscitation in burns, heat emergencies, drowning, electrocution, hypothermia and lightning injuries
- Define adults and children poisoning
- To know the etiology, pathophysiology, clinical manifestations and treatment of patients with acute drugs alcohol, mushrooms, insecticides and carbon monoxide poisoning on pre-hospital and emergency department seating.
- To define anaphylactic reactions and anaphylaxis
- To know the etiology, classification, pathophysiology, clinical signs and emergency care of anaphylaxis on pre-hospital and emergency department seating.
- To apply knowledge and skills within other clinical disciplines.
- Define the notion of extrication, and personal security

- 1 Polytrauma patient. Definition. Classification. Diagnostic and emergency treatment on the prehospital and emergency department level. Maintenance of polytrauma patient.
- 2 Hypovolemic shock. Definition. Classification. Diagnostic and emergency treatment on the prehospital and emergency department level. Maintenance of patient with hypovolemic shock
- 3 Life-threatening chest traumas. Definition. Classification. Diagnostic and emergency treatment on the prehospital and emergency department level. Maintenance of patient with chest trauma
- 4 Evaluation and immobilization of patient by fixative devices, neck collar, hold on short and long rigid stretcher.
- 5 Emergency medical care at the scene of patients with burns, electric shock, hypothermia, drowning and lightning accidents and distinguishing the particularities of Cardiopulmonary and Cerebral Resuscitation
- 6 Temporary hemostasis methods in soft tissue wounds with external bleeding and prevention of wound contamination
- 7 Stabilization of patient by removing and neutralizing the toxic agent, antidote treatment.
- 8 Anaphylaxis. Anaphylactic shock
- 9 Safe and secure extrication
- 10 Medical triage.



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Objectives	Content units
<ul style="list-style-type: none"> • To apply stabilizing ABC measures inside of vehicle, to immobilize the cervical spine, to apply short and long rigid stretcher, to move the patient. • To demonstrate imobilization and stabilization techniques of incarcerated patient. • To define the concepts of triage on pre-hospital and emergency department seting in case of incidents with multiple victims. • To know the principles, categories and significance of patients triage. • To apply triage selection on pre-hospital and emergency department seating. 	

VI. PROFESSIONAL (SPECIFIC (SC)) AND TRANSVERSAL (TC) COMPETENCES AND STUDY OUTCOMES

✓ Professional (specific) (SC) competences

- PC1. Aptitudes to understand the principles of organization of emergency medical system in Republic of Moldova, cardiorespiratory and cerebral resuscitation system, ethical and medico-legal aspects of resuscitation. Knowledge, understanding and using the specific language medical medical emergencies. Put on practice, basic methods and theories in providing emergency medical care.
- PC2. Practical application and comprehensive knowledge of cardiopulmonary and cerebral resuscitation procedures, processes of airway managemnet; to provide decent emergency medical care in surgical and medical emergencies.
- PC3. Establish diagnosis, treatment and rehabilitation plan in various surgical and medical emergencies, with selection of appropriate procedures and treatment for them, including providing emergency medical care at the pre-hospital and Emergency Medicine Department stage.
- PC4. Managing medical equipment, instrumental and laboratory investigations, practice digital technologies to resolve specific tasks for providing emergency care of patient at the stage of pre-hospital and Emergency Medicine Department.

✓ Transversal competences (TC)

- TC1 Performing activities and exercising the specific team work roles in various medical institutions. Promoting the spirit of initiative, dialogue, cooperation, positive attitude and respect for others, empathy, altruism and continuous self-improvement.

✓ Study outcomes

Upon completion of the Medical Emergency course, the student will be able to:

- Recognize the medical and surgical emergencies and provide emergency medical care;
- Apply basic and advanced resuscitation procedures to critical patients (adults, children);
- Provide emergency medical care for wounds and burns;
- Carry out techniques of temporary hemostasis and immobilization;
- Provide defibrillation with Automatic External Defibrillator.

Note. Study outcomes (are deduced from the professional competencies and formative valences of the informational content of the discipline).

VII. STUDENT'S self-training

No.	Expected product	Implementation strategies	Assessment criteria	Implementation terms
1.	Operation with information resources	Analysis t of subject from the lecture or the material from the book. Apply topic supplementary information sources. Creating generalizations and conclusions regarding the importance	Ability to abstract the essentials, interpretative capacities, volume of effort	All over the course



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		of the theme / subject.		
2.	Activities during seminars and practical lessons using manikins and molds	The seminars will consist of discussions of thematic issues which then will be applied and molded in practical lessons on manikins and molds. Formulating conclusions from each seminar and practical lesson. Selecting source of additional information of the topic. Active involvement of students in imitation of models of emergency medical care algorithms. Creating generalizations and conclusions on the importance of the topic.	Workload. Resolving the situations problems. Capability to apply algorithms. Ability to formulate conclusions	All over the course
3.	Operation with on-line resources	Online self-evaluations, studying on-line materials on the site, expressing own opinions in forums or discussions	The number and duration of entries on the site, the results of self-evaluations	All over the course
4.	Preparation and final presentation / portfolio	Selecting the research theme, establishing plan and terms of research. Creating project components / Power Point presentation- theme, purpose, objectives, results, conclusions, practical applications, bibliography. Review of colleagues, teachers reviews.	Workload, degree of reflection of the problem, level of scientific argumentation, the conclusions, elements of creativity, abilities of personal attitudes, scientific consistency and correctness of expression, presentation of graphics, the modality of presentation	All over the course

VIII. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-assessment

• *Teaching and learning methods used*

Teaching methods used

- Various didactic methods and procedures are used in teaching Emergency Medicine discipline focused on to ensure effective and teaching objectives. During the theoretical lessons, along with traditional methods (lesson-exposure, lesson-conversation lesson summary) are also used modern methods (lesson- debate, lesson conference, lesson situational). Lessons are supplemented by organizing clinical cases presentations and decisions- making in providing emergency care. The topic is offered by video demonstrations and performing of maneuvers on mannequins. Following educational activity forms are used in practice: individual and team work, managing clinical case, modeling algorithms of resuscitation and emergency medical care. Within UCSMT (Univercity Center for Simulation in Medical Trainig) training students are advised and instructed to teamwork in various functions, for managing standardized medical emergencies. To achieve better understanding of subject in seminars and practical lessons are used video performance, tables and diagrams, manikins. During the classes and extracurricular activities are used information communication technologies, PowerPoint presentations, online lessons.

Learning methods recommended

- Observation-identification of clinical manifestations of medical and surgical emergencies, describing these events and understanding significance.
- Imaginary analysis-disintegration of components of the entire clinical picture into parts, highlighting priorities proceeding from the patient life threatening degree, differential diagnosis, analysis of each symptom as part of the clinical picture of emergencies.

Clinical Case Analysys



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- Selection of classic clinical cases for presentation: medical history, circumstances, main clinical indicators. Data from primary and secondary survey/ examination. State of vital functions and stabilization procedures. The therapeutic decision will be taken with the active participation of the students.

Comparison

- Analysis clinical cases depending on the time from onset, the patient's age category, the presence of associated diseases, and the technique of vital functions stabilization. Formulation of conclusions.

Classification

- Identification of structures / processes, nosology units of medical emergencies to be classified. Determining the criteria of classification. Distribution of structures / processes, medical-surgical emergency units by groups according to established criteria.

Elaboration of the scheme / algorithm

- Selecting the elements included in the scheme. Tracing selected components by different colors / Symbols and indicate their relationships. Labeling of an appropriate title and legend of the symbols used.

Modeling

- Identifying and selecting elements implemented in modeling e clinical case / situation. Drawing (graphical, schematic) of studied phenomenon. Designing conclusions and findings.

Experiment

- Making a hypothesis, starting from identified process facts / phenomenon/ case / clinical situation studied. Verifying the hypothesis by performing clinical trials / phenomena / cases / clinical situations. Designing conclusions, presumed from arguments and findings.
- **Applied teaching strategies / technologies (specific to the discipline)**
"Brainstorming", "Multi-voting", "Round Table", "Group Interview", "Case Study", "Creative Controversy", "Focus-group Technique", "Portfolio" ", " Standardized Case Resolution "
- **Methods of assessment (including the method of final mark calculation)**

Current: frontal and / or individual control by:

- Evaluations tests
- Resolving situational problems / exercises
- Analyzing of case studies / clinical situation
- Analysis of standardized medical and surgical emergencies
- Developing team role modeling in the topics discussed
- Writing essay

Final: differentiate colloquium.

The final mark will consist of the annual average score, consisting of 2 marks (part 0,3, the practical skill test (part 0,3) and the final test mark in the test-editor (part 0,4).

Method of mark rounding at different assessment stages

Intermediate marks scale (annual average, marks from the examination stages)	National Assessment System	ECTS Equivalent
1,00-3,00	2	F
3,01-4,99	4	FX
5,00	5	E
5,01-5,50	5,5	
5,51-6,0	6	
6,01-6,50	6,5	D
6,51-7,00	7	
7,01-7,50	7,5	
7,51-8,00	8	C
8,01-8,50	8,5	
8,51-8,00	9	
9,01-9,50	9,5	A
9,51-10,0	10	



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The average annual mark and the marks of all stages of final examination (computer assisted, test, oral) - are expressed in numbers according to the mark scale (according to the table), and the final mark obtained is expressed in number with two decimals, which is transferred to student's record-book.

Absence on examination without good reason is recorded as "absent" and is equivalent to 0 (zero). The student has the right to have two re-examinations.

IX. RECOMMENDED LITERATURE:

A. Compulsory:

1. Emergency medicine (courses for medical students)
2. American Heart Association. Basic Life Support Priverider Nabual, 2016.
3. European Resuscitation Council Guidelines for Resuscitation, 2015. Resuscitation, 95 (2015), 81-99, 223-248, 278-28.
4. Tintinalli J.E., Kelen G.D, Stapczynski. Tintinalli's Emergency Medicine: A Comprehensive Study Guide, 8 edition., Vol. I și II. ALPHA MDN, 2012.