

**DANYLO HALYTSKYI LVIV NATIONAL MEDICAL UNIVERSITY**

**Department of Pediatrics No 1, Pediatrics No 2**

“APPROVED”

First Vice-Rector on Scientific and Pedagogical work

Danylo Halytsky Lviv National Medical University

Associate Professor Iryna SOLONYNKO

\_\_\_\_\_ 2023  
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**PROGRAM OF THE ELECTIVE DISCIPLINE**

**EC 2.11**

**PRACTICE IN SIMULATION MEDICINE "PEDIATRICS"**

**training of specialists of the second (master's) level of higher education  
field of knowledge 22 "Health"  
specialty 222 "MEDICINE"**

Discussed and approved  
at the methodological meeting of the  
Department of Pediatrics No 1  
Protocol No 16  
of "20" April 2023  
Head of Department  
Professor Sergiy NYANKOVSKYY

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Approved by the profile Methodical  
Commission  
of Pediatric disciplines  
Protocol No 2  
of "27" April 2023  
Head of profile methodical  
commission  
Professor Lesya BESH

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Discussed and approved  
at the methodological meeting of the  
Department of Pediatrics No 1  
Protocol No 12  
of "21" April 2023  
Head of Department  
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## INTRODUCTION

Program of discipline **Practice in simulation medicine "Pediatrics"** (practice by choice of elective block 2)

The program is made according to the Educational-professional program "Medicine" of the second (master's) level of higher education

The standard of higher education of the second (master's) level

on a specialty 222 "Medicine"

field of knowledge 22 "Health"

### Description of academic discipline (abstract)

Critical conditions involving dysfunctions of vital organs and systems in children develop more rapidly than in adults, and therefore require urgent, coordinated action by medical personnel. The discipline "Practice in Simulation Medicine (Pediatrics)" is aimed at mastering by 6th year students the theoretical principles and practical skills of providing emergency care in case of various emergency conditions in children, taking into account their age and anatomical-physiological features.

The curriculum of the discipline Practice in simulation medicine "Pediatrics" includes modern achievements of emergency pediatrics (diagnosis, treatment and prevention of emergency conditions in children), aimed at reducing child morbidity and mortality.

During studies, a student should achieve a high level of not only theoretical but also practical professional training, understanding of general concepts and use of appropriate methodological approaches. The formation of comprehensive knowledge regarding the various clinical variants of the course and complications of the most common diseases in children is expected, the ability to plan an urgent examination of a child who needs urgent care, and to interpret the results obtained, make a differential diagnosis and establish a clinical diagnosis.

A student should be able to apply current evidence-based medicine in determining patient management tactics. Particular attention is paid to the diagnosis of emergencies and improvement of giving emergency aid skills. Current issues of differential diagnosis and emergency care of the most common emergency conditions in children (acute respiratory and cardiac failure, circulation, coma, etc.) are offered for students to study and discuss.

Discipline Practice in simulation medicine "Pediatrics" is optional for students of specialty 222 "Medicine".

Structure of the educational discipline	Quantity of credits, hours, of which:				Educational year	Type of control
	Total hours/credits	Classroom		Independent work of student		
		Lectures	Workshops			
Practice in simulation medicine "Pediatrics"	60 hours/ 2 credits	0	35	25	6	Credit

**The subject of the study** of the academic discipline Practice in simulation medicine "Pediatrics" is modern methods of diagnosis and emergency care for the most common emergencies in children of different ages.

**Interdisciplinary integration:** according to the curriculum, the study of the discipline Practice in simulation medicine "Pediatrics" is provided during the 6<sup>th</sup> academic year (XI –XII semesters), when the student has acquired knowledge of the basic disciplines, at clinical departments during 3-5 academic years:

- Medical Biology,

- Biological physics
- Normal human anatomy and physiology
- Pathological anatomy and physiology
- Histology, Cytology and Embryology
- Propaedeutic of pediatrics
- Pediatrics 4-5 courses
- Pharmacology
- Microbiology
- Clinical Immunology and Allergology
- Hygiene and Ecology
- Radiology

The discipline of Practice in simulation medicine “Pediatrics” involves the integration of teaching with the above disciplines to equip future doctors with the skills to apply their knowledge in further professional activities.

The program of the discipline Practice in simulation medicine “Pediatrics” is integrated and continues with these disciplines. As a continuation of Propaedeutics of pediatrics, Pediatrics, together with other clinical disciplines, involves into the future physicians’ ability to apply the acquired knowledge in further professional activities.

### **1. The purpose and tasks of the discipline**

1.1 The purpose of teaching the discipline Practice in Simulation Medicine “Pediatrics” is acquisition and deepening of knowledge, improvement of practical skills, abilities and other competences in matters of providing emergency care to children, diagnosis, treatment, prevention and dynamic monitoring of children with emergency conditions.

1.2. The main task of studying the discipline of “pediatrics” is that the student must know and be able to do when studying the discipline.

As a result of studying the discipline Practice in Simulation Medicine “Pediatrics” the **student must know**:

- Etiological factors of the most common pediatric emergencies;
- Pathogenesis of the most common pediatric emergencies;
- The clinical course and the main clinical symptoms, modern methods of diagnostics and treatment of the most common pediatric emergencies;
- Methods of emergency care and resuscitation (pre-hospital) in critical conditions caused by acute diseases and accidents;
- Peculiarities of resuscitation in children and newborns;
- Principles of emergency care, further treatment and monitoring for the most common emergencies in children.

As a result of studying the discipline of “pediatrics” the **student must be able to**:

- Take medical history;
- Examine a sick child;
- Make a preliminary clinical diagnosis;
- Analyze typical and not typical variants of diseases and complications in children that may require emergency care
- Plan an examination of a sick child;
- Interpret data of laboratory and instrumental tests in appropriate clinical emergencies
- Conduct a differential diagnosis, substantiate and formulate a clinical diagnosis of the most common emergency conditions in children

- Determine tactics and provide emergency care in specific clinical situations
- Prescribe a further treatment
- Determine the prognosis of emergency and intensive care

1.3. **Competences and learning outcomes**, the formation of which is facilitated by the discipline in accordance with the requirements of the Standard of Higher Education, the discipline provides students with the acquisition of competencies:

**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 Competences:**

GC1	Ability to abstract thinking, analysis, and synthesis
GC2	Ability to learn and master modern knowledge
GC3	Ability to apply knowledge in practical situations
GC4	Knowledge and understanding of subject area and understanding of professional activity
GC5	The ability to adapt and act in a new situation
GC6	Ability to make an appropriate decision
GC7	Ability to work in a team
GC8	Interpersonal skills interaction
GC9	Ability to communicate in foreign language
GC10	Skills in using information and communication technologies
GC11	Ability to search, process and analyze information from various sources
GC12	Certainty and perseverance on the tasks and responsibilities
GC13	Awareness of equal opportunities and gender issues
GC14	The ability to exercise their rights and responsibilities as a member of society, to realize the values of civil (free democratic) society and the need for its sustainable development, the rule of law, human and civil rights
GC15	Ability to preserve and increase moral, cultural, scientific values and achievements of society based on an understanding of the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, technology and technology, to use various types and forms of physical activity for active recreation and healthy lifestyle

**Professional (Special) Competences:**

PC1	Ability to collect medical information about the patient and analyze clinical data
PC2	Ability to determine the required list of laboratory and instrumental studies and assess their results.
PC3	The ability to establish preliminary and clinical diagnosis
PC5	Ability to prescribe an appropriate diet in treatment and prevention of diseases
PC6	Ability to determine the principles and type of treatment and prevention of diseases
PC7	The ability to diagnose emergency conditions
PC8	Ability to determine the tactics and implement emergency medical care
PC9	Ability to carry out medical evacuation
PC10	The skills of performing medical manipulations
PC11	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

PC16	Ability to keep medical records, including electronic forms
PC21	Clearly and unambiguously communicate one's own knowledge, conclusions, and arguments about health problems and related issues to professionals and non-specialists, particularly to trainees.
PC24	Adherence to ethical principles when working with patients
PC25	Adherence to professional and academic integrity, to be responsible for the reliability of the obtained scientific results

Detailed competences are present in accordance with the descriptors of the NRK in the form of "Competences Matrix".

### Competence matrix

№	Competence	Knowledge	Skills	Communication	Autonomy and responsibility
<b>Integral competence</b>					
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					
<b>General competencies</b>					
1.	Ability to abstract thinking, analysis and synthesis (GC1)	Know the methods of analysis, synthesis and continued medical education	Be able to analyze information, make informed decisions, be able to master modern knowledge	Establish appropriate connections to achieve goals	To be responsible for the timely acquisition of modern knowledge
2.	Ability to learn and master modern knowledge (GC2)	Know the current trends in the field and analyze them	Be able to analyze professional information, make informed decisions, acquire modern knowledge	Establish appropriate connections to achieve goals	Be responsible for the timely acquisition of modern knowledge
3.	Ability to apply knowledge in practical situations (GC3)	Have specialized conceptual knowledge acquired in the learning process	Be able to solve complex problems and problems that arise in professional activities	Clear and unambiguous communication of one's own conclusions, knowledge and explanations that substantiate them to specialists and non-specialists	Responsible for making decisions in unusual conditions
4.	Knowledge and understanding of the subject area and understanding of professional activity (GC4)	Have deep knowledge of the structure of professional activity	Be able to carry out professional activities that require updating and integration of knowledge	Ability to effectively form a communication strategy in professional activities	To be responsible for professional development, ability to further professional training with a high level of autonomy

5.	Ability to adapt and act in a new situation (GC5)	Know the types and methods of adaptation, principles of action in a new situation	To be able to apply means of self-regulation, to be able to adapt to new situations (circumstances) of life and activity	Establish appropriate connections to achieve result	Be responsible, timely use of self-regulation methods
6.	Ability to make an informed decision (GC6)	Know the tactics and strategies of communication, laws and ways of communicative behavior	Be able to make informed decisions, choose ways and strategies to communicate to ensure effective teamwork	Use communication strategies and interpersonal skills	Be responsible for the choice and tactics of communication
7.	Ability to work in a team (GC7)	Know the tactics and strategies of communication, laws and ways of communicative behavior	Be able to choose ways and strategies of communication to ensure effective teamwork	Use communication strategies	Be responsible for the choice and tactics of communication
8.	Interpersonal interaction skills (GC8)	Know the laws and methods of interpersonal interaction	Be able to choose ways and strategies of communication for interpersonal interaction	Use interpersonal skills	Be responsible for the choice and tactics of communication
9.	Ability to communicate in a foreign language (GC9)	Have a basic knowledge of a foreign language	Be able to communicate in a foreign language.	Use a foreign language in professional activities	To be responsible for the development of professional knowledge with the use of a foreign language
10.	Skills in the use of information and communication technologies (GC10)	Have in-depth knowledge in the field of information and communication technologies used in professional activities	Be able to use information and communication technologies in the professional field, which requires updating and integration of knowledge.	Use information and communication technologies in professional activities	Be responsible for the development of professional knowledge and skills.
11.	Ability to search, process and analyze information from various	Have knowledge about searching and analysis of information from various sources	Be able to search, process and analyze information	Use and communicate obtained information and its analysis	Be responsible for searching, processing and analysis of information

	sources (GC11)				
12.	Certainty and perseverance on the tasks and responsibilities (GC12)	Know the responsibilities and ways to accomplish the tasks	Be able to set goals and objectives to be persistent and conscientious in the performance of duties	Establish interpersonal relationships to effectively perform tasks and responsibilities	Responsible for the quality of the tasks
13.	Awareness of equal opportunities and gender issues	Know and be aware of equal opportunities and gender issues	Be able to evaluate rights and responsibilities in relation to equal opportunities and gender issues	To establish interpersonal interaction based on equal opportunities and excluding gender issues	Be responsible for establishing equal opportunities and eliminating gender issues
14.	The ability to exercise their rights and responsibilities as a member of society, to realize the values of civil (free democratic) society and the need for its sustainable development, the rule of law, human and civil rights (GC14)	Know your social and community rights and responsibilities	To form one's civic awareness, to be able to act in accordance with it	Ability to convey one's public and social position	Be responsible for your social position and activities
15.	Ability to preserve and increase moral, cultural, scientific values and achievements of society based on an understanding of the history and patterns of development of the subject area, its place in the general system of knowledge about nature and	To know the ethical, cultural, scientific values and achievements of society based on an understanding of the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society,	Be able to preserve and increase moral, cultural, scientific values and achievements of society based on an understanding of the history and patterns of development of the subject area, its place in the general system of knowledge about nature and	Adhere to ethical, cultural, scientific values and achievements of society based on an understanding of the history and patterns of development of the subject area, their place in the general system of knowledge about nature and society and in the development of society, technology and	To be responsible for the adherence to moral, cultural, scientific values and achievements of society based on an understanding of the history and patterns of development of the subject area, its place in the general system of knowledge about nature and



	society and in the development of society, technology and technology, to use various types and forms of physical activity for active recreation and healthy lifestyle (GC15)	technology and technology, to know about various types and forms of physical activity for active recreation and healthy lifestyle	society and in the development of society, technology and technology, use various types and forms of physical activity for active recreation and be able to lead a healthy lifestyle	technology, adhere to various types and forms of physical activity for active recreation and healthy lifestyle	society and in the development of society, technique and technology
<b>Special (professional, subject) competencies</b>					
1.	Ability to collect medical information about the patient and analyze clinical data (PC1)	Have specialized knowledge about the child, organs and systems, anatomical and physiological features of children of different ages, know the methods and standard schemes of interviewing, taking genealogical information, pedigree, physical examination of patients of different ages. Know the methods of assessing of intrauterine fetal development. Know the stages and methods of examination of psychomotor and physical development of the child	Be able to conduct a conversation with the child and / or her parents (guardians), based on algorithms and standards. Use the principles of communication with parents of children with incurable diseases. Using standard techniques to conduct a physical examination of the patient. Be able to examine the psychomotor and physical development of the child. Be able to assess the quality of care, breastfeeding and child nutrition. Be able to conduct a comprehensive assessment of the child's health	Effectively develop a communication strategy when communicating with the patient and / or his parents (guardians). Include information about the child's health or fetal development in the relevant medical records	Be responsible for the quality collection of information obtained through interviews, surveys, examinations, palpation, percussion of organs and systems and for timely assessment of the child's health, psychomotor and physical development of the child and fetal development and for taking appropriate measures
2.	Ability to determine the	Have specialized knowledge about	Be able to analyze the	To make and communicate to	Be responsible for deciding on

	required list of laboratory and instrumental studies and assess their results (PC2)	the child, peculiarities of organs and systems, standard methods of laboratory and instrumental evaluation	results of laboratory and instrumental studies and on their basis to evaluate information about the patient's diagnosis	the patient and / or his/her parents (guardians), specialists conclusions on necessary laboratory and instrumental tests	the evaluation of laboratory and instrumental tests
3.	The ability to establish preliminary and clinical diagnosis (PC3)	Have specialized knowledge about the child, organs and systems; standard examination methods; disease diagnosis algorithms; algorithms for discrimination of leading symptoms or syndromes; preliminary and final diagnoses; methods of laboratory and instrumental examination; knowledge of assessing the child's condition	Be able to perform a physical examination of the patient; be able to make an informed decision about the selection of the leading clinical symptom or syndrome; be able to make a preliminary and clinical diagnosis); to order laboratory and instrumental tests	On the basis of normative documents to keep medical documentation of the patient (outpatient / inpatient records).	Adhering to ethical and legal norms, be responsible for making informed decisions and actions regarding the correctness of the established preliminary and clinical diagnosis
4.	Ability to prescribe an appropriate diet in treatment and prevention of diseases (PC5)	Have specialized knowledge about algorithms and standard schemes of nutrition for healthy children and during the treatment of diseases	Be able to determine the type of nutrition of healthy children and on the basis of preliminary and final diagnoses, the type of nutrition in the treatment of diseases	Formulate and communicate to the patient and/or their parents (guardians), specialists conclusions on the nutrition of healthy children and in the treatment of diseases	Be responsible for the reasonableness of nutritional determinations for healthy children and in the treatment of illness
5.	Ability to determine the principles and type of treatment and prevention of diseases (PC6)	Have specialized knowledge of algorithms and standard protocols for the treatment of diseases	Be able to make plan and particular treatment of the disease	Draw conclusions about treatment and inform the patient and / or his parents (guardians)	Be responsible for decisions regarding the treatment of the disease

6.	The ability to diagnose emergency conditions (PC7)	Have a specialized knowledge about the child, his organs and systems, standard methods of pediatric examination (at home, on the street, in a health care facility) in the absence of information	Be able, in the absence of information, using standard techniques, by making an informed decision to assess the child's condition and determine the main clinical syndrome (or what causes the severity of the emergency)	Under any circumstances, adhering to the relevant ethical and legal issues to make an informed decision to assess the severity of the child's condition, diagnosis and organization of management depending on the child's condition; fill in the relevant medical records	Be responsible for the timeliness and effectiveness of medical measures to diagnose emergencies
6.	Ability to determine the tactics and implement emergency medical care (PC8)	Know the legal framework for the provision of emergency medical care. Have specialized knowledge about urgent pediatric care.	Be able to identify emergencies; principles and tactics of emergency medical care; to carry out organizational and diagnostic measures aimed at saving child's life.	Reasonable formulate and communicate to the patient or his / her legal representative the need for emergency care and obtain consent for medical intervention	Be responsible for the correct diagnosis of the emergency condition, severity and tactics of emergency medical care
7.	Ability to carry out medical evacuation (PC9)	Have specialized knowledge about the algorithms of medical evacuation measures	Be able to carry out medical and evacuation measures	Explain the necessity and order of medical evacuation measures	Be responsible for the timeliness and quality of medical evacuation measures
8.	Skills to perform medical manipulations (PC10)	Knowledge of algorithms of medical manipulations	Be able to perform medical manipulations	Reasonably formulate and communicate to the patient, and/or their parents (guardians), specialists the conclusions about the need for medical manipulation	Be responsible for the quality of medical manipulations
9.	Ability to solve medical problems in new or unfamiliar	Know how to solve medical problems in new or unfamiliar	Be able to solve medical problems in new or unfamiliar	Communicate methods of solving of medical problems	Be responsible for solving medical problems in new

	environments in the presence of incomplete or limited information taking into account aspects of social and ethical responsibility (PC11)	environments in the presence of incomplete or limited information	environments in the presence of incomplete or limited information taking into account aspects of social and ethical responsibility	in new or unfamiliar environments in the presence of incomplete or limited information	or unfamiliar environments in the presence of incomplete or limited information
10.	Ability to keep medical records, including electronic forms (PC16)	Know the system of official document management in the work of a doctor, including modern computer information technology	Be able to determine the source and location of the required information depending on its type;	Obtain the necessary information from a specific source and on the basis of its analysis to form appropriate conclusions	Be responsible for the completeness and quality of the analysis of information and conclusions based on its analysis
11.	Clearly and unambiguously communicate one's own knowledge, conclusions, and arguments about health problems and related issues to professionals and nonspecialists, particularly to trainees (PC21)	To think critically about problems in the field and on the border of the fields of knowledge	Ability to solve problems in new and unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethnic responsibility	Use foreign languages in professional activities	Be responsible for contributing to professional knowledge and practice and/or evaluating results
12.	Adherence to ethical principles when working with patients (PC24)	Know ethical principles of Helsinki declaration of human rights as medical subjects, and other law of harmonization in medical practice	Be able to follow ethical principles when working with patients	Communicate ethical principles when working with patients	To be responsible implementation of ethical principles into practice
13.	Adherence to professional and academic integrity, to be responsible for the reliability of the obtained scientific results	Know the basic principles of academic and professional integrity		Adhere to the principles of academic and professional integrity	Be responsible for observing the principles of academic and professional integrity

**Normative content of higher education training,  
formulated in terms of Program learning results (PLR)**

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

**PLO 2.** Understanding and knowledge of basic and clinical biomedical sciences, at a level sufficient to solve professional problems in the field of health care.

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

**PLO 4.** Identify and identify the leading clinical symptoms and syndromes; according to standard methods, using preliminary data of the patient's anamnesis, data of the patient's examination, knowledge about the person, his organs and systems, to establish a preliminary clinical diagnosis of the disease.

**PLO 5.** Collect complaints, life history and disease, assess 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 to assess information about the diagnosis, taking into account the patient's age.

**PLO 6.** Establish a final clinical diagnosis by making an informed decision and analysis of the obtained subjective and objective data of clinical, additional examination, differential diagnosis, adhering to the relevant ethical and legal norms, under the supervision of a physician-manager in a health care institution.

**PLO 7.** Order and analyze additional (mandatory and optional) examination methods (laboratory, functional and / or instrumental) for differential diagnosis of diseases.

**PLO 8.** To determine the main clinical syndrome or what causes the severity of patient condition by making an informed decision under various circumstances (at healthcare facility, or outside it), including in conditions of emergency, in the battlefield, in conditions of lack of information and limited time).

**PLO 9.** To determine the nature and principles of treatment of patients (conservative, operative), taking into account the age of the patient, in a health care facility, outside it and at the stages of medical evacuation, including in the field, on the basis of a preliminary clinical diagnosis, adhering to the relevant ethical and legal norms, by making an informed decision on existing algorithms and standard schemes. If necessary to expand the standard scheme and justify personalized recommendations under the supervision of a physician.

**PLO 10.** To determine the necessary mode of work, rest and nutrition based on the final clinical diagnosis, adhering to the relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes.

**PLO 14.** Define tactics and provide emergency medical care in emergencies for a limited time in accordance with existing clinical protocols and treatment standards.

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

**PLO 17.** Perform medical manipulations in a medical institution, at home or at work based on a previous clinical diagnosis and / or indicators of the patient's condition by making an informed decision, adhering to the relevant ethical and legal norms.

**PLO 18.** Determine the state of functioning and limitations of a person's vital activity and the duration of disability with the preparation of relevant documents in a healthcare facility based on data on the disease and its course, peculiarities of a person's professional activity, etc. Keep medical records for patients and certain population groups on the basis of regulatory documents.

**PLO 21.** Search for the necessary information in the professional literature and databases of other sources, analyze, evaluate and apply this information.

**PLO 24.** Organize the necessary level of personal safety (own and those being cared for) in the event of typical hazardous situations in the individual's field of work.

**PLO 25.** Clearly and unambiguously communicate knowledge, conclusions and arguments on health issues and related issues to professionals and non-specialists.

**Learning outcomes for the discipline:**

- To evaluate diagnosis information in the setting of a health care facility, its unit, and outside the facility (unfamiliar environments with incomplete or limited information) based on patient examination findings and results of laboratory and instrumental investigations results
- To make a differential diagnosis of emergency conditions in children.
- To provide emergency care for a variety of pediatric emergencies.
- To prescribe necessary laboratory-instrumental examination.
- To determine the volume of therapeutic interventions after emergency care.
- To determine the prognosis of pediatric emergencies.

**2. Information volume of academic discipline**

2.0 Credits ECTS 60 hours are allocated for studying a discipline.

**Topic 1. Cardiopulmonary resuscitation for children.**

General signs of a threatening condition in a child. Current recommendations for cardiopulmonary resuscitation of children. Determination of the level of consciousness. Checking for breathing and patency of the respiratory tract. Signs of cardiac arrest and circulatory failure. The basic principles of resuscitation in children of different ages. Lung ventilation during resuscitation with a resuscitation bag or mouth-to-mouth breathing. Algorithm of actions in case of cardiac arrest. Indications for chest compressions, medication and use of a defibrillator. Treatment of respiratory and cardiovascular failure. Maintaining the appropriate blood circulation. Recovery position.

**Topic 2. Peculiarities of providing medical aid to children in the conditions of military operations.**

Principles of first aid. Initial examination of an injured child. Stop of the bleeding (tourniquet, hemostatic bandage). Restoration of airway patency. Detection of chest injuries. Prevention of hypothermia. The procedure for moving to the shelter sector.

**Topic 3. Emergency care for acute respiratory failure in children.**

Acute respiratory failure in children, classification. Main clinical symptoms and syndromes of acute stenotic laryngotracheitis, acute epiglottitis, extraneous body, severe attack of bronchial asthma, bronchiolitis, pneumonia. Comparison of the clinical features and clinical course. The data of laboratory and instrumental investigations to identify diseases that lead to acute respiratory failure. Diagnosis and differential diagnosis. Emergency treatment. Patient management tactics. Algorithm of actions in case of tension pneumothorax.

**Topic 4. Emergency care for hyperthermia and seizures in children.**

Causes and mechanisms of hyperthermia and convulsions in children. Main clinical symptoms of convulsions in children. Types of fever. Diagnostic criteria. Classification. Clinical types of convulsions. Data of laboratory and instrumental investigations. Therapeutic tactics for seizures in children. Emergency care.

**Topic 5. Diagnosis and emergency care of life-threatening heart rhythm disorders in children. Emergency care for children with signs of acute heart failure.**

Sinus tachycardia. Paroxysmal supraventricular tachycardia. Atrial fibrillation and flutter, ectopic atrial tachycardia, AV nodal tachycardia, ventricular tachyarrhythmias, Wolff-Parkinson-White syndrome. Long Q-T interval syndrome, complete atrioventricular block, cardiac arrhythmias due to digoxin toxicity. Classification of rhythm and conduction disorders in children. Clinical manifestations and ECG criteria. Additional methods of examination. Algorithm of emergency care and further treatment of children with rhythm and conduction disorders. Characteristics of the main antiarrhythmic drugs used in pediatric practice. Risk of sudden cardiac death in children with supraventricular tachycardia The Stokes-Adams attack. Clinical manifestations of heart failure in children of different ages. Management tactics for myocarditis, endocarditis, pericarditis, cardiomyopathies, congenital and acquired heart defects in children. Emergency treatment in acute heart failure.

**Topic 6. Basic principles of management children with different types of shock.**

Definition and distinction of types of shock (cardiogenic, hypovolemic, infectious-toxic (septic), anaphylactic, neurogenic shock and shock due to acute endocrine insufficiency). The main clinical symptoms. Diagnostic algorithm: laboratory, instrumental methods of examination, consultations of specialists. Differential diagnosis. Treatment tactics and emergency care.

**Topic 7. Coma and impaired consciousness in the pediatric patient. Principles of diagnosis and emergency care**

Disorders of consciousness: principal pathogenetic mechanisms. Diseases that can lead to the development of coma in children. Diagnostic algorithm for disorders of consciousness. Examination of an unconscious patient. Determination of severity of neurological disorders and monitoring. Peculiarities of the clinical course of post-hypoxic coma, hyperosmolar coma, diabetic coma, hypoglycemic coma, hepatic coma, uremic coma, coma due to infection and inflammatory lesions of the central nervous system. Differential diagnosis. Emergency care of comatose patient. Basic principles of treatment.

**Topic 8. Poisoning in children. Principles of diagnosis and emergency care.** Poisoning with carbon monoxide, medicines, food, household chemicals - clinical course and algorithm of emergency care.

**3. Structure of the educational discipline**

<b>№</b>	<b>Topic</b>	<b>Lectures</b>	<b>Workshops</b>	<b>IWS</b>
1	Cardiopulmonary resuscitation for children	-	7	3
2	Peculiarities of providing medical aid to children in the conditions of military operations	-	-	3
3	Emergency care for acute respiratory failure in children	-	7	3
4	Emergency care for hyperthermia and seizures in children	-	-	3
5	Diagnosis and emergency care of life-threatening heart rhythm disorders in children. Emergency care for children with signs of acute heart failure	-	7	3
6	Basic principles of management children with different types of shock	-	7	3
7	Coma and impaired consciousness in the pediatric patient. Principles of diagnosis and emergency care	-	7	3
8	Poisoning in children. Principles of diagnosis and emergency care	-	-	4
	Final control	Credit		
	<b>Total credits in ECTS – 2.0; hours – 60;</b>		<b>35</b>	<b>25</b>

IWS - independent work of students,

~Included into last class topic

**4. Thematic plan of lectures.** The curriculum is not provided for (order number № 1053-3 on March 24, 2023).

**5. Thematic plan of workshops**

<b>№</b>	<b>Topic</b>	<b>Hours</b>
1	Cardiopulmonary resuscitation for children	7
2	Emergency care for acute respiratory failure in children	7
3	Diagnosis and emergency care of life-threatening heart rhythm disorders in children. Emergency care for children with signs of acute heart failure	7
4	Basic principles of management children with different types of shock	7
5	Coma and impaired consciousness in the pediatric patient. Principles of diagnosis and emergency care	7
	<b>Total hours</b>	<b>35</b>

## 6. Thematic plan of independent work of students

№	Topic	Hours	Type of control
1	Preparation for practical classes	15	On-going control during workshops
2	Peculiarities of providing medical aid to children in the conditions of military operations	3	
3	Emergency care for hyperthermia and seizures in children	3	
4	Poisoning in children. Principles of diagnosis and emergency care.	4	
<b>Total hours</b>		<b>25</b>	

**7. Individual work.** The curriculum is not provided for (order number № 1053-3 on March 24, 2023).

### 8. Teaching methods.

Practical classes on the methodology of organization are clinical, aimed at repetition of the studied theoretical material, improvement of practical skills and abilities from previous years of study, as well as the ability to analyze and apply the acquired knowledge to solve complex practical tasks. Types of learning activities of the student, according to the curriculum, are practical classes, independent work of students. Practical classes are take place in the simulation training center.

Each lesson begins with a test control to assess the initial level of knowledge and determine the students' preparation to the lesson. The teacher determines the purpose of the lesson and creates positive cognitive motivation; answers students' questions that arose during individual work on the topic of the lesson.

The main stage of the lesson consists in the practical work of the student with a pediatric manikin, a simulator manikin or a virtual patient. Students examine the "patient", collect anamnesis, examine, perform basic diagnostic manipulations, etc. Control of the main stage of the lesson is carried out by assessing the student's performance of practical skills, the ability to solve atypical situational tasks. During the debriefing, the teacher discusses with the students the implementation of medical and diagnostic trials, gives an explanation, emphasizes the specific features of the course of the disease in a particular child and is aimed at determining of a more rational approach to emergency care, etc.

At the final stage of the lesson, in order to assess the student's mastery of the topic, students are asked to answer to an individual situational task (clinical case). The teacher sums up the results of the lesson, gives students the task for independent work, points to key questions of the next topic and offers a list of recommended literature for self-study.

- During the mastering of discipline the following educational technologies are used:
- Verbal methods: conversation, discussion, explanation.
- Visual methods: demonstration, illustration, observation, imitation
- Practical methods: practicing practical skills on the simulation manikins, situational tasks, independent work.
- Interactive methods: discussion, small groups work, brainstorming, case study method, business game, method of training technologies

### 9. Methods of control

The methods, forms of control and the evaluation system are carried out in accordance with the requirements of the discipline program and instructions on the assessment system of students at the European Credit and Transfer system of the educational process which was approved by Ministry of Health of Ukraine (Ministry of Health of Ukraine letter № 08.01-47/10395 from 15.04.2014).

The assimilation of the topic is controlled in practical classes according to specific objectives: the ability to determine etiological and pathogenetic factors of emergency conditions in children, to classify and analyze a typical clinical presentation, to draw up an examination plan and analyze the data of laboratory and instrumental examinations, to establish a diagnosis and identify the main emergency conditions, to demonstrate mastery of the principles of providing emergency care, to assess the



prognosis of the disease, to demonstrate mastery of the moral and deontological principles of a medical specialist and the principles of professional subordination in pediatrics.

In assessing students' knowledge preference is given to standardized methods of control: testing (written or computer-based), structured written work (solving complex situational problems), standardized by the method of performance control of practical skills, work with standard medical documentation (writing of an appointments list).

The means of control are multiple choice questions, situational clinical cases and interpretation of the data of the laboratory and instrumental examination, control of the implementation of practical skills.

- Types of control: current and final
- Form of final control: credit.

Current control is carried out at each practical lesson and aims to check the assimilation of students of the educational material.

Final control is carried out after completing the study of the block of relevant topics in the last class in the form of credit.

Control of execution of independent work, which is provided for in the topic along with classroom work, is carried out during the current control of the topic at the corresponding classroom session.

Control of assimilation of practical skills on the relevant topic of the workshop is carried out during the current control.

### **Evaluation Criteria**

**Excellent ("5")** – the student correctly responds to 90-100% of the test of A format (from the database "Step-2"). Correctly, clearly, logically corresponds to all standardized questions of the current topic. Closely binds theory with practice and demonstrates the correct implementation of practical skills. Analyzes the results of the lab/instrumental investigations without problems, and has proper methods of examination of the patient. Makes differential diagnosis. Solves clinical case with higher level of difficulty and knows how to compile the material.

**Good ("4")** – the student responds correctly to 70-89% of the test of A format (from the database "Step- 2"). Correctly and essentially responds to all standardized questions of the current topic, but the answers are not exhaustive, answers additional questions without significant errors. Demonstrates knowledge of practical skills. Correctly uses theoretical knowledge to solve practical problems (with minor inaccuracies analyzes the results of additional examination of a patient; correctly determines the clinical diagnosis in the typical course of the disease; correctly, but not completely performs differential diagnosis; prescribes the correct treatment, but may make some minor mistakes, which he corrects on his own; demonstrates good knowledge and skills in in providing emergency care. Able to solve easy and medium complexity clinical cases. Has the necessary practical knowledge and techniques and their uses, more than the required minimum.

**Satisfactory ("3")** - the student responds correctly to 50-69% of the test of A format (from the database "Step-2"). Incomplete, with the help of additional questions answers all the standardized questions on the current topic. Cannot independently make a clear logical answer. While the student is answering and demonstrating practical knowledge he makes mistakes. Can solve only the easiest situational tasks. Has knowledge of only the minimum methods of investigations.

**Unsatisfactory ("2")** - the student responds correctly to 50% of the test of A format.

Does not know the material of the current topic, cannot build a logical response, does not respond to additional questions, and does not understand the content of the topic. During the response and demonstration of practical skills makes significant, gross mistakes, able to perform basic practical tasks only after appropriate comments and assistance from the teacher; knows only the obligatory minimum of research methods.

Students who have missed workshops are allowed with the *Dean's permission* to work academic debts up to the specified term within the semester. All missed topics of practical classes should be re-worked. Workshops with unsatisfactory grades must be retaken in order to score at least the minimum pass points to get permission to take the differentiated credit. Students can retake unsatisfactory grades to the

teacher who conducts the practical classes with the group during his/her consultations (individual work with students).

The grade for the discipline **Practice in simulation medicine "Pediatrics"**, which ends with credit, is determined as the sum of the points for the current educational activities (at least 120 points).

#### **10. The current control**

The current control is carried out on each practical class in accordance with specific objectives of each topic. Traditional grades are exhibited in the academic journal of student's achievement during practical classes. The practical classes in studying of the discipline Practice in simulation medicine "Pediatrics" are structured and provide a comprehensive assessment of all types of theoretical and practical training of students during practical classes.

##### *Methodology of current control.*

Current control of *theoretical knowledge*:

- Written or computer-based testing;
- Individual questioning, interview
- Solving of complex situational clinical cases on the topic.

Methods of current control of *practical skills and abilities*:

- Control of the execution of standardized by the methodology of practical skills, provided by the plan of practical training of the student in the discipline Practice in simulation medicine "Pediatrics";
- Analysis of laboratory and instrumental examinations;
- Performing medical manipulations in pediatrics;
- Providing care for children's emergencies.

#### **10.1 Evaluation of current educational activities.**

During the assessment of each subject's absorption for current educational activities, the student is exhibiting estimates for **4-th grade** (traditional) scale taking into account the approved criteria assessment for appropriate discipline. All kinds of works, based on the curriculum, are taken into account. The student should get an estimate from each topic and then it will be converted into points according to 200-point scale.

- The student responds to 10 MCQ's (tests according to the topic, format A).
- Answers standardized questions that requirement basic knowledge to understand the current topic.
- Demonstrates the knowledge and ability of practical skills in accordance with the topic of practical lesson.
- Solves situational clinical cases on the topic.

#### **11. Form of the final control of learning performance**

Final control form – **credit**

The control methods are standardized and include control of theoretical and practical training. Students are admitted to final control:

- who have performed all types of work, tasks provided for in the curriculum in accordance with the discipline;
- attended all classes provided by the curriculum;
- worked out missed classes;
- scored the number of points for the current success, not less than the minimum.

Students who have missed workshops are allowed with the *Dean's permission* to work academic debts up to the specified term within the semester.

The credit is granted after the end of the discipline (during the last lesson).

The credit is granted by teachers who carried out practical and other classes in the group.

“Students are given a Credit, if their average score of marks is at least "3" (120 points for 200-point scale).

The record Credit is made in the student's academic book as well as credit and examination record list.

## 12. Chart of calculation and distribution of points that students receive:

For disciplines the form of final control of which is "credit":

**The maximum number of points** that the student can recruit for the current educational activity when studying the discipline is 200 points.

**The minimum number of points to** be dialed by the student for the current educational activities for admission is 120 points.

**The calculation of points** is carried out based on the student's estimates for the 4-th point (national) scale during the study of the discipline, by calculating the arithmetic mean (AM) rounded up to two decimal places. Resulting value is converted into points according to multipoint scale as follows:

$$x = \frac{CA \times 200}{5}$$

For convenience, a conversion table for 200-point scale is given below.

### Recalculation of the average assessment for the current activity in a multi-level scale for the disciplines completed

4- бальна шкала	200- бальна шкала
5	200
4.97	199
4.95	198
4.92	197
4.9	196
4.87	195
4.85	194
4.82	193
4.8	192
4.77	191
4.75	190
4.72	189
4.7	188
4.67	187
4.65	186
4.62	185
4.6	184
4.57	183
4.52	181
4.5	180
4.47	179

4- бальна шкала	200- бальна шкала
4.45	178
4.42	177
4.4	176
4.37	175
4.35	174
4.32	173
4.3	172
4.27	171
4.24	170
4.22	169
4.19	168
4.17	167
4.14	166
4.12	165
4.09	164
4.07	163
4.04	162
4.02	161
3.99	160
3.97	159
3.94	158

4- бальна шкала	200- бальна шкала
3.92	157
3.89	156
3.87	155
3.84	154
3.82	153
3.79	152
3.77	151
3.74	150
3.72	149
3.7	148
3.67	147
3.65	146
3.62	145
3.57	143
3.55	142
3.52	141
3.5	140
3.47	139
3.45	138
3.42	137
3.4	136

4- бальна шкала	200- бальна шкала
3.37	135
3.35	134
3.32	133
3.3	132
3.27	131
3.25	130
3.22	129
3.2	128
3.17	127
3.15	126
3.12	125
3.1	124
3.07	123
3.02	121
3	120
Менше 3	Недос- татньо

Control of execution of independent work, which is provided for in the topic along with classroom work, is carried out during the current control of the topic at the corresponding classroom session. Mastering of topics that are assigned only to independent work is controlled during by the final control.

Points of discipline are independently converted both in the ECTS scale and in 4-grade scale. The ECTS scale scores in the 4-grade scale are not converted and vice versa. Scores of students who study according to one specialty, taking into account the number of points earned from discipline are ranked on the ECTS scale as follows:

Evaluation of ESTS	Statistical index
A	Best 10% of students
B	Next 25% of students
C	Next 30% of students

D	Next 25% of students
E	Next 10% of students

Ranking by assigning ratings of "A", "B", "C", "D", "E" is conducted for students of this course, who learn same specialty and successfully completed the study of discipline. Students who have received an assessment of FX, F ("2") are not written to the list of ranked students. Students with a rating FX after recompiling automatically receive a score of "E".

Points of discipline for students who have successfully completed the program are converted into a traditional 4-th grade scale according to absolute criteria, which are listed below in the table:

Scores on discipline	Score according to the four-point scale
170 - 200	5
140 -169	4
139 -120	3
Low than 120	2

Evaluation of ECTS is not converted to a traditional scale because the ECTS scale and the 4-th grade scale are independent.

Objectivity of evaluation of student's educational activity is checked by statistical methods (coefficient of correlation between ECTS and estimation according to national scale).

### 13. Methodological support

- Working program of the discipline
- Plans of practical classes and independent work of students
- Guidelines for practical training for students
- Instructions for teachers training
- Methodical materials, which ensure independent work of student
- Multiple choice questions and situational cases
- The list of questions submitted to the final control
- Practice diary
- Methodological support for final control
- The list of standardized methods for performing practical skills

### 14. Reference

#### Main sources

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#### Additional sources

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2. Fleisher & Ludwig's Textbook of Pediatric Emergency Medicine / [edited by] K. N. Shaw, R. G. Bachur. 8 th ed. Philadelphia: Wolters Kluwer, 2021.
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4. Marcadante K., Kliegman R.M., Behrman R.E., Jenson H.B. Nelson Essentials of Pediatrics, 8 ed., Saunders, 2018.- 832 p.
5. Pediatric Secrets / 6th ed. by Polin R.A., Ditmar M.F. / Mosby, 2015.- 752p.
6. Frank G., Zaoutis L., Catalozzi M., Zaoutis L.B., Shah S.S. The Philadelphia guide: inpatient pediatrics / LWW, 2019.- 608 p.
7. Zideman, D. A., Singletary, E. M., De Buck, E.,et al. (2015). Part 9: First aid: 2015 International Consensus on First Aid Science with Treatment Recommendations. Resuscitation, 95 , e225. [http://www.cprguidelines.eu/assets/downloads/costr/S0300-9572\(15\)00368-8\\_main.pdf](http://www.cprguidelines.eu/assets/downloads/costr/S0300-9572(15)00368-8_main.pdf) Accessed 19/11/2015.

## **15. Information resources**

[https://emedicine.medscape.com/pediatrics\\_general](https://emedicine.medscape.com/pediatrics_general)

<https://pubmed.ncbi.nlm.nih.gov/>

<https://www.who.int/>

<https://www.aap.org/en-us/Pages/Default.aspx>

<http://www.generalpediatrics.com/>