

NATIONAL BOGOMOLET'S MEDICAL UNIVERSITY
Pediatric department №2



WORKING PROGRAM OF SELECTIVE DISCIPLINE

“EMERGENCY CONDITIONS IN PEDIATRICS”

Educational level: second (Master's degree)

Field of knowledge: 22 («Health care»)

Specialty: 222 («Medicine»)

Educational program of the second master's level of the Higher education

2024/2025

Working program of the selective discipline “Emergency conditions in pediatrics” according to the educational level II (Mastery), specialty 222 (“Medicine”) for students of 6th course studying on medical faculties.

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The working program was approved at the meeting of the Pediatrics Department № 2

Protocol from 26th of August, 2024 № 1

Head of the pediatrics department № 2

Doctor of Medicine, professor

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(signature)

Discussed and approved on Cyclic methodical meeting on pediatric disciplines of the Bogomolets National Medical University

Protocol № 1 from August 29, 2024

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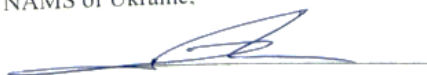
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Protocol №1 from August 26, 2024

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1. Description of elective discipline “EMERGENCY CONDITIONS IN PEDIATRICS”

Name of indicators	Field of knowledge, direction of training, educational and qualification level	Characteristics of elective discipline
		full-time education
The number of credits is 3	Field of knowledge 22. Health care (code and name)	Normative
	Training direction 222. Medicine (code and name)	
The total number of hours is 90	Specialty: 222 "Medicine"	Year of study 6
		Semester XI - XII
		Lectures 0 h.
Weekly hours: classrooms - 15 individual student work - 30	Education level: IV	Practical 30 h.
		Laboratory 0 h.
		Individual work 60 h.

		Individual tasks 0 h.
		Type of control: Differential calculation

Note.

The ratio between numbers of hours of classroom classes to individual work is (percentage): 1:2

The Work Program of the elective discipline "Emergency conditions in pediatrics" is compiled in accordance with the standard of the specialty 222 Medicine, field of knowledge 22 Health care for the second (master's) level of higher education, approved by the Order of the Ministry of Education and Culture of Ukraine №1197 from 08.11.2021 and in accordance with the Order of the Bogomolets NMU № 212 from May 13, 2022 "About the study by students of the university optional components from the EPP.

The subject of study of the selective discipline "Emergency conditions in pediatrics" is the most common critical and emergency conditions in children of various ages.

Interdisciplinary connections: according to the curriculum, the study of the academic discipline "Emergency conditions in pediatrics" is provide in the 11th - 12th semesters. Prior to this, the student acquired relevant knowledge of the main basic disciplines: medical biology, human anatomy, physiology, histology, cytology and embryology, medical and bioorganic chemistry, microbiology and virology (with the basics of immunology), path morphology, pathophysiology, pharmacology, and clinical disciplines: propaedeutic pediatrics, pediatrics, internal medicine, pediatric surgery, obstetrics and gynecology, with which the program of the educational discipline "Emergency conditions in pediatrics " is integrated. In turn, the optional discipline "Emergency conditions in pediatrics" forms the basis for the student's continued study of the discipline " Pediatrics with pediatric infectious diseases including medical practice (professional training)", which involves integration with these disciplines and the formation of skills for further training in internship and residency, application in professional activity.

The educational process should be organize according to the requirements of the European credit and transfer system.

2. Purpose and tasks of elective discipline

"Emergency conditions in pediatrics"

1.1. The purpose of teaching the optional discipline "Emergency conditions in pediatrics" is for students to acquire knowledge and master professional competences in providing emergency care to children.

1.2. The main tasks of studying the elective discipline "Emergencies in Pediatrics" are:

- Acquisition of basic theoretical knowledge on etiology, pathogenesis, clinical manifestations, data of laboratory-instrumental methods of research, treatment, prognosis of the most common emergency conditions in children.

- Mastering basic practical skills and abilities in diagnosis, differential diagnosis, treatment and emergency care for the most common emergency conditions in children.
- Formation of students' moral-ethical and deontological qualities during professional communication with patients, parents, colleagues.

1.3. Learning outcomes.

According to the requirements of the educational and professional program, students must

– **know:** The subject of pediatrics (prevention, diagnosis and treatment of diseases in children of various ages) and to understand professional activity (GC4), in particular:

- modern standards of cardiopulmonary resuscitation in children;
- algorithm of actions in case of seizures in children, epistaxis;
- algorithm of actions in case of respiratory failure in children;
- algorithm in case of acute hemodynamic disturbances (shock);
- emergency assistance in case of allergic reactions, anaphylactic shock;
- diagnosis of acute exogenous poisoning, action algorithm;
- emergency aid in case of burns, frostbite, drowning;
- tactics of first medical aid at the pre-hospital stage in case of emergency conditions,
- errors in the provision of emergency care.

- **be able:**

- Collect data on the patient's complaints, medical history, life history according to the standard patient survey scheme, according to the established algorithms, conduct and evaluate the results of the physical examination of children of various ages (PLO1)

- Evaluate information about the diagnosis, applying a standard procedure based on the results of laboratory and instrumental studies of children of different ages. (PLOS2)

- Identify the leading clinical symptom or syndrome. Establish the most likely or syndromic diagnosis of the disease. Assign a laboratory and/or instrumental examination of a sick child. Carry out differential diagnosis of diseases in children of different ages. Establish a preliminary and clinical diagnosis. (PLOS3)

- Determine the tactics of providing emergency medical care based on the diagnosis of an emergency in children of different ages. (PLO7)

- Provide emergency medical care based on the diagnosis of an emergency in children of various ages. (PLO8)

- Perform medical manipulations on children of different ages. (PLO11), namely:

- identify a child in an emergency condition;
- assess the patient's condition;
- determine basic vital signs (heart rate, breathing rate, SpO₂, etc.);
- determine heart rhythms (threatening conditions, circulatory arrest);

- perform indirect heart massage, artificial lung ventilation without special equipment; install an airway and a laryngeal mask;
- perform indirect heart massage, artificial lung ventilation using a mask and an Ambu bag;
- provide oxygen therapy;
- to carry out urgent volemic support in case of shocks in children;
- interpret the data of laboratory and instrumental examinations;
- to work in a team when providing emergency aid in case of threatening conditions in children.

Be able to:

- Abstract thinking, analysis, synthesis (GC1)
- Learn and master modern knowledge (GC2)
- Apply knowledge in practical situations (GC3)
- Adapt and act in a new situation (GC5)
- Make informed decisions (GC6)
- Collect medical information about the patient and analyze clinical data (PC1).
- Determine the necessary list of laboratory and instrumental studies and evaluate their results in children of different ages (PC2)
- Establish a preliminary and clinical diagnosis of the disease in children of various ages (PC3)
- Diagnose emergency conditions in children of various ages (PC7)
- Determine the tactics of providing emergency medical care to children of different ages (PC8)
- Perform medical manipulations (PC10).
- Maintain medical documentation, including electronic forms (PC16).
- To observe ethical principles when working with patients (PC24).

demonstrate:

- Ability to apply knowledge in practical situations (GC3).
- Ability to work in a team (GC7).
- Ability to interpersonal interaction (GC8).

have skills to:

- Use of information and communication technologies (GC10)
- Collect medical information about the patient and analyze clinical data (PC1).
- Providing emergency medical care (PC8)
- Performing medical manipulations (PC10)

(Note: GC – general competences; PC – professional competences of the specialty; PLO– program learning outcomes).

90 hours are allocated to the study of the selective discipline "Emergency conditions in pediatrics" - 3 ECTS credits, 30 hours of which are classroom training in the form of practical classes and 60 hours - individual work of students.

3. Elective discipline program

"Emergency conditions in pediatrics"

Topic 1. Cardiopulmonary resuscitation in children of different ages.

Peculiarities of newborn resuscitation, children up to one year old, children, older than one year and teenagers. Indirect heart massage, artificial lung ventilation without special equipment and with the help of a mask and an Ambu bag.

Topic 2. Emergency conditions in respiratory diseases. Methods of respiratory support in children.

Causes, main diagnostic criteria and emergency treatment for acute respiratory failure in children (obstruction of the upper and lower respiratory tract, pneumonia, bronchial asthma). Pulse oximetry. Oxygen therapy technique. Inhalation technique.

Topic 3. Emergency conditions in pediatric cardiology.

Definition, causes, main criteria for diagnosis and emergency care in acute heart failure. Determination of basic vital signs (heart rate, breathing rate, SpO₂, etc.), heart rhythms (threatening conditions, circulatory arrest). Hypertensive crisis, diagnostic criteria, emergency care. Fainting, collapse.

Topic 4. Emergency conditions in childhood allergology.

Anaphylactic shock, acute urticaria and angioedema in children: causes, clinical manifestations, emergency care.

Topic 5. Shock in childhood. Acute bleeding in children.

Types of shock. Hemorrhagic shock: causes, diagnosis, emergency care. Acute bleeding in children: classification, main causes, clinical signs of various types of bleeding. Tactics of first aid in case of emergency conditions related to bleeding and blood loss.

Topic 6. Coma in children.

Definition of coma, types, classification. Coma with metabolic encephalopathy and infectious diseases in children. Hyper- and hypoglycemic coma: clinical manifestations, differential diagnosis, emergency care.

Topic 7. Urgent conditions under the influence of external factors in children.

External factors, classification. The effect of combat chemical poisons, the effect of radiation on the child's body. Clinical signs, management tactics, emergency care. Burns, frostbite, drowning; electrocution; insect bites, snakes; acute exogenous poisoning: main clinical signs, action algorithms, emergency care at the pre-hospital stage.

Topic 8. Vomiting and diarrhea in children. Emergency aid for dehydration.

Emergency aid for dehydration. Acute non-infectious and infectious diseases as a cause of vomiting and diarrhea in children. Therapy and emergency care. Diagnosis and therapy of acute disorders of water and electrolyte metabolism. A differentiated approach to rehydration therapy. Principles of calculating the volume and composition of infusion therapy for dehydration in children.

Topic 9. Fever and convulsive syndromes in children.

Concept and causes of fever in children. Emergency care at the pre-hospital and hospital stages. Convulsive syndrome: causes of occurrence in children of different ages, algorithm of actions for emergency care in case of convulsions of various etiologies.

Topic 10. Palliative care in pediatrics. The problem of pain.

The concept of palliative medicine and its components. Organization and features of providing palliative care to children. Classification and clinical picture of pain in children. Pain assessment scales for children of different ages. Non-pharmacological and pharmacological methods of pain treatment in children. Peculiarities of the use of narcotic analgesics in palliative pediatric practice.

4. The structure of the academic discipline "Emergency conditions in pediatrics"

Name of topics	The number of hours				
	Total	Lectures	Practical classes	IWS	
				Ind.	Self-teach.
1. Cardiopulmonary resuscitation in children of different ages.	9,0		3		6
2. Emergency conditions in respiratory diseases. Methods of respiratory support in children.	9,0		3		6
3. Emergency conditions in pediatric cardiology.	9,0		3		6
4. Emergency conditions in pediatric allergology.	9,0		3		6
5. Shock in childhood. Acute bleeding in children.	9,0		3		6
6. Coma in children.	9,0		3		6
7. Emergency conditions in children under the influence of external factors.	9,0		3		6
8. Vomiting and diarrhea in children. Emergency aid for dehydration.	9,0		3		6
9. Hyperthermic and convulsive syndromes in children.	9,0		3		6
10. Palliative medicine in pediatrics. The problem of pain.	9,0		3		6
TOTAL FROM THE DISCIPLINE	90	-	30	-	60

5. THEMATIC PLAN OF PRACTICAL CLASSES

№	Name of topics	The number of hours
1.	Cardiopulmonary resuscitation in children of different ages.	3
2.	Emergency conditions in respiratory diseases. Methods of respiratory support in children.	3
3.	Emergency conditions in pediatric cardiology.	3
4.	Emergency conditions in pediatric allergology.	3
5.	Shock in childhood. Acute bleeding in children.	3
6.	Coma in children.	3
7.	Emergency conditions in children under the influence of external factors.	3
8.	Vomiting and diarrhea in children. Emergency aid for dehydration.	3
9.	Hyperthermic and convulsive syndromes in children.	3
10.	Palliative medicine in pediatrics. The problem of pain.	3
11.	TOTAL FROM THE DISCIPLINE	30

6. Individual work

№	Зміст роботи	The number of hours
1.	Preparation for practical classes	30
2.	Simulation training	30
TOTAL FROM THE DISCIPLINE		60

7. Teaching methods

During studying the elective discipline "Emergency conditions in pediatrics", may be recommend various teaching methods for higher education, namely:

- finding sources of knowledge: verbal (explanation, lecture, conversation, discussion); visual (demonstration); practical (practical work, acquisition of practical skills);
- according to the logic of the educational process: analytical (determining the general condition of the patient and the main signs of the disease), synthetic (clarifying the relationship between the main signs of diseases, determining the optimal measures for diagnosis, treatment and prevention), their combination - analytical-synthetic, as well as inductive method, deductive, their combination - traductive method;

- according to the level of independent mental activity: problematic, partially exploratory, research.

By combining and summarizing the above teaching methods, when studying the discipline, it is advisable to implement such methods of organizing educational classes as:

- method of clinical cases,
- problem-oriented method,
- the method of individual educational and research and practical tasks,
- method of competitive groups,
- method of training technologies,
- the "business game" method,
- the "brainstorming" method,
- the method of conducting conferences using interactive, interdisciplinary and information and computer technologies.

Types of student's educational activities are practical classes and independent work of students.

Thematic plans of practical classes ensure the implementation of all topics included in the discipline in the educational process.

Practical classes

According to the method of organization, they are clinical, aimed at controlling the assimilation of theoretical material and the formation of practical skills and abilities, as well as the ability to analyze and apply the acquired knowledge to solve practical tasks. They provide for:

- examination of a sick child;
- detection of signs of an emergency conditions of a child;
- determination of basic vital signs;
- interpretation of laboratory and instrumental research data;
- provision of emergency medical assistance;
- determination of further therapeutic tactics;
- solving situational and problematic problems;
- practicing practical skills on phantoms and dummies;
- maintaining medical records.

The duration of one practical lesson is three academic hours.

Individual work of student

It is carry out by the student individually outside classroom classes and includes preparation for practical classes, searching and studying additional literature, simulation training in the training center or in the office of preclinical practice at the department. The teachers of the department should provide the organization of independent work in departments of a pediatric hospital, a training center or an office of preclinical practice at the department.

8. Methods of control

The methods and forms of control and evaluation of students' success in the discipline are carry out in accordance with the next requirements: the program and the Instructions for evaluating the educational activity of students

in the conditions of the implementation of the European credit transfer system for the organization of the educational process, approved by the Ministry of Health of Ukraine (letter of the Ministry of Health of Ukraine №08.01-47/10395 from 15.04.2014); as well as the Regulation on the procedure for assessing students' knowledge during the current and final control of the discipline at Bogomolets NMU (Addendum to Order № 782 from September 30, 2019).

When assessing students' knowledge, preference is given to standardized control methods: testing, structured written works, work with standard medical documentation, standardized control of practical skills.

Forms of control

Current control is carry out at each practical classes in accordance with the specific objectives of the topic. In all practical classes, objective control of theoretical training and acquisition of practical skills (standardized according to the implementation method) is used.

Methods of control

Theoretical knowledge:

- written and computer testing,
- individual survey, interview,
- content-structured written works.

Practical skills and abilities:

- control of implementation of standardized practical skills provided by the student's practical training plan in the discipline:
- analysis of laboratory and instrumental studies;
- performing medical manipulations on dummies;
- providing assistance in emergencies in children using a child dummy.

The form of final control- is a differential settlement.

The teacher of the academic group presents it at the last classroom session to the student based on the results of his studies as the sum of points on a 200-point scale with the corresponding conversion on the traditional scale.

Distribution of points received by students

The current evaluation of students on the relevant topics is carry out at each practical session according to the specific goals of each topic according to the traditional 4-point system (excellent, good, satisfactory, and unsatisfactory) with subsequent conversion into a multi-point scale. The weight of each topic in points within one module is the same and is determineby the number of topics in the module.

REGULATIONS FOR ASSESSING CURRENT STUDENT PERFORMANCE

Current control is carry out at each practical lesson in accordance with specific goals from each topic, involves 100% survey of students of the group, and evaluation of all component elements of the lesson - test control, oral survey, control of practical skills, solving situational tasks. Written performance

of tasks in the process of preparation for practical classes is also take into account.

For each stage of the classes, the student receives a grade of "5-4-3-2", from which the teacher determines the average arithmetic grade, which is converted into points as follows: "5" - 5 points, "4" - 4 points, "3" - 3 points, "2" - 0 points. If, during the determination of points for the lesson, the average arithmetical score is "2", then this corresponds to zero number of points.

The grade for the lesson is the arithmetic average of the grades of each component, which is round to the nearest whole number.

The results of monitoring the level of knowledge of each component of the classes.

1).The student's readiness for class (initial stage) is check based on answers to 12 **test tasks**.

For a correct answer to 11 - 12 tests, the student receives a traditional grade of "5"; for 10 correct answers - score "4", for 8-9 correct answers - score "3", for 0-7 correct answers - score "2".

2). The student's **oral survey** is evaluate as follows:

The grade "5" is assigned when the student gives exhaustively accurate and clear answers without any leading questions; teaches the material without errors and inaccuracies;

The grade "4" is given on the condition that the student knows the content of the lesson and understands it well, answers the questions correctly, consistently and systematically, but they are not exhaustive, although the student answers additional questions without mistakes;

The grade "3" is given to the student based on his knowledge of the main content of the lesson and at a satisfactory level of understanding, he gives answers with the help of leading questions, but he answers directly to directly asked questions correctly.

A grade of "2" gives in cases where the student's knowledge does not meet the requirements of the grade of "3 points".

3).Individual work on phantoms (practice of practical skills)

The grade "5" is awarded in the case when the student demonstrates fluency in practical skills, correctly performs manipulations, consistently and correctly demonstrates the method of providing emergency care to a newborn child;

The grade "4" is awarded on the condition that the student has good practical skills; performs manipulations with certain inaccuracies, or may make certain insignificant errors in the provision of emergency care, which he corrects on his own;

The grade "3" is given to a student when he is able to perform medical manipulations on a dummy only after the appropriate remarks and help of the teacher; makes some significant mistakes when providing emergency aid, but is able to perform it after the teacher's remarks;

The grade "2" is awarded in cases where the student is unable to perform medical manipulations and/or has obvious difficulties in providing emergency aid even after appropriate comments and corrections by the teacher.

4). For assessment the student's mastery of the topic, he is asked to answer the **questions of the situational task**.

The grade "5" is given in the case when the student correctly and completely solves a complex situational problem, gives comprehensive answers to all the questions asked, the ability to analyze and apply the results obtained during the examination of the patient to solve practical tasks, demonstrates excellent knowledge and skills in providing emergency care.

The grade "4" is given on the condition that the student correctly solves a complex situational problem, but may make some minor mistakes, which he corrects by himself, with some inaccuracies, analyzes and applies the obtained results to solve practical problems; generally gives correct answers, but may make some minor mistakes, which he corrects on his own; demonstrates good knowledge and skills in providing emergency care.

The grade "3" is assign to a student who solves a situational problem with individual errors, feeling difficulties in simple cases; is not able to independently systematically explain the answer, with some errors analyzes and applies the obtained results to solve practical problems; demonstrates satisfactory knowledge and skills in emergency care.

The grade "2" is assign if the student has clear difficulties in solving situational tasks, gives incorrect answers to questions, is unable to make decisions and act in typical clinical situations.

Evaluation of individual work of students in preparation for classroom practical classes is carry out during current control of the topic in the corresponding classroom class.

DISTRIBUTION OF POINTS,

which are assigned to students during the evaluation of current educational activities.

№	Name of topics	The number of points corresponding to the traditional assessment			
		«5»	«4»	«3»	«2»
1.	Cardiopulmonary resuscitation in children of different ages.	20	16	12	0
2.	Emergency conditions in respiratory diseases. Methods of respiratory support in children.	20	16	12	0
3.	Emergency conditions in pediatric cardiology.	20	16	12	0
4.	Emergency conditions in pediatric allergology.	20	16	12	0

№	Name of topics	The number of points corresponding to the traditional assessment			
		«5»	«4»	«3»	«2»
5.	Shock in childhood. Acute bleeding in children.	20	16	12	0
6.	Coma in children.	20	16	12	0
7.	Emergency conditions in children under the influence of external factors.	20	16	12	0
8.	Vomiting and diarrhea in children. Emergency aid for dehydration.	20	16	12	0
9.	Hyperthermic and convulsive syndromes in children.	20	16	12	0
10.	Palliative medicine in pediatrics. The problem of pain.	20	16	12	0
Total points for discipline The maximum score is 200 points					
The minimum is 111 points					

Conversion of the number of points from the discipline into grades according to the ECTS and four-point (traditional) scales.

Correspondence of assessment scales of learning material quality

Score in points	Evaluation on a national scale	Evaluation on the ECTS scale	Explanation
170-200	Perfectly	A	Perfectly (excellent performance with only minor errors)
155-169	Good	B	Very good (above average with a few errors)
140-154		C	Good (generally correct execution with a certain number of significant errors)
125-139	Satisfactory	D	Satisfactory (not bad, but with a significant number of shortcomings)
111-124		E	Sufficient (performance meets minimum criteria)
60-110	Unsatisfactory	FX	Unsatisfactory (with the possibility of reassembly)
1-59		F	Unsatisfactory (with mandatory re-study of the discipline)

9. Methodological support

Methodical provision of practical classes:

1. Methodical recommendations for practical classes for students.

2. Variants of test questions and tasks to check the initial level of knowledge on each topic.
3. Variants of situational tasks to check mastery of topics.
4. Variants of tasks (theoretical and practical) for final control on each topic.
5. Instructions for working with phantoms and dummies to practice practical skills.

Methodological support of students' independent work:

1. Methodical guidelines for pre-audit preparation for practical classes.
2. Methodical instructions for performing practical skills.

Means of diagnostics learning success

The following tools, which should use to diagnose learning success:

1. Test tasks of format A
2. Practical tasks to check mastery of practical skills
3. Situational tasks.

The development of test-control questions, structured situational problems and practical tasks used to diagnose learning success should base on the list of questions and practical skills that the student should master when studying the elective discipline "Emergency conditions in pediatrics". The sets of practical tasks are formed from the list of practical skills that the student must master during the study of the discipline, which are practical works standardized according to the method of execution.

A list of questions of elective discipline "Emergency conditions in pediatrics"

1. Modern standards of cardiopulmonary resuscitation in children.
2. Basic diagnostic criteria and emergency therapy for acute respiratory failure in children.
3. Methods of respiratory support in children.
4. Causes, main criteria for diagnosis and emergency care in acute heart failure.
5. Emergency care for angioedema in life-threatening areas and anaphylactic shock in children.
6. Emergency therapy of shock states in children.
7. Coma with somatic and infectious diseases in children, emergency care.
8. Clinical signs, algorithm of actions, emergency aid in the case of external factors in children.
9. Emergency care at the pre-hospital and hospital stages in case of hyperthermia and convulsive syndromes in children.
10. Organization and features of providing palliative care to children.

A list of practical skills from the elective discipline "Emergency conditions in pediatrics"

1. Identify a child in an emergency;
2. Assess the patient's condition;

3. Determine the main vital signs (heart rate, breathing rate, SpO₂, etc.);
4. Perform indirect heart massage, artificial lung ventilation without special equipment;
5. To conduct pulse oximetry;
6. Perform indirect heart massage, artificial lung ventilation using a mask and an Ambu bag;
7. Provide oxygen therapy;
8. To carry out emergency volemic support for shocks in children;
9. Interpret the data of laboratory and instrumental examinations;
10. To master the technique of parenteral drug administration.

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