

**Brief description of the discipline (abstract)
for the catalog of elective disciplines**

Current issues of intensive therapy and emergency care in Pediatrics

(title of elective course)

Specialty	Medicine 222 (22 – health care)
Educational level	Master
Term of study (course)	90 hours, 3 credits ECTS (6th course)
Form of study	Full-time
Department	Department of Pediatrics and Pediatric Infectious Diseases

Summary of the course "Current issues of intensive therapy and emergency care in Pediatrics". The discipline "Current issues of intensive care and emergency care in pediatrics" is an optional component of the educational and professional training program and is studied by students during the 6th year of study. Practical classes include elements of interactive technologies and are carried out with the introduction of training in simulation scenarios according to the algorithms of basic (BLS basic life support) and extended (PALS pediatric advanced life support) life support (American Heart Association, European Resuscitation Council), including on the basis Center for Simulation Medicine and Innovative Technologies of BSMU. Such competencies are a mandatory part of the training of both a general practitioner and a specialist, both a novice physician and an experienced specialist, and in the future such training will require regular repetition through constant updating of recommendations and in order to update previously acquired skills. Upon completion of the course, the student will be able to work in a team, be able to diagnose, provide emergency care and carry out intensive care of the most common life-threatening and urgent conditions in childhood with the acquisition of appropriate competencies.

The need to study the discipline is due to the fact that the causes of death in children differ from the causes of cardiac arrest in adults. The main cause of death in children and adolescents are external causes, including injuries, poisoning, traffic accidents and other accidents and severe respiratory and other somatic pathology, as a result of which life-threatening and urgent conditions largely cause respiratory and circulatory arrest in children (in the United States annually more than 20 thousand cases of cardiac arrest in children are registered). Creating an effective training structure for pediatric basic and advanced life support is based on the best achievements of international experience using modern evidence-based guidelines and teaching methods and is one of the most important reserves for reducing child mortality. Advanced life support is provided by physicians at various levels of care and includes invasive and special techniques, including airway patency, heart rate analysis, defibrillator use, intravenous or intraosseous access for medication etc.

Thus, the goal of the course is to aid the pediatric healthcare provider in developing the knowledge and skills necessary to efficiently and effectively manage critically ill infants and children, resulting in improved outcomes. Professional healthcare providers use PALS during the stabilization and transportation phases of a pediatric emergency, in or out of hospital. Skills taught include recognition and treatment of infants and children at risk for cardiopulmonary arrest; the systematic approach to pediatric assessment; effective respiratory management; defibrillation and synchronized cardioversion; intraosseous access and fluid bolus administration; and effective resuscitation team dynamics.

Approximate list of training topics (lectures, practical classes, seminars):

1. Respiratory distress syndrome in children, clinical manifestations and causes. Etiology and pathophysiology of respiratory arrest. Methods of restoring airway patency. Acute respiratory failure in children. First aid, oxygen therapy, indications for tracheal intubation, pharmacotherapy. Choking and foreign bodies of the respiratory tract, first aid.
2. Additional research methods for respiratory disorders (blood gases, hemoglobin concentration, pulse oximetry, expiratory CO₂ monitoring, capnography, peak expiratory rate, chest radiography, etc.).
3. Differential diagnosis of the respiratory distress due to croup, pneumonia, obstructive bronchitis, bronchiolitis, bronchial asthma in children. Emergency care for an attack of bronchial asthma. Emergency care for status asthmaticus.
4. Rapid assessment of the general condition by the algorithm of the pediatric triangle, "ABC" algorithm, the initial assessment of the child's condition by the algorithm "ABCDE". Assessment of the general condition of a seriously and critically ill child (AVPU, Glasgow scale). The concept of urgency, emergency care and intensive care in pediatrics.
5. Assessment of vital functions, pulse oximetry; second-order research (using the SAMPLE algorithm, complete physical examination). Third-order research (laboratory, X-ray examinations, etc.). Diagnostic search and treatment according to the algorithm "assessment-classification-decision-action".
6. Seizures, status epilepticus. Emergency, emergency care and intensive care. Pharmacotherapy. Hypoglycemia. Comatose states (ketoacidotic, hypoglycemic coma). Emergency, emergency care and intensive care. Pharmacotherapy.
7. Shocks in children, classification, general manifestations. Assessment of circulation (blood circulation) in children of different ages (state of consciousness, skin color and temperature, heart rate and rhythm, blood pressure, peripheral and central pulse, capillary filling time, diuresis, etc.).
8. Septic shock, classification, features of clinical manifestations. Meningococemia. Emergency care and intensive care. Pharmacotherapy. Hypovolemic shock. Prerenal acute renal failure. Emergency care and intensive care. Pharmacotherapy.
9. Cardiogenic shock. Obstructive shock. Critical congenital heart diseases. Emergency care and intensive care. Acute heart failure. Emergency care and intensive care.
10. Features of CPR depending on the age of the patient done by 1 and 2 resuscitators. Etiology and pathophysiology of circulatory arrest. Criteria for the diagnosis of circulatory arrest in childhood. Basic cardiopulmonary resuscitation. Restoration of blood circulation. Ensuring airway patency.
11. Tachyarrhythmias with wide and narrow QRS complex. Asystole, pulseless electrical activity. Ventricular arrhythmias (tachycardia, fibrillation). Disorders of heart rhythm and conduction which need and do not need defibrillation. Emergency care and intensive care. Pharmacotherapy.
12. Advanced cardiopulmonary resuscitation. Maintenance of airway patency. Artificial lung ventilation. Ensuring adequate blood circulation with extended CPR. Providing vascular access during cardiopulmonary resuscitation. Drugs used in advanced cardiopulmonary resuscitation.

The list of competencies, the acquisition of which the learning of discipline will provide:

- GC1 Ability to abstract thinking, analysis and synthesis, the ability to learn and be modernly trained.
- GC2 Ability to apply knowledge in practical situations
- GC3 Knowledge and understanding of the subject area and understanding of professional activity
- GC4 Ability to adapt and act in a new situation
- GC5 Ability to make an informed decision; work in a team; interpersonal skills
- GC6 Ability to communicate in the state language both orally and in writing
- GC7 Skills in the use of information and communication technologies
- GC8 Definiteness and perseverance in terms of tasks and responsibilities
- GC9 Ability to act socially responsibly and consciously
- SC1 Skills of interviewing and clinical examination of the patient
- SC2 Ability to determine the required list of laboratory and instrumental studies and evaluate their results
- SC3 Ability to establish a preliminary and clinical diagnosis of the disease
- SC6 Ability to determine the principles and nature of disease treatment
- SC7 Ability to diagnose emergencies

SC8 Ability to determine the tactics of emergency medical care

SC9 Emergency care skills

SK11 Skills of medical manipulations.

SC15 Ability to determine the tactics of management of persons in case of dispensary supervision

GC general competences SC special competences

The list of scientific and pedagogical employees who will ensure the conduct of the discipline:

1. Bogutska N.K.
2. Korotun O.P.
3. Horbatyuk I.B.
4. Bilyk G.A.
5. Garas M.N.
6. Ortemenka Ye.P.

Head of the Department _____ **prof. O.K. Koloskova**
(signature)