

MINISTRY OF HEALTH OF THE REPUBLIC OF BELARUS
Educational Institution
BELARUSIAN STATE MEDICAL UNIVERSITY

**Контрольный
экземпляр**

APPROVED

by Rector of the Educational
Institution «Belarusian State
Medical University»

S.P. Rubnikovich



Reg. # UD-0911-01-19/24/25 edu.

ANESTHESIOLOGY AND REANIMATOLOGY

**Curriculum of the educational institution
in the academic discipline for the specialty**

1-79 01 01 «General Medicine»

Curriculum is based on the educational program «Anesthesiology and Reanimatology», approved 26.06.2024, registration # УД-0911-01-19/2425/уч.; on the educational plan in the specialty 1-79 01 01 «General Medicine», approved 30.04.2024, registration # № 7-07-0911-01/2425/mf.

COMPILERS:

S.S.Grachev, Associate Professor of the Anesthesiology and Reanimatology Department of the Educational Institution «Belarusian State Medical University», PhD, Associate Professor;

A.A.Shmatava, Assistant Professor of the Anesthesiology and Reanimatology Department of the Educational Institution «Belarusian State Medical University», PhD, Assistant Professor.

RECOMMENDED FOR APPROVAL:

by the Anesthesiology and Reanimatology Department of the Educational Institution «Belarusian State Medical University»
(protocol # 8 of 13.02.2024)

by the Scientific and Methodological Council of the educational institution «Belarusian State Medical University»
(protocol # 18 of 26.06.2024)

EXPLANATORY NOTE

«Anesthesiology and Reanimatology» is an academic discipline of the module «Surgical Module 2» containing systematic scientific knowledge about methods of protecting the human body from surgical aggression using anesthesia; management or temporary replacement of vital functions of the patient's body during surgical interventions and in the immediate postoperative period; methods of treatment of vital disorders of the human body in terminal and critical conditions.

The purpose of the discipline «Anesthesiology and Reanimatology» is the formation of specialized competence for the selection of anesthesia methods during surgical interventions, methods of treatment of vital disorders of the human body in terminal and critical conditions.

The objectives of the discipline «Anesthesiology and Reanimatology» are to form students' scientific knowledge about the methods of anesthesia; indications and contraindications for the use of various methods of anesthesia; causes of terminal and critical conditions; the most important manifestations of typical violations of vital functions; intensive therapy and resuscitation in violation of vital functions of the body; skills necessary for emergency care help with critical and terminal conditions.

The knowledge, skills, and abilities acquired during the study of the academic discipline «Anesthesiology and Reanimatology» are necessary for the successful study of the following academic disciplines: «Infectious Diseases», «Internal Diseases», «Obstetrics and Gynecology», «Surgical Diseases».

A student who has mastered the content of the educational material of the discipline should have the following specialized competencies: perform general and local anesthesia, provide intensive care in emergency cases, apply CPR techniques in terminal conditions.

As a result of studying the academic discipline «Anesthesiology and Reanimatology» the student should

know:

fundamentals of the organization of anesthesiological and intensive care in the Republic of Belarus;

types and methods of anesthesia, indications and contraindications for anesthesia and sedation, complications of anesthesia;

diagnostic and therapeutic measures for the provision of emergency medical care in case of a critical condition of the patient;

principles of regulation and methods of correction of hemodynamic, respiratory, and metabolic disorders in terminal and critical conditions;

basics of infusion treatment programs, parenteral nutrition;

the main types of violations, assessment methods and principles of correction of the water-electrolyte balance;

the main types of disorders, assessment methods and principles of correction of acid-base state;

principles of treatment for acute poisoning with medicinal and toxic substances;

rules of medical ethics and deontology;

be able to:

- stop the pain syndrome;
- determine indications for resuscitation and criteria for its termination;
- assess the volemic status of the patient;
- assess the acid-base state and determine therapeutic measures for its correction;
- evaluate the function of the respiratory system and determine indications for oxygen therapy and artificial lung ventilation;
- choose therapeutic tactics of sedation and analgesia;
- determine conditions associated with respiratory and circulatory arrest and indications for cardiopulmonary resuscitation;

master:

the method of cardiopulmonary resuscitation.

Total number of hours for the study of the discipline is 120 academic hours, of which 78 classroom hours and 42 hours of student independent work. Classroom hours according to the types of studies: lectures - 12 hours (including 3 hours of supervised student independent work (SSIW)), laboratory classes (practical classes - 66 hours).

The form of education is full-time full-time.

Intermediate certification is carried out in accordance with the curriculum in the specialty 1-79 01 01 «Medical business» in the form of an exam (8th semester/

ALLOCATION OF ACADEMIC TIME ACCORDING TO SEMESTERS OF STUDY

Code, name of the specialty	semester	Number of academic hours						Form of intermediate assessment
		total	in-class	including			out-of-class self-studies	
				lectures	supervised student independent work	practical classes		
1-79 01 01 «General Medicine»	7	72	48	9	3	36	24	-
	8	48	30	-	-	30	18	exam

THEMATIC PLAN

Section (topic) name	Number of class hours	
	lectures (incl. SSIW)	practical
1. General Anesthesiology and Reanimatology	6	36
1.1. Organization of the activities of the Anesthesiological and Reanimatology service. Fundamentals of Anesthesiology and Reanimatology	-	6
1.2. Monitoring of the main parameters of patient's life support in Anesthesiology and Reanimatology	-	6
1.3. General anesthesia	1,5	6
1.4. Local anesthesia	1,5	6
1.5. Cardio-pulmonary reanimation (basic and advanced)	1,5	6
1.6. Post-cardiac arrest disease	1,5	6
2. Clinical Anesthesiology and Reanimatology	6	30
2.1. Preparing the patient for anesthesia	-	5
2.2. Intensive care in the early postoperative period	1,5	5
2.3. Intensive therapy of diseases accompanied by circulatory disorders	1,5	5
2.4. Intensive therapy of diseases accompanied by acute respiratory failure	1,5	5
2.5. Intensive care of comatose states	-	5
2.6. Intensive care in toxicology	1,5	5
Total hours	12	66

THE CONTENT OF THE EDUCATIONAL MATERIAL

1. General Anesthesiology and Reanimatology

1.1. Organization of the activities of the Anesthesiological and Reanimatology service. Fundamentals of Anesthesiology and Reanimatology

Anesthesiology and Reanimatology: concept, goals, tasks. The history of the development of anesthesiology and intensive care. The physiology of pain. Theories of general and local anesthesia.

Normative acts regulating the activities of the Anesthesiology and Reanimatology Service. Organization of the activities of the departments of Anesthesiology and Reanimatology. Indications for hospitalization and transfer of patients to the Department of Anesthesiology and Reanimatology.

Medical ethics and deontology. The relationship in the doctor-patient system.

1.2. Monitoring of the main parameters of patient's life support in Anesthesiology and Reanimatology

Monitoring standards. Methods of objective monitoring of patients' condition used in anesthesiology and intensive care. The concept of hemodynamic and

respiratory monitoring. Functional monitoring (body temperature control, hydrobalance, monitoring of gastrointestinal tract (GIT) function, monitoring of central nervous system function, etc.). A list of necessary monitoring parameters for planned and emergency operations. Monitoring the effectiveness of anesthesia.

Conducting a preoperative physical examination of the patient (anamnesis, examination, palpation, percussion, auscultation) with determination of his physical condition on the ASA scale and selection of the appropriate type of anesthetic aid. Diagnosis of symptoms and syndromes requiring urgent medical care. Maintaining medical records.

1.3. General anesthesia

Components of general anesthesia (GA). Common components: inhibition of mental perception, hyporeflexia, analgesia, muscle relaxation, maintenance of adequate gas exchange, maintenance of adequate blood circulation, regulation of metabolic processes. Special components: the use of artificial blood circulation devices, hypothermia, cold and pharmacological cardioplegia, artificial hypotension.

Types of modern GA. Clinical manifestations of GA. Stages of GA. Inhalation GA. Clinical and pharmacological characteristics of inhaled anesthetics: ether, isoflurane, sevoflurane, nitrous oxide, fluorotane, etc. The concept of minimum alveolar concentration. Distribution of inhaled anesthetics in the body, solubility in fats and blood. The method of application of inhalation GA; indications; contraindications; complications, their prevention and treatment. Masked and endotracheal GA.

Equipment for inhalation anesthesia. The scheme of the anesthesia apparatus, the main components: cylinders with reducers, dosimeters, evaporators, valve devices, connecting elements. Breathing circuits: open, non-reversible and reversible. Auxiliary tools and devices. Rules for the preparation and operation of anesthesia machines. Explosion prevention, safety rules when working with compressed and liquefied gases, with electrical equipment.

Non-inhalation GA. Clinical and pharmacological characteristics of non-inhalation anesthetics: barbiturates, benzodiazepines, propofol, ketamine, neuroleptics, analgesics, etc. Classification of types and methods of non-inhalation GA: intravenous, intramuscular, intraosseous, rectal, etc. Methods of non-inhalation anesthesia with various anesthetics and their combinations; indications, contraindications; dangers, complications, their prevention and treatment.

Clinical use of muscle relaxants; dangers and complications, their prevention and treatment. Combined methods of GA. Combined GA with muscle relaxants, neuroleptanalgesia, ataralgesia, central analgesia. The main stages of combined GA are: the period of introduction into anesthesia, the period of maintenance of anesthesia, the period of withdrawal. Medical sedation.

Conducting a preoperative physical examination of patients (anamnesis, examination, palpation, percussion, auscultation) with the determination of their physical condition on the ASA scale. Selection of the appropriate type of anesthetic aid. Diagnosis of symptoms and syndromes requiring urgent medical care. Postoperative monitoring. Maintaining medical records.

1.4. Local anesthesia

Types of local anesthesia (LA): superficial, infiltration, according to A.V.Vishnevsky, conductive (stem, nerve plexuses, paravertebral), intraosseous, intravenous «under a tourniquet». Epidural and spinal anesthesia, indications for use, contraindications. Local anesthetics (novocaine, trimecaine, lidocaine, dicaine, marcaine, etc.), mechanism of action, pharmacodynamics. Preparation for LA. Complications of LA, their prevention and treatment.

Familiarization with anesthesia equipment, spinal and epidural puncture techniques, blockade of nerve trunks.

1.5. Cardio-pulmonary reanimation (basic and advanced)

Classification of terminal conditions: pre-diagonal condition, agony, clinical death. The pathophysiology of terminal conditions. Symptoms of terminal conditions. Circulatory arrest: causes, precursors, symptoms, diagnosis. Types of cardiac arrest, clinical signs, diagnosis.

Methods of basic cardiopulmonary resuscitation (CPR). Ways to restore airway patency. Installation of air ducts. Ventilation by mouth-to-mouth, mouth-to-nose methods, with an Ambu-type bag, through an S- and T-shaped duct. Heart massage. Types of heart massage: direct (open), indirect (closed). The technique of heart massage, complications. Indicators of the effectiveness of intensive care. Advanced cardiopulmonary resuscitation. Electropulse therapy (defibrillation, cardioversion, electrical pacing), indications, methodology, performance indicators and complications. Drug therapy. Pharmacology of medicines used to restore heart activity, indications for their use, doses, procedure and route of administration (intravenous, intraosseous). Infusion therapy during resuscitation. Biological death.

Clinical signs of biological death. Indications for termination of resuscitation measures. Questions of deontology at the end of intensive care. Ethical and socio-legal problems related to the termination of intensive care.

Examination of patients with the development of a terminal condition: collecting anamnesis of the disease, conducting a physical examination, drawing up a plan for laboratory and instrumental examination, interpreting the results of laboratory and instrumental research methods, formulating a diagnosis, assisting in the examination, ascertaining brain death. Maintaining medical records.

Practicing practical skills: performing the Heimlich technique, ensuring the patency of the respiratory tract by various methods, conducting complex CPR on simulators of an adult patient and a child, defibrillation, including using an automatic defibrillator.

1.6. Post-cardiac arrest disease

The concept of a disease of a lively organism. Clinical pathophysiology of Post-cardiac arrest disease. Management of the patient in the early post-intensive care period. Possible complications of post-intensive care disease, their prevention and treatment. The concept of «brain death», legal aspects, the algorithm of the statement.

Examination of patients with the development of terminal conditions: collecting anamnesis of the disease, conducting a physical examination, drawing up a plan for laboratory and instrumental examination, interpreting the results of laboratory and instrumental research methods, formulating a diagnosis, drawing up a

treatment plan, assisting in the examination, vein puncture, extracorporeal detoxification (ECD). Maintaining medical records.

2. Clinical Anesthesiology and Reanimatology

2.1. Preparing the patient for anesthesia

Clinical assessment of the preoperative condition of the patient and the choice of anesthesia method for planned and emergency operations. The standard of preoperative examination of the patient. Preparation of the patient for surgery and anesthesia (therapeutic – treatment of complications of the main and concomitant diseases that exacerbate the operational risk; psychoprophylactic; the problem of a «full stomach»). Premedication, its tasks. Medicines for premedication.

Conducting a preoperative examination of the patient (anamnesis, examination, palpation, percussion, auscultation) with determination of his physical condition on the ASA scale and selection of the appropriate type of anesthetic aid. Preparation of a preoperative preparation plan. Diagnosis of symptoms and syndromes requiring urgent medical care. Evaluation of clinical blood analysis, indicators of acid-base balance (ABB), biochemical, serological, bacteriological and virological studies, coagulograms, hormonal studies. Evaluation of the general urine test. Determination of indications for ultrasound examination of various organs and evaluation of ultrasound results. Evaluation of the data of X-ray examination of the chest, abdominal cavity, urinary and bone systems. Recording and interpretation of an electrocardiogram. Maintaining medical records.

2.2. Intensive care in the early postoperative period

Phases of the postoperative period. The significance of pain syndrome is the mechanism of development of functional disorders in the postoperative period. Correction of functional disorders in patients in the postoperative period, features of infusion-transfusion therapy. The main forms of ABB disorders and their clinical manifestations, principles of correction. Violation of the water-electrolyte balance, clinical signs, diagnosis, treatment.

Parenteral nutrition (PN). Pathophysiological justification of PN. PN tasks (ensuring energy metabolism, ensuring plastic functions). Types of PN (full PN, partial or combined PN, additional PN). Indications for PP (restriction to enteral nutrition, conditions of hypercatabolism, preparation for gastrointestinal surgery). The composition of PN. Control of PN.

Examination of the patient in the postoperative period. Diagnosis of symptoms and syndromes requiring urgent medical care. Evaluation of clinical blood analysis, CBS indicators, biochemical, serological, bacteriological and virological studies, coagulograms, hormonal studies. Evaluation of the general urine test. Determination of indications for ultrasound examination of various organs and evaluation of ultrasound results. Evaluation of the data of X-ray examination of the chest, abdominal cavity, urinary and bone systems. Recording and interpretation of an electrocardiogram. Determination of the need, choice of method and calculation of the volume of parenteral and enteral nutrition. Maintaining medical records.

2.3. Intensive therapy of diseases accompanied by circulatory disorders

Parameters of central hemodynamics (stroke volume of the heart, heart rate, minute volume of blood circulation, total peripheral vascular resistance, volume of circulating blood, blood viscosity).

Shock. Clinical pathophysiology of shock. Classification of shock (cardiogenic, vasogenic, hypovolemic, septic), principles of diagnosis and intensive therapy of shock.

Intensive therapy for complicated myocardial infarction (cardiogenic shock, pulmonary edema, rhythm disturbance). Hypertensive crisis: pathophysiology, intensive care. Thromboembolism in the pulmonary artery system: pathogenesis, clinical signs, diagnosis, intensive care.

Examination of patients with the development of acute hemodynamic disorders and requiring IT: collecting anamnesis of the disease, conducting a physical examination, drawing up a plan for laboratory and instrumental examination, interpreting the results of laboratory and instrumental research methods, formulating a diagnosis, drawing up a treatment plan. And

Assistance during examination, venous puncture, electropulse therapy, electrostimulation, ultrasound, venous puncture, infusion-transfusion therapy, thromboprophylaxis. Maintaining medical records.

2.4. Intensive therapy of diseases accompanied by acute respiratory failure

Types of acute respiratory failure, clinical pathophysiology. Monitoring of respiratory function (pulse oximetry, blood gas composition, their monitoring). Indications and methods of oxygen therapy. Absolute and relative indications for mechanical ventilation. The main differences between mechanical ventilation and spontaneous breathing. Negative effects of mechanical ventilation. Complications of mechanical ventilation, their prevention and treatment. Methods of mechanical ventilation, indications and methods of conducting. Noninvasive ventilation. Long-term ventilation. Auxiliary ventilation. Features of a mechanical ventilation with positive pressure at the end of exhalation. Indications for tracheostomy and conicotomy, complications. Care for tracheostomated patients.

Hyperbaric oxygenation (HBO). The mechanism of action of HBO on the body. Indications and contraindications to HBO in intensive care. Intensive therapy for acute respiratory failure, developed as a result of massive pneumonia, non-stop asthma attack, aspiration syndrome, respiratory distress syndrome.

Practicing the practical skill of ensuring the patency of the respiratory tract (extension of the lower jaw, installation of an air duct, laryngeal mask and ventilation with a breathing bag). Rehabilitation of the oropharynx and tracheobronchial tree. Examination of the patient with the development of acute respiratory failure: collecting anamnesis of the disease, conducting a physical examination, drawing up a plan for laboratory and instrumental examination, interpreting the results of laboratory and instrumental research methods, formulating a diagnosis, drawing up a treatment plan. Assistance in performing bronchoscopy, vein puncture, infusion-transfusion therapy, ventilation, ECMO, ultrasound. Maintaining medical records.

2.5. Intensive care of comatose states

Definition of comatose states, their classification by etiology and severity. Features of the clinical course of coma, differential diagnosis of various types of coma (coma in diabetes, renal, hepatic, cerebral coma). Intensive care, monitoring of comatose patients. Complications in comatose patients.

Examination of the patient in case of cerebral circulation disorders: collecting anamnesis of the disease, conducting a physical examination, drawing up a plan for laboratory and instrumental examination, interpreting the results of laboratory and instrumental research methods. Differential diagnosis of comatose states. Formulation of the diagnosis, preparation of a treatment plan. Assistance during spinal puncture, evaluation of the results of its examination. Assistance during transportation for additional instrumental examination (magnetic resonance imaging, computed tomography, angiography), evaluation of the results of the study. Maintaining medical records.

2.6. Intensive care in toxicology

Toxicology as a science. General toxicology, toxicokinetics, toxicodynamics, biotransformation, lethal synthesis, half-life. Exogenous intoxication. Classification of poisoning: pathogenetic, clinical, chemical, by the method of entry into the body (oral, inhalation, percutaneous, parenteral), by origin (accidental, intentional: attempt on life, demonstrative suicide, programmatic suicide), by severity of the condition, by selective toxicity. Clinical pathophysiology of acute poisoning. Stages of poisoning: toxicogenic (primary toxic effect), somatogenic (period of poisoning effects). General principles of treatment of acute poisoning: stimulation of excretion (purification of the gastrointestinal tract, forced diuresis, therapeutic hyperventilation), stimulation of biotransformation (HBO, protection of hepatocytes, phospholipids, vitamins), antidote therapy (chemical, biochemical, symptomatic antidotes, immunotherapy), methods of artificial (extracorporeal) detoxification (sorption, dialysis, ultrafiltration, plasmapheresis).

Features of intensive care for various acute poisoning. Poisoning with alcohol and its surrogates, sleeping pills and sedatives, organophosphorus compounds, cauterizing liquids, carbon monoxide, mushrooms. The bite of venomous snakes, insects. Pathophysiology, clinical picture, diagnosis, intensive therapy of various poisoning.

Examination of a patient with acute poisoning: collecting anamnesis of the disease, conducting a physical examination, drawing up a plan for laboratory and instrumental examination, interpreting the results of laboratory and instrumental research methods. Monitoring of the patient's vital functions. Differential diagnosis for various types of poisoning. Gastric lavage, ventilation, puncture and catheterization of central and peripheral veins. Determination of indications for extracorporeal therapy, prescription of antidotes. Maintaining medical records.

ACADEMIC DISCIPLINE CURRICULAR CHART

Section, topic #	Section (topic) name	Number of hours		upervised student independent work	Practical skills	Practical skills	
		lectures	practical (laboratory or seminars)			of practical skills	of current / intermediate assessment
7 semester							
	Lectures	9		3			
1.	Introduction to the academic discipline «Anesthesiology and intensive care». General and local anesthesia	1,5	-	1,5			Electronic testing
2.	Cardiopulmonary resuscitation. Post-intensive care disease	1,5	-	1,5			Electronic testing
3	Intensive therapy of Acute Circulatory Disorders	1,5	-	-			
4	Intensive therapy of diseases accompanied by acute respiratory failure	1,5	-	-			
5	Intensive care in toxicology	1,5	-	-			
6	Violation of the acid-base state and water-electrolyte balance	1,5	-	-			
	Practical lessons	-	36	-			
1	Cardio-pulmonary reanimation (basic and advanced)	-	6	-	Basic Cardiopulmonary resuscitation	Performing a practical skill on simulation equipment*. Solving situational problems	
2	Fundamentals of Anesthesiology and Reanimatology	-	6	-			Interviews, tests

4	Monitoring of the main parameters of patient's life support in Anesthesiology and Reanimatology	-	6	-			Interviews, tests
5	General anesthesia	-	6	-			Interviews, tests
6	Local Anesthesia	-	6	-			Interviews, tests
7	Post-cardiac arrest disease	-	6	-			Interviews, tests
8 semester							
	Practical (laboratory or seminar) lessons	-	30	-			
1	Intensive therapy of diseases accompanied by acute respiratory failure	-	5	-	Ensuring the patency of the respiratory tract	Performing a practical skill on simulation equipment*. Solving situational problems	
2	Preparing the patient for anesthesia	-	5	-			Interviews, tests
3	Intensive care in the early postoperative period	-	5	-			Interviews, tests
4	Intensive therapy of diseases accompanied by circulatory disorders	-	5	-			Interviews, tests
5	Intensive care of comatose states	-	5	-			Interviews, tests
6	Intensive care in toxicology	-	5	-			Interviews, tests
	Total hours	9	66	3			Exam

*This is a mandatory form of current certification

INFORMATION AND INSTRUCTIONAL UNIT

LITERATURE

Basic:

1. Бушма, К. М. Основы анестезиологии = Basics of anesthesiology : учеб. пособие для иностр. студентов учреждений высш. образования по спец. «Лечебное дело» / К. М. Бушма, Р. Е. Ржеутская. – Минск : Новое знание, 2020. – 111 с.

Additional:

2. Ржеутская, Р. Е. Основы интенсивной терапии = Basics of intensive care : учеб.-метод. пособие. – Минск: БГМУ, 2017. – 88 с.

3. Ржеутская, Р. Е. Основы анестезиологии и реаниматологии = Basics of anesthesiology and reanimatology : учеб.-метод. пособие. – Минск : БГМУ, 2016. – 68 с.

4. Ржеутская, Р. Е. Интенсивная терапия в токсикологии = Intensive therapy in toxicology : учеб.-метод. пособие. – Минск : БГМУ, 2018. – 35 с.

METHODOLOGICAL RECOMMENDATIONS FOR THE ORGANIZATION AND PERFORMANCE OF STUDENT INDEPENDENT WORK IN THE ACADEMIC DISCIPLINE

The time allocated for independent work can be used by students to:

- prepare for lectures and practical classes;
- preparation for the examination in the academic discipline;
- study of topics (questions) submitted for independent study;
- solving problems (including situational ones);
- preparation of thematic reports, abstracts, presentations;
- performing practical tasks;
- preparation of tests by students for the organization of mutual control.

METHODOLOGICAL RECOMMENDATIONS FOR THE ORGANIZATION AND PERFORMANCE OF SUPERVISED STUDENT INDEPENDENT WORK IN THE ACADEMIC DISCIPLINE

The main forms of organization of managed independent work:

- writing and presentation of the abstract;
- presentation of the report;
- the study of topics and problems that are not brought to lectures;
- computer testing;
- preparation of tests by students for the organization of mutual control;
- preparation and participation in active forms of education.

LIST OF AVAILABLE DIAGNOSTIC TOOLS

The following forms of current certification are used to diagnose competencies:

- test;
- electronic test;
- interview;

solving situational problems;
 assessment using electronic and mechanical simulators and robot simulators;
 assessment using virtual simulators.

LIST OF AVAILABLE TEACHING METHODS

Linear (traditional) method;
 active (interactive) methods:
 PBL (Problem-Based Learning);
 TBL (Team-Based Learning);
 CBL (Case-Based Learning);
 training based on simulation technologies.

LIST OF PRACTICAL SKILLS

Name of the practical skill	A form of practical skill control
1. Basic Cardiopulmonary Reanimation	Performing a practical skill on simulation equipment
2. Ensuring the patency of the respiratory tract	Performing a practical skill on simulation equipment

LIST OF SIMULATION EQUIPMENT USED

1. Torso for cardiopulmonary resuscitation, extended equipment with the possibility of performing an electrocardiogram.
2. The robot simulator of the patient is universal without wires.
3. Defibrillator.

**PROTOCOL OF THE CURRICULUM APPROVAL
BY OTHER DEPARTMENTS**

Title of the discipline requiring approval	Department	Amendments to the curriculum in the academic discipline	Decision of the department, which designed the curriculum (date, protocol #)
Obstetrics and Gynecology	Obstetrics and Gynecology	-	protocol # 15, data 10.06.2024
Infectious Diseases	Infectious Diseases	-	protocol # 12, data 28.05.2024
Internal Diseases	Internal Diseases	-	protocol # 14, data 17.05.2024
Surgical Diseases	Surgery and Transplantology	-	protocol # 17, data 28.06.2024

COMPILERS/AUTHORS:

Head of the Department
Anesthesiology and Reanimatology of
the educational institution «Belarusian
State Medical University», PhD,
Associate Professor;

_____ S.S.Grachev

Associate Professor of the Department
Anesthesiology and Reanimatology of
the educational institution «Belarusian
State Medical University», PhD,
Assistant Professor;

_____ A.A.Shmatava

Curriculum content, composition and the accompanying documents comply with the established requirements.

Dean of the Medical Faculty for
International Students of the
educational institution «Belarusian
State Medical University»


_____ O.S.Ishutin

Methodologist of the educational
institution «Belarusian State Medical
University»

_____ S.V.Zaturanova

COMPILERS/AUTHORS:

Head of the Department
Anesthesiology and Reanimatology of
the educational institution «Belarusian
State Medical University», PhD,
Associate Professor;



S.S.Grachev

Associate Professor of the Department
Anesthesiology and Reanimatology of
the educational institution «Belarusian
State Medical University», PhD,
Assistant Professor;



A.A.Shmatava

Curriculum content, composition and the accompanying documents comply with the established requirements.

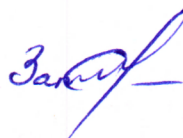
Dean of the Medical Faculty for
International Students of the
educational institution «Belarusian
State Medical University»

24.06.2024



O.S.Ishutin

Methodologist of the educational
institution «Belarusian State Medical
University»



S.V.Zaturanova