MINISTRY OF SCIENCE, HIGHER EDUCATION AND INNOVATION OF THE KYRGYZ REPUBLIC

Kyrgyz-Russian Slavic University
named after the first President of the Russian Federation B.N. Yeltsin

УТВЕРЖДАЮ
декан факультета

23.10.2025

Anesthesiology, resuscitation, intensive care

The working program of the discipline (module)

Assigned to the department **Hospital surgery**

The curriculum 310501_25_6 лд ин.plx
Specialty 31.05.01. - РФ, 560001 - КР Лечебное дело (for foreign students)

Qualification Specialist

The form of education Full-time

Total labor intensity **3 ZET**

Hours according to the including: 108

classroom classes 64

independent work 43,7

Types of control in semesters:
credit with a score of 12

The distribution of discipline hours by semester

Semester (<Course>.<Semester on the course>)	**12 (6.2)**		Total	
weeks	18			
Type of work	УП	РП	УП	РП
Lectures	16	16	16	16
Practice	48	48	48	48
Contact work during the theoretical training period	0,3	0,3	0,3	0,3
Including int.	3	3	3	3
Total auditorium classes	64	64	64	64
Contact work	64,3	64,3	64,3	64,3
Independent work	43,7	43,7	43,7	43,7
Total	108	108	108	108

The program was compiled:

Senior lecturer (without degree), R.M.Khantimerov_____; candidate of medical sciences, associate professor, A.A. Ashyrbaev_____; candidate of medical sciences, associate professor, E.A. Surov candidate of medical sciences, associate professor, T.M.Umetaliev _____

Reviewer(s):

Doctor of Medical Sciences, Professor of the Department of Anesthesiology and Intensive Care before and after graduation of the KSMA named after I.K.Akhunbaev Iskakov M.B. _____

The discipline's work program

developed in accordance with: ФГОС 3++:

Федеральный государственный образовательный стандарт высшего образования по специальности 31.05.01 ЛЕЧЕБНОЕ ДЕЛО (приказ Минобрнауки России от 09.02.2016 г. № 95)

compiled on the basis of the curriculum:

Specialty 31.05.01. - РФ, 560001 - КР Лечебное дело (for foreign students)

approved by the Academic Council of the university from ____ _____protocol № _____

The work program was approved at the meeting of the department_____

Protocol No. 1, date: 26.08.2025
Duration of the program: 2020-2026 academic year
Head of the Department, Candidate of Medical Sciences, Associate Professor T.M.Umetaliev

Approval of the RPD for execution in the next academic year

Chairman of the UMS (УМС)
__ _____ 2026 г.

The work program was reviewed, discussed and approved for
implementation in the 2027-2028 academic year at a meeting of the department

Protocol, date:__ _____ 2026 yr. № __
Head of the Department, Cand. of Med. Sciences, Associate Professor T.M.Umetaliev

Approval of the RPD for execution in the next academic year

Chairman of the UMS (УМС)
__ _____ 2027 year.

The work program was reviewed, discussed and approved for
implementation in the 2027-2028 academic year at a meeting of the department

Protocol, date:_____ 2027 yr.. № __
Head of the Department, Cand. of Med. Sciences, Associate Professor T.M.Umetaliev

Approval of the RPD for execution in the next academic year

Chairman of the UMS (УМС)
__ _____ 2028 year.

The work program was reviewed, discussed and approved for
implementation in the 2028-2029 academic year at a meeting of the department

Protocol, date:_____ 2028 yr. № ___
Head of the Department, Cand. of Med. Sciences, Associate Professor T.M.Umetaliev

Approval of the RPD for execution in the next academic year

Chairman of the UMS (УМС)
__ _____ 2029 year.

The work program was reviewed, discussed and approved for
implementation in the 2029-2030 academic year at a meeting of the department

Protocol, date:_____ 2029 yr. № __
Head of the Department, Cand. of Med. Sciences, Associate Professor T.M.Umetaliev

1. OBJECTIVES OF THE DISCIPLINE DEVELOPMENT	
1.1	The objectives of the students' development of the discipline "Anesthesiology, resuscitation, intensive care" are to gain knowledge to understand the general principles of anesthesiology, mechanisms of death, clinical physiology of terminal and critical conditions, methods of clinical and laboratory assessment of their severity, mastering the methods of resuscitation and intensive therapy. Knowledge of anatomy, physiology, pathophysiology, pharmacology, and clinical disciplines is required for full-fledged learning. disciplines "Anesthesiology, resuscitation, intensive care". In turn, knowledge of the basics of anesthesiology and intensive care services, methods of diagnosis of terminal and critical conditions and their intensive care, will improve the effectiveness of treatment of serious patients and victims of emergency conditions.

2. THE PLACE OF DISCIPLINE IN THE STRUCTURE OF THE MAIN EDUCATIONAL PROGRAM (OOII)		
	Cycle (section):	Б1.Б
2.1	**Requirements for the student's pre-training:**	
2.1.1	To fully master the academic discipline "Anesthesiology, resuscitation, intensive care", knowledge of the following disciplines is required:	
2.1.2	Chemistry	
2.1.3	Biochemistry	
2.1.4	Normal physiology	
2.1.5	Physics, mathematics	
2.1.6	Anatomy	
2.1.7	Topographic anatomy and operative surgery	
2.1.8	Practice in Emergency Medical procedures (Fundamentals of Emergency Care)	
2.1.9	Latin language	
2.1.10	Pharmacology	
2.1.11	Clinical pharmacology	
2.1.12	General Surgery	
2.1.13	Propaedeutics of internal diseases	
2.1.14	Pathological anatomy	
2.1.15	Pathophysiology, clinical pathophysiology	
2.2	**Disciplines and practices for which the development of this discipline (module) is necessary as a precursor:**	
2.2.1	Knowledge of the basics of anesthesiological and intensive care services, methods of diagnosis of terminal and critical conditions and their intensive care, will increase the effectiveness of mastering the following disciplines:	
2.2.2	Traumatology, orthopedics	
2.2.3	Disaster Medicine	
2.2.4	Practice in emergency medical procedures (assistant to the doctor anesthesiologist - resuscitator)	
2.2.5	Practice in emergency medical procedures (Assistant to an emergency medical doctor)	
2.2.6	Preparation for passing the state exam	

3. THE STUDENT'S COMPETENCIES FORMED AS A RESULT OF MASTERING THE DISCIPLINE (MODULE)	
PC-10. The ability to identify the patient's main pathological conditions, symptoms, disease syndromes, and nosological forms in accordance with the International Statistical Classification of Diseases and Health-Related Problems, 10 revision	
To know:	
Level 1	Research methods for identifying the main pathological conditions, symptoms, disease syndromes, and nosological forms. The specifics of identifying various types of pathological conditions, symptoms, disease syndromes, and nosological forms in accordance with the ICD-10 ver. The main syndromes of organ and system damage and their specifics in the differential diagnosis of various diagnostic forms in accordance with the ICD-10 ver.
Level 2	
Level 3	
To have skills:	
Level 1	To comprehend the obtained results of the study of the main nosological forms of the disease. Analyze various types of pathological conditions, symptoms, disease syndromes, and nosological forms in accordance with the ICD.

Level 2	
Level 3	
To possess:	
Level 1	Proficiency in basic pathological conditions and disease syndromes. Methods of searching, identifying and systematizing symptoms, syndromes, diseases, nosological forms in accordance with ICD-10 rev. Skills of self-justification of combining various symptoms and syndromes into nosological forms in accordance with (ICD-10 rev.).
Level 2	
Level 3	

PC-11: Willingness to participate in the provision of emergency medical care in conditions requiring urgent medical intervention	
To know:	
Уровень 1	The algorithm of emergency medical care; basic medical diagnostic measures for the provision of first aid in urgent conditions requiring urgent medical intervention.
Level 1	
Level 3	
To have skills:	
Level 1	Choose an individual type of care for the patient's treatment according to the situation: first aid, ambulance, hospitalization.
Level 2	
Level 3	
To possess:	
Level 1	A complex of resuscitation measures in acute respiratory and circulatory disorders, in clinical death; to know modern methods of resuscitation and intensive care in providing care to patients and victims in critical conditions of various etiologies.
Level 2	
Level 3	

PC-13: Willingness to participate in providing medical assistance in emergency situations, including participation in medical evacuation	
To know:	
Level 1	The foundations of the formation of a safety culture, environmental awareness and risk-based thinking in which issues of safety and environmental conservation are considered as the most important priorities of human life.
Level 2	
Level 3	
To have skills:	
Level 1	To understand the doctrine of the epidemic process, the types of epidemiological studies and their purpose; to carry out epidemic prevention measures, to protect the population in the foci of particularly dangerous infections, in case of deterioration of the radiation situation and natural disasters; To identify the harmful effects of environmental factors on the human body. Features of the course and possible complications of the most common diseases, diagnostic methods, modern methods of clinical and laboratory instrumental examination of patients. Analyze the organization's features providing medical care during mass and sporting events, in emergency situations and disasters in peacetime and wartime.
Level 2	
Level 3	
To possess:	
Level 1	Methods of organizing a set of measures aimed at strengthening and preserving health and eliminating harmful factors. Skills in analyzing and evaluating the quality of medical care, the health status of the population and the impact of environmental and industrial factors on it. Skills to prevent the occurrence and spread of diseases, their early diagnosis and the causes of their occurrence. Skills in carrying out preventive, hygienic and anti-epidemic measures. The ability to choose an individual type of assistance in the treatment of a patient in according to the situation: first aid, ambulance, hospitalization.
Level 2	
Level 2	

As a result of mastering the discipline, the student must:

3.1	**To know:**
3.1.1	- the organization and basic principles of the activities of the units of the anesthesiology, resuscitation and intensive care service of medical and preventive organizations of the Kyrgyz Republic (Order of the Ministry of Health of the Kyrgyz Republic No. 767, dated 2009) and the Russian Federation (order of the Ministry of Health)
3.1.2	- general issues of anesthesiology and intensive care medicine - definitions, tasks, terminology;
3.1.3	- principles of anesthetic aid, fundamentals of algology;
3.1.4	- terminal condition, types of death and their signs;
3.1.5	- intensive care unit - cardiopulmonary and cerebral resuscitation (BLS, ALS);
3.1.6	- disease of a revived organism (post-resuscitation disease);
3.1.7	- definitions, classification, clinical picture, pathomorphology (remodeling of internal organs) and basic principles of intensive care for critical conditions in: acute respiratory failure, acute circulatory failure, acute cerebral insufficiency, acute hepatic and renal insufficiency, acute disorders of the physico-chemical properties of blood (CBS, EBV, hemostasis), acute exogenous and endogenous intoxication;
3.1.8	- features of emergency care and resuscitation measures for victims of drowning, electrical trauma, strangulation asphyxia, prolonged compression syndrome, general overheating and cold injury, convulsive syndrome;
3.1.9	- modern methods of infusion-transfusion therapy (including transfusion of blood components), nutritional support, detoxification (forced diuresis, extracorporeal methods, enterosorption), hyperbaric oxygenation (HBO);
3.1.10	- clinical and pharmacological characteristics of the main groups of drugs and the rational choice of specific drugs in the treatment of major pathological syndromes of diseases and emergency conditions in patients;
3.2	**To have skills:**
3.2.1	- according to the patient's condition (clinical manifestations), assess the activity of the pathological process, its form, stage and phase of the course, in order to make a decision on the need for medical care;
3.2.2	- to set priorities for solving the patient's health problems, including determining indications and contraindications for surgery, anesthesia and their urgency;
3.2.3	- determine the premedication method and evaluate the adequacy of anesthesia based on clinical signs;
3.2.4	- possess the simplest methods of pain relief when performing painful procedures and interventions for the relief of acute and chronic pain syndromes;
3.2.5	- to carry out resuscitation measures and monitor their effectiveness in case of clinical death;
3.2.6	- ensure free airway passage: triple Safar intake, Gwedel duct (T-shaped), Safar duct (S-shaped), epiglottis duct (i-gel), larygeal mask, combitube, endotracheal tube;
3.2.7	- perform the simplest techniques of artificial ventilation of the lungs "from mouth to mouth", "from mouth to nose", with an Ambu bag;
3.2.8	- intubate the trachea on a mannequin;
3.2.9	- determine the indications for artificial lung ventilation, hyperbaric oxygenation, bronchoscopy, conicotomy, tracheostomy;
3.2.10	- be able to perform chest compression (indirect heart massage) on a mannequin;
3.2.11	- to determine by ECG the type of cardiac arrhythmia and conduction, type of cardiac arrest, acute myocardial infarction, pulmonary embolism;
3.2.12	- determine indications for puncture and catheterization of the main vessels;
3.2.13	- to form a scheme of non- and drug treatment of the patient in critical and urgent conditions;
3.2.14	- calculate the qualitative volume of infusion – transfusion therapy for water-electrolyte balance and acid-base balance disorders;
3.2.15	- identify life-threatening bleeding disorders, determine indications for hemotransfusion, and evaluate the suitability of blood products for transfusion;
3.2.16	- calculate the body's needs for carbohydrates, proteins and fats during nutritional support (enteral, parenteral and mixed nutrition).
3.3	**To possess:**
3.3.1	- in the algorithm of making a preliminary diagnosis for the subsequent referral of the patient to a specialized doctor;
3.3.2	- in the methods of general clinical examination;
3.3.3	- interpretation of the results of laboratory and instrumental diagnostic methods;

3.3.4	- in carrying out basic medical diagnostic and therapeutic measures to provide first aid in urgent and life-threatening conditions;
3.3.5	- in presenting an independent point of view, analysis and logical thinking, public speaking, ethical argumentation, discussions and round tables, principles of medical deontology and medical ethics;
3.3.6	- informing patients and their relatives;
3.3.7	- proficiency in a foreign language to the extent necessary for communication and obtaining information from foreign sources.

4. STRUCTURE AND CONTENT OF THE DISCIPLINE (MODULE)

Code of the class	Name of sections and topics /type of activity/	Semester / Course	Hours	Competencies	Литература	Literature	Practice	Comments
	Part 1. ANESTHESIOLOGY.							
1.1	- Anesthesiology. General questions. /Lec/	12	2	ПК-6 ПК-11 ПК-13	Л1.3 Л1.10 Л1.13Л2.3 Л2.12Л3.2 Л3.3 Э1 Э2 Э8			
1.2	"Anesthesiology, resuscitation and intensive care", in the system of medical knowledge and its role in modern clinical medicine. Regulation of the work of the anesthesiology and intensive care services. /Practice/.	12	3	РС-6, РС-11, РС-13	Л1.2 Л1.10 Л1.13Л2.12 Л2.14 Л2.15 Л2.16Л3.2 Л3.3 Э1 Э2 Э8			
1.3	The main stages of the development of anesthesiology, resuscitation and intensive care. Ethical and legal aspects Of the specialty. /Indep.practice/.	12	2	РС-6, РС-11, РС-13	Л1.10 Л1.12 Л1.13Л2.1 Л2.6 Л2.12Л3.2 Л3.3 Э1 Э2 Э8			
1.4	Fundamentals of modern anesthesiology. Anesthesiological manual, classification of modern methods. Components and stages of general anesthesia. Clinical pharmacology of drugs for anesthesia. Anesthesia and respiratory equipment and monitoring. Rules for working with compressed gases. /Practice/.	12	3	РС-6, РС-11, РС-13	Л1.1 Л1.2 Л1.3 Л1.10 Л1.13Л2.2 Л2.4 Л2.6 Л2.10 Л2.12Л3.2 Л3.3 Э1 Э2 Э8			
1.5	Cellular and molecular mechanisms of anesthesia. Special methods of anesthetic treatment (artificial hypothermia). / Indep.practice/.	12	3	РС-6, РС-11, РС-13	Л1.8 Л1.9 Л1.10 Л1.13Л2.4 Л2.12Л3.2 Л3.3 Э1 Э2 Э8			

1.6	Algology. Physiology of pain, peripheral and central mechanisms of pain. Nociception and antinoception. Neuromediators. Pathophysiology of pain syndrome. Classification of pain syndromes. Pain syndrome treatment: multimodal analgesia, proactive analgesia, patient-controlled anesthesia. Clinical pharmacology of drugs for the treatment of pain syndromes. /Practice/.	12	3	PC-6, PC-11, PC-13	Л1.4 Л1.10 Л1.13Л2.12 Л2.13Л3.2 Л3.3 Э1 Э2 Э8	1		
1.7	Melzak's theory of the "Gate control". Clinical physiology and intensive care in the early postoperative period. /Indep. work/.	12	3	PC-6, PC-11, PC-13	Л1.9 Л1.10 Л1.13Л2.12 Л2.13Л3.2 Л3.3 Э1 Э2 Э8			
	Part 2. RESUSCITATION							
2.1	**Resuscitation**. General questions. /Lec/	12	2	PC-6, PC-11, PC-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
2.2	Fundamentals of modern intensive care medicine. Terminal state. Types of cardiac arrest. Clinical death, biological death. A disease of a lively organism. /Practice/.	12	3	PC-6, PC-11, PC-13	Л1.10 Л1.13Л2.11 Л2.12Л3.2 Л3.3 Э1 Э2 Э8			
2.3	Brain death. Order of the Ministry of Health of the Kyrgyz Republic dated May 04, 2005 No. 167 "On the further development of human organ and (or) tissue transplantation in the Republic" (the order approved the instruction "Statement of human death as a result of complete and irreversible cessation of brain function"). Order of the Ministry of Health Russian Federation from 25 December 2014 No. 908n "Procedure for the diagnosis of human brain death". /Indep. Work/.	12	3	PC-6, PC-11, PC-13	Л1.10 Л1.13 Л1.14Л2.12 Л2.17Л3.2 Л3.3 Э1 Э2 Э8			

2.4	Comprehensive resuscitation methods: basic complex – BLS (Basic life support) and advanced complex - ALS (Advanced life support). The algorithm of conducting. Performance criteria. Possible complications, their prevention and treatment. Indications for termination of resuscitation. /Prac/.	12	3	PC-6, PC-11, PC-13	Л1.7 Л1.10 Л1.13 Л1.15Л2.10 Л2.12Л3.2 Л3.3 Э1 Э2 Э8	1		
2.5	Prevention and treatment of posthypoxic brain damage. Issues of deontology at the termination of intensive care. Ethical and socio-legal issues related to the termination of intensive care. /Indep. Work/.	12	2	PC-6, PC-11, PC-13	Л1.10 Л1.11 Л1.13Л2.11 Л2.12Л3.2 Л3.3 Э1 Э2 Э8			
	Part 3. INTENSIVE THERAPY							
3.1	Acute cardiovascular failure (Shock). /Lec/.	12	2	PC-6, PC-11, PC-13	Л1.5 Л1.6 Л1.10 Л1.13Л2.5 Л2.12Л3.1 Л3.2 Л3.3 Э1 Э2 Э8			
3.2	Acute cardiovascular failure – shock. Hypovolemic shock. Vasogenic (distributive) shock: anaphylactic, septic and neurogenic. Cardiogenic shock. Pathophysiology, diagnosis and Differential diagnosis. The components of intensive care are infusion, vasoactive, inotropic, respiratory and antibacterial, extracorporeal membrane oxygenation, balloon counter-pulsation and ballooning of the abdominal aorta, auxiliary blood circulation. /Practice/	12	3	PC-6, PC-11, PC-13	Л1.4 Л1.5 Л1.9 Л1.10 Л1.13Л2.4 Л2.9 Л2.12Л3.1 Л3.2 Л3.3 Э1 Э2 Э8			

3.3	Parameters of central hemodynamics, invasive and noninvasive monitoring. Multiple organ failure in shock. /Indep. work/	12	3	PC-6, PC-11, PC-13	Л1.6 Л1.10 Л1.13Л2.7 Л2.8 Л2.12Л3.1 Л3.2 Л3.3 Э1 Э2 Э8			
3.4	ACUTE RESPIRATORY FAILURE. /LEC/	12	2	PC-6, PC-11, PC-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
3.5	Acute respiratory failure. Definition, etiology, pathophysiology, classifications, clinical and morphological characteristics, functional tests, indicators of blood gas composition. Diagnostic criteria. Basic principles of treatment. Intensive care is used for asthmatic status, massive pneumonia, adult respiratory distress syndrome, acid aspiration pneumonitis (Mendelson's syndrome). Mechanical lung ventilation, indications. Modes of operation. /Practice/.	12	3	PC-6, PC-11, PC-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8	0,5		
3.6	Respiratory therapy, calculation of basic ventilation parameters. Exogenous surfactant therapy for adult respiratory distress syndrome. Hyperbaric oxygenation. /Indep. work/.	12	3	PC-6, PC-11, PC-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
3.7	ACUTE CEREBRAL FAILURE. COMAS. /LEC/	12	2	PC-6, PC-11, PC-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			

3.8	Acute cerebral failure. Comas. Edema and dislocation syndrome of the brain substance. Clinical signs, diagnostic criteria, differential diagnosis of comatose states. Pathological syndromes of comatose states. Diagnostic criteria, scales. Pathological syndromes of comatose states. Basic principles of treatment of acute cerebral failure. /Practice/.	12	3	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
3.9	Methods of monitoring vital functions in comatose conditions. Interpretation of changes. /Indep. work/	12	3	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
3.10	ACUTE HEPATIC AND RENAL FAILURE. /Lec/	12	2	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			

3.11	Acute liver failure. Definition. Etiology of acute liver failure, groups of main causes: fulminant and subfulminant hepatitis; the unfavorable course of chronic hepatitis and cirrhosis of the liver; prolonged and severe cholestasis; liver necrosis or tumor destruction of the organ; hypoxia of the liver parenchyma. Risk factors (provoking factors). Pathogenetic links of acute liver failure. Clinical and morphological forms: the main clinical syndromes (cholestasis, hepatocytolysis, hepatic encephalopathy, hemorrhage, portal hypertension, inflammatory mesenchymal syndrome, hepatolienal and hepatorenal syndrome) and their various combinations. Diagnostics. Current, forecast. Prevention. Principles of acute liver failure treatment: basic (normalization of the main vital processes), specific (carrying out substitution therapy, methods of active detoxification). /Practice/.	12	3	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
3.12	The importance of stress tests and liver biopsies in diagnosis. New technologies in diagnostics. Extracorporeal detoxification methods and liver transplantation. /Indep. work/	12	2	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			

3.13	Acute renal failure. Definition. Etiology of various morphological variants. Acute renal failure: prerenal, renal And postrenal factors. The main links in the pathogenesis of acute renal failure. Risk factors. Classification. Stages and Clinical manifestations of acute renal failure. Laboratory and instrumental research methods. Qualitative and quantitative methods of urine testing. Criteria of diagnosis. Course. Issue. Forecast. Basic principles of intensive care and intensive care. Preventive measures for acute Renal failure. Absolute indications for conducting renal replacement therapy. /Practice/.	12	3	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
3.14	Etiopathogenetic, anti-inflammatory, symptomatic, nephrotective therapy. Criteria for recovery in acute kidney injury /Indep. work/.	12	2	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
3.15	Physico-chemical blood properties and their properties disturbances. Water-electrolyte balance. acid-base balance. System of hemostasis. /Lec/	12	2	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			

3.16	Acid - base balance (ABB) and water-electrolyte balance (WEB). The concept, physiological Principles of regulation of acid-base state. Indicators of ABB. The role of the lungs and kidneys in the regulation of ABB. Etiology and pathogenesis of ABB disorders. Types of disorders. Methods of laboratory diagnostics and control of the main types of acid-base disorders. Methods of correction of braid shifts. Water sectors of the body: volume and ionic composition. Physiological criteria. Regulation of water-electrolyte balance. The concept of osmolarity. Indicators of blood electrolyte composition. Pathological loss of fluid and electrolytes. Diagnostics the main types of violations of the water-electrolyte balance. Prevention and Basic principles of correction of disorders of the water-electrolyte balance, taking into account the interrelation of WEB disorders and ABB. Drugs for the correction of disorders of the water-electrolyte balance. /Practice/.	12	3	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
3.17	Stewart's theory. Meaning the relationship of shifts (disturbances) in the ABB and the WEB. Assessment of the dynamics of central venous pressure (CVP), hourly and daily diuresis, hemodynamic parameters in patients with WEB disorders. The concept of isoosmolarity and isoneutrality. /Indep. work/.	12	3	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			

3.18	Blood and hemostasis system. Morpho-functional and electro-physiological properties of peripheral blood cells. Human erythrocyte group antigens (the ABO system). System of the Rhesus antigens (RhO). The importance of platelet and leukocyte antigens in transfusiology. Methods and techniques for determining blood type and Rh factor, conducting blood compatibility tests of the donor and recipient. Errors in determining blood groups and performing blood transfusion. Physiology and mechanisms of regulation of the system hemostasis (vascular-platelet hemostasis, plasma factors). The cellular concept of regulation of the hemostasis system. Methods of laboratory examination of components of the hemostasis system. The main clinical types of hemostasis disorders are Disseminated Intravascular Coagulation, Pulmonary embolism, hereditary coagulopathies and thrombocytopathies. Diagnosis and correction of hyper - and hypocoagulation syndromes. Characteristics of drugs, indications for use. Basic principles of intensive care. /Practice/.	12	3	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
3.19	Minor antigens of human erythrocytes. The modern Concept of blood compatibility between donor and recipient. Rapid laboratory diagnostics blood counts. /Indep. work/.	12	3	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
3.20	Infusion-transfusion therapy. Nutritive support. /Lecture/.	12	2	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			

3.21	Infusion and transfusion therapy (ITT). Definition of the concept ETC. The main provisions of transfusiology. The basics of ITT: assessment of volemic status, indications for ITT. Principles of infusion therapy: basic and corrective, etc. Special methods of infusion therapy (detoxification, rehydration, dehydration, etc.). The main infusion and transfusion media are balanced crystalloids, colloidal and combined solutions. Crystalloid solutions: electrolytic (balanced) and non-electrolytic solutions. Heterogeneous plasma-substituting colloidal solutions: solutions of dextran, gelatin, dioxyethyl starch. Autogenic colloidal solutions: albumin, protein, plasma, erythrocyte mass, and other blood products. Methods of conducting and monitoring the adequacy of ITT. Complications of ITT, their prevention and treatment. /Practice/.	12	3	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
3.22	The technique of catheterization of the main and peripheral veins. Preparation of infusion programs taking into account the patient's needs for water, electrolytes, degree of dehydration and deficiency of the volume of circulating blood, age and weight the patient using the simplest formulas. Indications for blood transfusion and its components. Protocols. /Indep. work/.	12	3	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			

3.23	Nutritional support (NS) and Enteral (intestinal) insufficiency syndrome. Nutritional status. Protein Metabolism (trophic status), Energy balance (energy demand, calculation equations). Nutritional (protein-energy) deficiency (deficiency or imbalance). The modern concept of NS: provision of energy and plastic needs. Determination of the degree of nutritional deficiency. Indications and contraindications for NS. Basic principles and options for nutritional support. Methods and techniques of nutritional therapy support services. Features of NS in various types of organ dysfunction. Metabolic monitoring and evaluation of the effectiveness of NS. Complications. Prevention and treatment. Characteristics of pharmaconutrients (drugs used for parenteral and enteral nutrition). /Practice/.	12	3	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
3.24	The protocol of prescribing drugs for nutritional support. Three-component parenteral nutrition with the addition (if necessary) of multivitamin complexes, electrolytes and trace elements. /Indep. work/.	12	3	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			

3.25	Acute exogenous poisoning (OEP) and emergency conditions in the clinic of internal diseases. Definition and classification OEP. Pathophysiology. Clinical syndromes that occur in OEP. Exotoxic shock. Collection of biological Material (gastric lavage, vomit, urine, blood) for chemical and toxicological examination. Basic principles of complex treatment: limiting and stopping the intake of poison; inclusive detoxification (removal of non -absorbed venom, removal of ingested poison); extracorporeal detoxification; antidote (specific) therapy. Acute heart failure: acute left ventricular failure, severe (life-threatening) cardiac arrhythmias. Hypertensive crisis (HR). Classification: type I - adrenal (hyperkinetic, neurovegetative form), type II - noradrenal (hypokinetic, water-electrolyte form). Complications of diabetes mellitus: hyperosmolar, ketoacidotic, lactic acidemic, hypoglycemic coma. Thyrotoxic crisis. Convulsive syndrome. Clinical course. Complications. Features of intensive therapy. / Practice/.	12	3	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
3.26	Rapid screening tests for OEP. Electric-impulse therapy: defibrillation, cardioversion, electrocardiostimulation. /Indep. work/.	12	3	РС-6, РС-11, РС-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			

3.27	Accidents. Drowning in salted and fresh water. Pathophysiology. Clinical syndromes. Complications. Features of resuscitation and intensive care. - Electrical injury. Pathophysiology. Clinical syndromes. Complications. Features of resuscitation and Intensive care. - Overheating: heat and sun stroke. Pathophysiology. Clinical syndromes. Complications. Features of resuscitation and intensive care. - Cold injury: hypothermia, cold injury. Pathophysiology. Clinical syndromes. Complications. Features of resuscitation and Intensive care. - Crash syndrome. Pathophysiology. Clinical syndromes. Complications. Features of resuscitation and intensive care. - Strangulation asphyxia. Pathophysiology. Clinical syndromes. Complications. Features of resuscitation and intensive care. /Practice/.	12	3	PC-6, PC-11, PC-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8	0,5		
3.28	Hyperthermic syndrome. Etiology. Pathogenesis. Clinical course. Complications and features of intensive therapy. /Indep. work/.	12	2,7	PC-6, PC-11, PC-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
3.29	/КрТО/	12	0,3	PC-6, PC-11, PC-13	Л1.10 Л1.13Л2.12Л 3.2 Л3.3 Э1 Э2 Э8			
3.30	/ЗачётСОц/	12		PC-6, PC-11, PC-13				

5. FUND OF APPRAISAL MEANS

5.1. Control questions and assignments

Questions for the current control.

Part 1. Anesthesiology.
1. The place of the academic discipline "Anesthesiology, resuscitation and intensive care" in the system of medical knowledge.
2. The main articles of the "Regulations on the Unified Service of Anesthesiology and resuscitation of the KR", approved by Order No. 767 of the MOH of the KR dated 12.11.2009.

3. The main articles of the "Procedure for providing medical care to the adult population in the field of anesthesiology and intensive care", approved by the order of the Ministry of Health of the Russian Federation dated November 15, 2012 No. 919n.
4. Main articles of the "Procedure for providing medical care to children in the field of anesthesiology and intensive care", approved by Order of the Ministry of Health of the Russian Federation dated November 12, 2012 No. 909n.
5. The role of the anesthesiology and intensive care service in modern clinical medicine, the general principles of its activities
6. Organization, equipment, staffing, documentation of the Department of Anesthesiology and Resuscitation (AR).
7. Indications and contraindications for hospitalization of patients in AR.
8. Moral, legal and ethical aspects of the activities of the AR doctor.
9. Interpersonal communication of the AR doctor (patient, colleagues, relatives of the patient).
10. Surgery as stress, stages of the course. Preparation of the patient for surgery and anesthesia.
11. Anesthesiological manual, classification of modern methods. The risk of anesthesia.
12. General anesthesia: inhalation and intravenous. Components and stages of general anesthesia.
13. Types of premedication (preventive and curative) and their significance.
14. Introductory anesthesia: unconsciousness, analgesia, muscle relaxation.
15. Upper respiratory tract prosthetics: duct installation techniques (T and S-shaped, laryngeal masks, I-gel), tracheal intubation (types, techniques, equipment). Complications. Prevention and treatment.
16. Anesthesia maintenance: gas exchange management, hemodynamic management, correction of vegetative status.
17. Withdrawal from anesthesia. Features. Complications and their prevention.
18. Anesthesia and respiratory equipment. Rules for working with compressed gases.
19. Conduction anesthesia: epidural anesthesia, spinal anesthesia, sacral anesthesia.
20. Conduction anesthesia: general anesthesia, plexus anesthesia.
21. Intraoperative monitoring: protocols, equipment.
22. Clinical physiology and intensive care in the early postoperative period.
23. Physiology of pain, peripheral and central mechanisms of pain.
24. Melzak's theory of the "gate cantrol".
25. Nociception and antinociception. Neurotransmitters.
26. Clinical pharmacology of narcotic analgesics and their antagonists.
27. Clinical pharmacology of nonsteroidal anti-inflammatory drugs, paracetamol.
28. Clinical pharmacology of essential and amide local anesthetics.
29. Classification of pain syndrome.
30. Pain syndrome treatment: multimodal analgesia, proactive analgesia, patient-controlled anesthesia.

Part 2. Intensive care unit.
1. Intensive care medicine as a branch of medicine that studies the mechanisms of development of critical and terminal conditions and develops methods for their prevention and treatment.
2. The subject and objectives of intensive care and intensive care.
3. Intensive care as a method of prevention and treatment of severe but reversible functional and metabolic disorders that threaten the patient with death.
4. Classification of terminal conditions, phases of the dying process.
5. Pathophysiological shifts in terminal conditions.
6. Cardiac arrest. Types of cardiac arrest. Causes, precursors, and symptoms.
7. Signs of clinical and biological death.
8. Brain death (social death). Signs.
9. The main provisions of the instruction "Statement of human death as a result of complete and irreversible cessation of brain function", approved by the order of the Ministry of Health of the Kyrgyz Republic dated May 04, 2005 Year No. 167 "On the further development of human organ and (or) tissue transplantation in the Republic".
10. The main provisions of the "Procedure for the diagnosis of human brain death", approved by Order of the Ministry of Health of the Russian Federation dated December 25, 2014 No. 908n.
11. Intensive care (resuscitation aid). Indications and contraindications.
12. The basic complex of methods of resuscitation in clinical death - BLS (Basic life support) at the pre-hospital and hospital stages.
13. An expanded set of methods of resuscitation in clinical death - ALS (Advanced life support) at the pre-hospital and hospital stages.
14. Techniques for restoring airway patency (including methods of their prosthetics),
15. Methods of artificial lung ventilation (IVL) and chest compression. Performance criteria.
16. Electric impulse therapy: defibrillation. Indications, technique, efficacy criteria, complications.
17. Electric pulse therapy: cardioversion and electrical stimulation. Indications, methodology, performance indicators, complications.
18. Pharmacodynamics of medicinal substances used in intensive care, indications for their use, doses, procedures and routes of administration.
19. Infusion therapy in intensive care. Drugs, indications for their use, doses, procedures and routes of administration.
20. Monitoring the condition of vital organs and body systems during resuscitation.
21. The concept of a disease of a revived organism is a post-resuscitation disease.
22. Prevention and treatment of posthypoxic brain damage in the early post-intensive care period.

23. Possible complications of posthypoxic brain damage.
24. Indications for termination of resuscitation measures.
25. Ethical issues and deontology at the end of intensive care.
26. Socio-legal issues related to the termination of intensive care.

Part 3. Intensive care.
1. Microcirculation and macrocirculation systems in the clinical physiology of blood circulation.
2. Shock. Definitions. Classification of shock forms: hypovolemic, cardiogenic and vasogenic (distributive/distributive) shock. Stages of shock.
3. Etiology (decrease in circulating blood volume (BCC)) and pathophysiological mechanisms of hypovolemic shock.
4. Etiology (decreased pumping function of the heart) and pathophysiological mechanisms of cardiogenic shock.
5. Etiology (discrepancy between BCC and vascular bed capacity) and pathophysiological mechanisms of vasogenic (distributive/ distributive) shock.
6. Clinical picture of hypovolemic shock due to blood loss: blunt or penetrating trauma with organ or vascular damage, fractures or ruptures (especially of the scalp), bleeding in the upper or lower gastrointestinal tract, vaginal bleeding, ectopic pregnancy, rupture of an ovarian cyst, nosebleed, hemorrhagic pancreatitis, rupture of an aneurysm.
7. Clinical picture of hypovolemic shock due to fluid loss: diarrhea and/or vomiting, heat shock/overheating, burns, postoperative period and in patients with intestinal obstruction, pancreatitis or cirrhosis of the liver.
8. Clinical picture of cardiogenic shock due to: cardiomyopathy (dilatation, myocarditis, infarction), arrhythmias (tachy/bradycardia), mechanical lesions (valve defects, septa, ruptures, dissections, myxomas), non -cardiac causes (pulmonary embolism, pericarditis, tamponade, tense pneumothorax, severe pulmonary hypertension).
9 The clinical picture of vasogenic (distributive / distributive) shock due to anaphylaxis, drugs or toxic reactions, sepsis, systemic inflammatory response syndrome, injury to the central nervous system (CNS) or spinal cord, hypothyroid coma, Addison's syndrome, post-intensive care disease (reperfusion syndrome): anaphylactic, septic and neurogenic shocks.
10. Diagnostic algorithms. Invasive and non-invasive monitoring.
11. Multiple organ failure in shock.
12. Types (components) of intensive shock therapy: infusion, vasoactive, inotropic, respiratory and antibacterial, extracorporeal membrane oxygenation, balloon counterpulsation and ballooning of the abdominal aorta, auxiliary blood circulation.
13. Anatomy and physiology of the respiratory system. Indicators of blood gas composition. The Euler-Liljestrand phenomenon (local hypoxic vasoconstriction).
14. Acute respiratory failure (ARF): definition, classification, etiology, clinical physiology, clinical -morphological characteristics, functional tests.
15. Laboratory and instrumental research methods, functional tests for ARF.
16. Interpretation of laboratory and instrumental examination data. Diagnostic criteria are ARF.
17. Basic principles of treatment of acute respiratory failure: indications, rules, technical equipment.
18. Methods of intensive therapy (IT) for acute respiratory failure: oxygen therapy, respiratory therapy, artificial lung ventilation (ventilator), hyperbaric oxygenation (HBO). Indications, contraindications, and treatment regimens.
19. Features of IT in massive pneumonia, lung atelectasis.
20. Features of IT in asthmatic status, obstructive bronchitis.
21. Features of IT in adult respiratory distress syndrome.
22. Features of IT in Mendelssohn's syndrome (acid aspiration pneumonitis).
23. Features of IT in case of chest injury, pneumothorax.
24. Special features of IT in case of suffocation, carbon monoxide poisoning.
25. Exogenous surfactant therapy for respiratory distress syndrome.
26. Definitions of acute cerebral insufficiency and coma. Classification of comatose states
27. Etiology. Pathophysiological mechanisms. comatose conditions: edema- swelling, brain dislocation syndrome.
28. Clinical signs, diagnostic criteria, differential diagnosis of comatose states.
29. Pathological syndromes of comatose states.
30. Point assessment of quantitative impairment of consciousness (Glasgow scale).
31. Qualitative assessment of impaired consciousness (according to Janet).
32. Methods of monitoring vital functions in comatose conditions.
33. Basic principles of treatment of acute cerebral insufficiency.
34. Features of intensive care and resuscitation of comatose conditions of various etiologies (toxic-metabolic, hypoxic, hemodynamic comas, TBI, stroke).
35. Anatomical features and basic liver functions.
36. Acute liver failure. Definition. Etiology. Risk factors.
37. Features of the group of main causes: fulminant and subfulminant hepatitis; unfavorable course chronic hepatitis and cirrhosis of the liver; prolonged and severe cholestasis; liver necrosis or tumor destruction of the organ; hypoxia of the liver parenchyma.
38. Pathogenetic links of acute liver failure.
39. The main clinical and morphological forms (syndromes): cholestasis, hepatocytolysis, hepatic encephalopathy, hemorrhage, portal hypertension, inflammatory mesenchymal syndrome, hepatolienal and hepatorenal syndrome and its difference.

40. Classification of acute liver failure - Conn, Lakhin, Child-Pugh, etc.
41. The importance of laboratory, instrumental diagnostics, stress tests, liver biopsy. New technologies in diagnostics.
42. Course, prognosis, prevention of acute liver failure.
43. The basic therapy of acute liver failure is the normalization of the main vital processes.
44. Specific therapy of acute liver failure is substitution therapy, active detoxification methods, including extracorporeal methods and liver transplantation.
45. Anatomy and physiology of the urinary system (mechanism of urination, autoregulation).
46. Acute renal failure (acute renal failure). Definition. The concept of different morphological variants of acute renal failure. Classification.
47. Etiology of acute renal failure: prerenal, renal and postrenal factors. Risk factors.
48. The main links in the pathogenesis of acute renal failure.
49. Stages and clinical manifestations of acute renal failure: initial, oligoanuric, restoration of diuresis - polyuric, stage of resolution or recovery.
50. Laboratory and instrumental research methods. Criteria of diagnosis.
51. Course, outcome, and prognosis of acute renal failure.
52. Basic principles of intensive care and intensive care (etiopathogenetic, anti-inflammatory, symptomatic, nephrotective therapy).
53. Absolute indications for renal replacement therapy.
54. Preventive measures for acute renal failure.
55. Acid-Base State (CBS). The concept, physiological principles of regulation of acid-base state.
56. P. Stewart's theory.
57. The main types of acid-base disorders: respiratory acidosis, metabolic acidosis, respiratory alkalosis, metabolic alkalosis.
58. Methods of laboratory diagnostics and control of acid-base disorders.
59. Correction of the main types of acid-base disorders. Characteristics of drugs, indications for use.
60. The importance of the acid-base state in the regulation of hemostasis.
61. Physiology of the hemostasis system: vascular-platelet hemostasis, plasma coagulation and anticoagulation factors.
62. Modern (cellular) theory of the physiology of the hemostasis system.
63. The main clinical types of hemostasis system disorders
64. Methods of laboratory diagnostics and control of the main types of disorders of the hemostasis system.
65. Correction of hemostasis disorders. Characteristics of drugs, indications for use.
66. Water-electrolyte balance (WEB). Body's water spaces, water balance.
67. Physiological principles of regulation of water-electrolyte metabolism.
68. The concept of osmolarity. Indicators of blood electrolyte composition.
69. Interrelation of acid-base state disorders and water-electrolyte balance.
70. The main types of disorders of the water-electrolyte balance: hypotonic, isotonic and hypertensive de- and hyperhydration.
71. Diagnosis and monitoring of the main types of WEB disorders.
72. Basic principles of correction of disorders of water-electrolyte balance.
73. Drugs for the correction of WEB disorders, characteristics, indications for use.
74. Infusion and transfusion therapy (ITT). The main provisions of transfusiology.
75. The technique of catheterization of the main and peripheral veins.
76. Principles of infusion-transfusion therapy: basic and corrective. Indications for infusion-transfusion therapy.
77. Special ITT methods: detoxification, rehydration, dehydration, etc.
78. Basic infusion and transfusion media: balanced crystalloids, colloidal and combined solutions.
79. Preparation of infusion programs using the simplest formulas.
80. Hemotransfusion (component therapy). Indications. Protocols. Medication.
81. Methods of conducting and monitoring the adequacy of ITT.
82. Complications of infusion-transfusion therapy, their prevention and treatment.
83. Physiology of digestion. Nutritional status (protein metabolism, energy balance).
84. Nutritional (protein-energy) deficiency (deficiency or imbalance). Epidemiology, etiology (metabolic dysfunction), risk factors, consequences. Determination of the degree of nutritional deficiency.
85. Enteral (intestinal) insufficiency syndrome (SEN).
86. Nutritional support (NS): enteral, parenteral and mixed nutrition. The modern concept of NS.
87. Indications and contraindications to NS. Metabolic monitoring and evaluation of the effectiveness of NS.
88. Characteristics of pharmaconutrients for parenteral and enteral nutrition. Three -component parenteral nutrition.
89. Protocols of NS appointments. Basic principles and options for conducting NS.
90. Methods and techniques of conducting NS. Prevention and treatment of complications of NS.
91. Acute exogenous poisoning. Definition. Classification.
92. Ways of toxic substances entering the body. Pathophysiology.

93. Clinical syndromes that occur in acute poisoning.
94. Exotoxic shock.
95. Differential diagnosis of symptoms and syndromes of acute poisoning.
96. Collection of biological material (gastric lavage, vomit, urine, blood) for chemical and toxicological examination. Rapid screening tests.
97. Basic principles of complex antitoxic treatment acute exogenous poisoning.
98. Removal of non-absorbed poison: restriction and cessation of the intake of poison, gastric lavage, cleansing enemas, intestinal dialysis, etc. Indications, contraindications, technique, complications.
99. Removal of the absorbed poison. Incorporated methods: forced diuresis, blood alkalinization, peritoneal dialysis. Indications, contraindications, technique, complications.
100.Removal of the absorbed poison. Modern efferent extracorporeal detoxification methods: hemosorption, plasmosorption, lymphosorption, hemodialysis, drainage of the lymphatic thoracic duct, plasmapheresis, etc. Indications, contraindications, technique, complications.
101. Antidote (specific) therapy: classification, mechanisms of antitoxic effect of antidotes, indications and optimal conditions of use, the use of antidotes in the prehospital stage, contraindications, complications and their prevention.
102. Features of the intensive care for alcohol poisoning and its surrogates.
103. Features of the intensive care in case of poisoning with hypnotics and sedatives.
104. Features of the intensive care in cases of carbon monoxide poisoning, FOS, chlorinated hydrocarbons.
105. Features of the intensive care and resuscitation in case of poisoning with cauterizing fluids
106. Features of the intensive care and resuscitation in case of venomous snake bites, insects.
107. Intensive care (IT) for acute left ventricular (heart) failure - low output syndrome, pulmonary edema.
108. Intensive care (IT) for severe (life–threatening) cardiac arrhythmias - tachyforms and bradiforms.
109. Intensive care (IT) for hypertensive crisis (HR): type I - adrenal (hyperkinetic, neurovegetative form), type II – noradrenal (hypokinetic, water-electrolyte form).
110. Intensive care (IT) for complications of diabetes mellitus: hyperosmolar, ketoacidotic, lactic acidemic, hypoglycemic coma.
111. Intensive care (IT) for thyrotoxic crisis.
112. Intensive care (IT) for convulsive and hyperthermic syndromes.
113. Intensive care (IT) for drowning in salt and fresh water.
114. Intensive care (IT) for electrical injury.
115. Intensive care (IT) for overheating (heat and sunstroke).
116. Intensive care (IT) for cold injury (hypothermia, cold injury).
117. Intensive care (IT) for prolonged compression syndrome (crash syndrome).
118. Intensive care (IT) for strangulation asphyxia.

Sample test tasks for the current control. Choose one answer option.

I. INHALED ANESTHETICS INCLUDE:
1. Isoflurane
2. Diprivan
3. Ketamine
4. Sodium thiopental

II. INTRAOPERATIVE MONITORING OF EXTERNAL RESPIRATION INCLUDES:
1. Pulse oximetry
2. Oscillometry
3. Plethysmography
4. Scintigraphy

III. RISK OF ANESTHESIA IS CARRIED OUT:
1. According to the ASA
2. By Moscow Scale of the Risk of Anesthesia
3. According to Balagin
4. By APGAR

Examples of situational tasks of current control.
Task 1
LEARN THE SITUATION AND GIVE DETAILED ANSWERS TO THE QUESTIONS/TASKS.
The drainage of the panaritium of the 2nd finger of the right hand of a young man is planned in the surgical department.
Questions/Tasks:
1. What type of anesthesia is indicated in this case?
2. What are the possible alternatives?
3. Is an anesthesiologist needed in this situation?

Choose correct answer:
1. Local anesthesia.
2. It is also possible to block the brachial plexus, but this is irrational.
3. Local anesthesia is performed by a surgeon, so the presence of an anesthesiologist is not required.

Task 2
LEARN THE SITUATION AND GIVE DETAILED ANSWERS TO THE QUESTIONS/TASKS.
A 50-year-old patient was in the cardiology department due to a myocardial infarction. Suddenly the patient opened his mouth, lost consciousness, the skin is cyanotic. The pulse is not detected.
Questions/Tasks:
1. What should be done to start CPR?
2. What are the next steps?
3. How should the palms be positioned to perform a closed heart massage?
4. What should the incoming intensive care doctor do first?
5. What should I do if I have an established fibrillation?

Choose correct answer:
1. Tilt your head back, fix it in this position.
2. Start mechanical ventilation and indirect heart massage.
3. The palms are located 2 cm above the joint of the sternum with the xiphoid process, strictly in the center of the sternum.
4. Find out the type of cardiac arrest (record an ECG).
5. Perform defibrillation.

Task 2
LEARN THE SITUATION AND GIVE DETAILED ANSWERS TO THE QUESTIONS/TASKS.

A 60-year-old patient underwent surgery for an acute intestinal obstruction 5 days ago. Infusion therapy with crystalloid solutions was performed during the operation and in the postoperative period. A total of 7.0 liters of crystalloid solutions were gived. On the 1st day of the postoperative period, in the intensive care unit, the patient developed arterial hypotension, respiratory failure with a decrease in SpO2 and PaO2.
Questions/Tasks:
1. The most probable mechanism of arterial hypotension.
2. The most likely changes in the electrolyte composition of plasma.
3. The mechanism of respiratory failure.
4. Expected changes in fluid distribution in water sectors.
5. What diagnostic measures should be carried out to clarify the diagnosis of syndromic disorders?

Choose correct answer:
1. Hypovolemia
2. Hyponatremia and hypokalemia
3. Interstitial pulmonary edema.
4. Hyperhydration of the interstitial space, hypovolemia.
5. Assessment of blood electrolyte composition, measurement of CVD, assessment of blood gas composition, lung X–ray, ECG, if possible, assessment of the volume of water sectors.

Test tasks for intermediate certification based on the results of mastering section No. 1 - "Anesthesiology", with a standard of answers.
The test control of section No. 1 consists of 20 test questions and is counted with 60% correct answers, which is equivalent to 3 total points.

1. ACCORDING TO THE FEDERAL LAW OF THE RUSSIAN FEDERATION DATED 11/21/2011 N 323-FZ, MEDICAL CARE IS:
A) a set of measures aimed at maintaining and (or) restoring health and including the provision of medical services
B) a set of medical interventions aimed at the prevention, diagnosis and treatment of diseases
C) a set of medical examinations and (or) medical manipulations
D) combined measures to eliminate or alleviate the manifestations of the disease

2. ACCORDING TO THE FEDERAL LAW OF THE RUSSIAN FEDERATION DATED 21.11.2011 N 323-FZ ON TYPES OF MEDICAL CARE INCLUDES MEDICAL CARE:
A) primary health care, ambulance, specialized, palliative
B) outpatient, inpatient, inpatient day care, outside the medical organization
C) emergency, urgent, planned
D) medical specialties

3. ACCORDING TO THE FEDERAL LAW OF THE RUSSIAN FEDERATION DATED 11/21/2011 N 323-FZ ON FORMS OF MEDICAL CARE THEY INCLUDE:
A) primary health care, ambulance, specialized, palliative care
B) outpatient, inpatient, and day-care inpatient care provided outside a medical organization
C) urgent, urgent, planned
D) medical specialties

Test tasks for intermediate certification based on the results of mastering section No. 2 - "Intensive care medicine", with a standard of answers. The test control of section No. 2 consists of 10 test questions and is counted with 60% correct answers, which is equivalent to 2 total points.

1. IN THE PRE-AGONAL STATE, THE PULSE CAN BE DETERMINED:
A) in the peripheral arteries
B) on the carotid and femoral arteries
C) on peripheral, carotid and femoral arteries
D) only on the femoral arteries

2. IN THE PRE-AGONAL STATE:
A) confused consciousness
B) there is no consciousness
C) coma
D) consciousness is present

3. IN THE PRE-AGONAL STATE, THE BLOOD PRESSURE IS:
A) 60/20 mmHg
B) 40/0 mmHg
C) 90/45 mmHg
D) 80/40 mmHg

Test tasks for the interim assessment based on the results of mastering section No. 3 - "Intensive care", with a standard of answers. The test control of section 3 consists of 60 test questions and is counted with 60% correct answers, which equates to 6 final points.

1. THE SHOCK IS:
A) a sharp drop of the blood pressure
B) acute disturbance of the tissue perfusion
C) cardiac arrest
D) short-term cerebral ischemia

2. THE EARLY SIGN OF HYPOVOLEMIC SHOCK IS:
A) hypotension
B) tachycardia
C) oliguria
D) bradycardia

3. THE STATE OF HYPOVOLEMIA IS CHARACTERIZED BY:
A) a decrease in the volume of circulating blood
B) improvement of rheological properties of blood
C) increased central venous pressure
D) increased stroke volume and cardiac output

List of questions for the interim assessment based on the results of mastering the discipline "Anesthesiology, resuscitation, intensive care":

1. Tell us about the general principles of the anesthesiology, resuscitation and intensive care services.
2. Tell us about the main stages and components of the anesthetic aid.
3. Tell us about the concepts: multimodal analgesia, proactive analgesia, patient-controlled anesthesia.
4. The concepts of "terminal state". Stages of dying: pre-agonal stage, agony, clinical death, biological death. Characteristics and duration of each stage.
5. Identify the signs of "terminal conditions" and perform diagnostics and differential diagnosis of various stages of dying of an organism.
6. Types of death (clinical, social, biological). The leading pathophysiological factors in various types of body death.
7. Brain death. Clinical protocols for the diagnosis of brain death.
8. Types of cardiac/circulatory arrest. ECG-signs of ventricular tachycardia without pulse, ventricular fibrillation, asystole, electromechanical dissociation.
9. Features of resuscitation and intensive care depending on the type of cardiac/circulatory arrest. The algorithm of actions, the main drugs.
10. Determine the indications and contraindications for resuscitation measures with demonstration on simulation equipment (dummy simulator) examination of the patient or victim.
11. Basic complex of cardiopulmonary resuscitation (BLS - Basic life support) – goals, sequence of actions in the main periods (ABC).
12. Advanced complex of cardiopulmonary resuscitation (ALS - Advanced life support) – goals, sequence of actions in the main periods (DEF).
13. Perform a complex of cardiopulmonary resuscitation at the pre-hospital stage and in the hospital using a dummy simulator.
14. Show on the mannequin the intensive care unit alone and as part of the intensive care unit (techniques of specialized cardiopulmonary and cerebral resuscitation).
15. Tell us about the specifics of the complex in neonatology. Monitoring the effectiveness of the intensive care unit (using a child's exercise dummy).
16. Types of massage (compression) of the heart. Indications, mechanism of action, methods, efficacy criteria, complications, prevention.
17. The technique of the simplest methods of restoring the patency of the respiratory tract and methods of mechanical ventilation.

18. Show the method of using the tongue holder, mouth expander, air ducts, indicate the indications for their use, methods and methods of their use on exercise dummies.
19. Types of cardiac defibrillation electrical, chemical, mechanical. Indications. Complications. Prevention. Safety precautions.
20. Show the technique of electrical defibrillation with a demonstration on a mannequin.
21. Tell us about the transportation of intensive care patients (types, rules, features and prevention of possible complications).
22. Tell us about the etiology, pathogenesis and clinical manifestations of post-intensive care disease. Features of resuscitation and intensive care.
23. Tell us about the principles of assessing the condition of a critically ill patient, identifying the leading syndromes in patients and victims.
24. Conduct an objective examination of patients in intensive care (on a simulator dummy with the data provided to you): examination, palpation, percussion, auscultation. Evaluation and interpretation of the data obtained.
25. Name the main types, forms and methods of intensive care for emergency conditions.
26. Show emergency care on a mannequin for various critical conditions (obstructive respiratory failure, cardiac arrest).
27. Tell us about the criteria for evaluating the effectiveness of emergency care and describe it on a simulator dummy.
28. Shock is an acute circulatory disorder. Definition, classification, clinical signs, hemodynamic profiles.
29. Tell us about the etiology, pathogenesis, and clinical manifestations of multiple organ failure in shock.
30. Shock treatment – prevention of acute renal failure, acute renal failure, DIC syndrome, stress ulcers. Inotropic agents, vasopressors, infusion-transfusion therapy, etc., in the treatment of shocks.
31. Tell us about the etiology, pathogenesis, and clinical manifestations of hypovolemic shock.
32. Tell us about the determination of blood loss volume based on clinical and laboratory data. Classifications.
33. Intensive care for acute blood loss. Blood replacement schemes – qualitative and quantitative composition of infusion- transfusion therapy.
34. Tell us about the etiology, pathogenesis, and clinical manifestations of cardiogenic shock.
35. Interpret the ECG data obtained, analyze cardiac arrhythmias and conduction, diagnose acute myocardial infarction, asystole, "small ejection syndrome", ventricular fibrillation, according to the data provided to you.
36. Inotropic support and vasopressors for cardiogenic shock are the main drugs and their effects. For dopamine specify the range of titrated doses.
37. Tell us about the etiology, pathogenesis, and clinical manifestations of anaphylactic shock.
38. Tell us about the features of intensive care for anaphylactic shock. Anaphylactic and anaphylactoid reactions are the main differences, causes, and clinical manifestations.
39. Tell us about the etiology, pathogenesis, and clinical manifestations of neurogenic (spinal) shock.
40. Tell us about the etiology, pathogenesis, and clinical manifestations of septic shock.
41. Features of drug therapy of septic shock. Empirical antibacterial therapy for community–acquired and nosocomial sepsis - drugs of choice and alternative regimens.
42. Acute respiratory failure. Definition. Classifications according to the rate of development, pathogenesis and severity. Pathophysiological mechanisms.
43. Acute respiratory failure. Functional and laboratory diagnostics. Clinical manifestations.
44. Name the symptoms of acute respiratory and cardiovascular failure and describe them on a simulator dummy.
45. Tell us about the basic principles of resuscitation and intensive care for acute respiratory failure: oxygen therapy (indications, means of delivery), artificial ventilation (indications, types of ventilation), hyperbaric oxygenation.
46. Perform a ventilator in various ways and a toilet of the tracheobronchial tree with a demonstration on a mannequin.
47. Apply a portable sanitation system to a patient with signs of acute respiratory failure that has developed due to aspiration syndrome.
48. Evaluate the signs of circulatory and respiratory insufficiency based on the clinical signs, instrumental and lab data.
49. Tell us about the principles of determining the degree of damage to the central nervous system (LOC).
50. Tell us about the etiology, pathogenesis, and clinical manifestations of cerebral edema.
51. Tell us about the etiology, pathogenesis, and clinical manifestations of acute cerebral circulatory disorders.
52. Features of intensive care and intensive care for comas of various etiologies. Differential diagnosis of comas.
53. Tell us about the etiology, pathogenesis, clinical manifestations and features of intensive care for acute liver failure.
54. Tell us about the etiology, pathogenesis, clinical manifestations and features of intensive care for acute renal failure. insufficiency. Absolute indications for substitution (hemodialysis) therapy.
55. Tell us about the distribution of water and electrolytes in the body, the mechanisms that ensure the movement of water between different spaces of the body.
56. Types of WEB disorders. Features of intensive care for dehydration and hyperhydration.
57. Clinical physiology of mechanisms of regulation of acid-base state. Types of violations and their correction. Correction of metabolic acidosis: drugs, calculation of doses, rules of administration.
58. Infusion preparations – crystalloids. Classification, advantages, disadvantages.
59. Infusion preparations – colloids. Classification, advantages, disadvantages

60. Describe the technique of parenteral and enteral nutrition of intensive care patients.
61. Tell us about the general principles of intensive care for acute exogenous poisoning.
62. Modern methods of extracorporeal detoxification of the body (hemosorption, plasmosorption, lymphosorption, ultrafiltration).
63. Perform gastric lavage on the dummy (probing it through the mouth and nose).
64. Hypertensive crisis. Etiopathogenesis, clinic, main directions of therapy, the main difference in treatment.
65. Non-drug therapy of rhythm disorders – types, methods, indications for the treatment of tachyarrhythmias and bradyarrhythmias.
66. Diabetic ketoacidotic and hyperosmolar comas – principles of insulin therapy, features of rehydration and correction of hypokalemia.
67. Tell us about the main differences between intensive care for different types of drowning.

Situational tasks with response standards for intermediate assessment based on the results of mastering the discipline "Anesthesiology, resuscitation, intensive care".

Task 1
LEARN THE SITUATION AND GIVE DETAILED ANSWERS TO THE QUESTIONS/TASKS.
During a doctor's visit, a patient in the intensive care unit had ventricular fibrillation on a heart monitor.
Your defibrillator is defective, you need to bring it from another compartment.
Questions/Tasks:
1. What needs to be done first?
2. What is your procedure?
3. What medications will you use?
4. What changes are possible on the monitor after applying the first discharge of the defibrillator?
5. How long should resuscitation measures be carried out in this situation?

Choose correct answer:
1. Apply a precardial stroke.
2. It is necessary to start an chest compressions by sending an assistant to bring defibrillator.
3. Cordarone, lidocaine, adrenaline.
4. Asystole, restoration of sinus rhythm and possible continuation of fibrillation.
5. 30 minutes.

Task 2
LEARN THE SITUATION AND GIVE DETAILED ANSWERS TO THE QUESTIONS/TASKS.
A young woman with a spontaneous miscarriage at an early stage was admitted to the gynecological department.
Curettage of the uterine cavity is planned.
Questions/Tasks:
1. Which type of anesthesia is most convenient in this case?
2. What medications will you need?
3. Suggest an anesthesia plan.
4. Do I need to use muscle relaxants?
5. How to ensure the patency of the upper respiratory tract in this situation?

Choose correct answer:
1. Total intravenous anesthesia.
2. Propofol/ketamine, fentanyl, atropine, infusion solutions.
3. Premedication, administration of propofol / ketamine and fentanyl, taking into account the actual body weight, maintenance of anesthesia, control of vital functions, infusion therapy.
4. No, it is not necessary, because in this case, TVA is performed while maintaining spontaneous breathing.
5. As a rule, additional measures to ensure the patency of the respiratory tract are not required, but you can use a T or S-shaped airways.

Task 3
LEARN THE THE SITUATION AND GIVE DETAILED ANSWERS TO THE QUESTIONS/TASKS.
A young woman is scheduled to have an emergency cesarean section due to preeclampsia. She is physically healthy.
Questions/Tasks:
1. What type of anesthesia is preferable in this situation?
2. Why?
3. What type of anesthesia could be performed if there was no preeclampsia?
4. Which type of anesthesia is safer for the fetus?
5. Is it necessary to catheterize the central vein?

Choose correct answer:
1. General (endotracheal) anesthesia with myoplegia.
2. Instability of vital functions is a contraindication for regional anesthesia.
3. Spinal anesthesia.
4. Regional methods are safer due to the lack of systemic action.
5. Yes, it is necessary, because this is a life-threatening condition and it requires monitoring of central hemodynamics and ensuring reliable venous access.

The list of practical skills and abilities assessed at the interim assessment based on the results of mastering the discipline "Anesthesiology, resuscitation, intensive care".

1. To collect an anamnesis, to conduct an examination and examination of the patient (examination, palpation, auscultation, measurement of BP, PR, etc.), to assess the activity of the pathological process (form, stage, phase of the course) the patient is in critical condition.
2. Interpret the results of the examination, outline the scope of additional studies to clarify the diagnosis (syndrome) and correct intensive care.
3. Set priorities for solving the patient's health problems, including determining indications and contraindications for surgery, anesthesia and their urgency.
4. To identify various types of cardiac arrest, cardiac arrhythmias and conduction disturbances (tachy- and bradiforms, arrhythmias) by ECG signs, and to determine the tactics of intensive therapy.
5. Calculate the volume of infusion – transfusion therapy for EBV and CBS disorders, select infusion - transfusion solutions.
6. To determine the indications for hemotransfusion, the technology of hemotransfusion, to evaluate the suitability of blood products for transfusion (according to protocols).
7. Calculate the need for carbohydrates, proteins and fats during nutritional support (enteral, parenteral, mixed), select pharmaconutrients.

8. Provide first aid in case of emergencies, accidents, and victims in the affected areas in emergency situations.
9. Analyze and evaluate the quality of medical care.
10. To express and defend an independent point of view in public speaking, discussions and round tables.
11. Methods of maintaining standard accounting and reporting documentation of department of AR in healthcare organizations of the Kyrgyz Republic and the Russian Federation ("Patient's consent to anesthesiological aid", "Anesthesiological aid card", "Intensive care list", "Protocol of hemotransfusion", etc.).
12. Algorithm of emergency diagnosis of disorders of vital functions of the body (HR/pulse, BP, BH, SPO_2, Glasgow coma scale, focal signs, Algover index, etc.).
13. Algorithm for performing first aid in emergency and life-threatening conditions (ABCDE).
14. Methods of basic (BLS- Basic life support) and advanced (ALS- Advanced life support) of cardiopulmonary resuscitation.
15. The simplest methods of anesthesia for performing painful procedures (interventions) and relief of acute and chronic pain syndromes.
16. Methods of restoring patency of the upper respiratory tract: non-instrumental (Heimlich's technique, triple Safar technique) and instrumental (installation of a T or S-shaped airways, supraglottic airways, laryngeal mask, i-gel, combitube, tracheal intubation).
17. The simplest methods of artificial lung ventilation: "mouth to mouth", "mouth to nose", using a manual breathing apparatus type A.M.B.U. (air mask bag unit/artificial manual breathing unit).

18. Methods of oxygen therapy using a nasal cannula and an oxygen mask.
19. Algorithm of intensive care for the main syndromes of critical conditions in diseases of internal organs and systems.
20. Skills of informing the patient and their relatives (including in case of communication failures and failures of typical situations), skills of ethical argumentation, principles of medical deontology, etc. medical ethics.

The list of proposed topics for presentations:

- Fundamentals and prospects of modern anesthesiology. Concepts and trends.
- Issues of deontology in anesthesiology and intensive care. Euthanasia.
- Complex methods of resuscitation. Stages of development, from experiments to realities.
- Physiology of pain. Treatment of pain syndromes. The future of algology.
- Shock. Mechanisms of development. Modern concepts.
- Hemorrhagic (hypovolemic) shock. Emergency care and features of intensive care.
- Anaphylactic shock. Emergency care and features of intensive care.
- Septic shock. Emergency care and features of intensive care.
- Cardiogenic shock. Emergency care and features of intensive care.
- Acute respiratory failure. Classification. Clinical physiology.
- Asthmatic status. Emergency care and features of intensive care.
- Acute respiratory distress syndrome. Features of intensive care.
- Hyperergic pneumonitis (Mendelssohn's syndrome). Features of intensive care.
- Acute cerebral insufficiency. The Monroe-Kelly doctrine.
- Blood-brain barrier. Edema is a swelling of the brain.
- ONMC. Modern concepts of intensive care.
- Diabetic comas. Types of coma and features of their intensive care.
- Hepatic coma. Emergency care and features of intensive care.
- Uremic coma. Emergency care and features of intensive care.
- Modern infusion and transfusion media: crystalloids, colloidal and combined solutions.
- Modern pharmaceutical ingredients.
- Dehydration. Kinds. Intensive care and principles of infusion therapy.
- The most common acute exogenous poisoning. Features of intensive care. Antidotes.
- The main groups of antiarrhythmic drugs. Prescribing strategy for life-threatening cardiac arrhythmias.
- Overheating: "heat" and "sunstroke". Emergency care and features of intensive care;
- Cold injury: hypothermia and cold injury. Emergency care and features of intensive care.

5.2. Topics of coursework (projects)

Not provided by the curriculum

5.3. Fund of appraisal means

Assessment funds are a set of control and measuring materials and other methodological developments describing assessment criteria, forms and evaluation procedures aimed at establishing the quality of students' training throughout the entire period of mastering the educational program and intended for ongoing monitoring and intermediate certification in the discipline. The FOS is an integral part of the regulatory and methodological support for the quality assessment system for students mastering the basic professional educational program of higher education.
Current control:
- oral interview in the form of an interview;
- answers to questions about the topic of the lesson;
- clarifying questions and student-to-student expert assessment;
- test control on the topic of the lesson;
- solving situational problems;
- self-monitoring tasks;
- study assignments (projects)
- current debt.
Border control (as part of the current control):
- computer or blank testing;
- if necessary, an oral interview of the student with the teacher.
Intermediate control/certification:
- certification questions;
- situational tasks;
- practical skills and abilities
Differential credit:
- the sum of the points received by the student according to the point rating system for assessing knowledge, skills and abilities.

5.4. List of types of assessment tools

Ongoing monitoring of the assimilation of theoretical and practical material.
Solving clinical situational problems.

Border control test tasks.
Practicing practical skills on simulation simulators.

6. EDUCATIONAL, METHODOLOGICAL AND INFORMATIONAL SUPPORT OF THE DISCIPLINE (MODULE)

6.1. Recommended literature

6.1.1. Basic literature

	Authors, compilers	The title	Publisher, year
Л1.1	Бараш П.Ж., Куллен Б.Ф., Стэлтинг Р.К.	Clinical Anesthesiology: a textbook	М.: Медицинская литература 2004
Л1.2	Полушин Ю.С.	Anesthesiology and Intensive Care Medicine: a textbook	СПб.: "ЭЛБИ-СПБ" 2004
Л1.3	под ред. А.А.Бунатяна, В.М. Мизикова	Anesthesiology: National guidelines	М.: ГЭОТАР-Медиа 2011
Л1.4	под ред. О. А. Долиной	Anesthesiology and Intensive care medicine: textbook for universities	Москва : ГЭОТАР-Медиа 2009.
Л1.5	под ред.акад.РАМН Б.Р. Гельфанда, чл.кор.РАМН А.И. Салтанова.	Intensive care: National guidelines	Москва,ГЭОТАР- Медиа 2012
Л1.6	Марино Пол. Пер с англ. под ред. Зильбера А.П.	Intensive care: a guidelines	Москва. : ГЕОТАР -Медиа, 2010
Л1.7	К. Гроер, Д. Кавалларо	Cardiopulmonary Resuscitation: Pocket Reference Book: Reference Edition	Москва. Медицина 1996
Л1.8	А.А. Бунятян, Н.А. Трекова, А.В. Мещеряков и др	Manual of Cardioanesthesiology: A Guidelines	Москва.: МИА 2005
Л1.9	Зильбер А.П.	Clinical physiology in anesthesiology and Intensive Care Medicine: a guide	Москва. Медицина 1987
Л1.10	Неговский В.А.	Fundamentals of Intensive Care Medicine: a guide	Ташкент. Медицина 1985.
Л1.11	Пермяков Н.К., Хучуа А.В., Туманский В.А.	Post-resuscitation encephalopathy: a guide	Москва.Медицина 1986.
Л1.12	Колесникова М.А.	Anesthesiology and intensive care medicine: a textbook	Саратов 2012
Л1.13	Сумин С.А., Руденко М.В.	Anesthesiology and intensive care. The textbook in 2 volumes.	МИА, Москва 2009.
Л1.14	Kyrgyz Republic	On the further development of human organ and (or) tissue transplantation in the Republic" (the order approved the instruction "Statement of human death as a result of complete and irreversible cessation of brain function: Order No. 167	Министерство Здравоохранения 04.05. 2005
Л1.15	Ашырбаев А.А., Бебезов Б.Х.,	Fundamentals of life support and basic cardiopulmonary resuscitation. : Study guide for students and residents	КРСУ 2018

6.1.2. Additional literature

	Authors, compilers	The title	Publisher, year
Л2.1	А.А. Шерова	About the development of anesthesiology and anesthesiologists of Kyrgyzstan:	Bishkek, KRSU publisher, 2008
Л2.2	Хенсли Ф.А.	Anesthesiology in Cardiology: A Textbook	
Л2.3	Назаров И.П.	Anesthesiology and Intensive Care Medicine: A textbook	Rostov-on-Don, Phoenix 2007
Л2.4	Гельфанд Б.Р., Кириенко П.А., Гриненко Т.Ф., Гельфанд Б.Р.	Anesthesiology and Intensive Care: A Practical Guide	Moscow, 2006
Л2.5	Г. Г. Жданов, А. П. Зильбер.	Intensive care and intensive care: a textbook for university students	Moscow, Academy 2007.
Л2.6	Под ред. А.Р.Айткенхеда и др. – пер. с англ. под ред. М.С.Ветиевой	Anesthesiology: A guide	Moscow, Medicine, 2010
Л2.7	Рябов Г.А.	Critical condition syndromes: A guide	Moscow, Medicine, 1994.

	Authors, compilers	The title	Publisher, year
Л2.8	Зильбер А.П.	Critical Condition Medicine: a monograph	Petrozavodsk University, publisher 1995
Л2.9	Федоровский Н.М.	A guide to practical exercises in anesthesiology, intensive care medicine and intensive care: a textbook	Moscow, 2003
Л2.10	Беляевский А.Д.	Anesthesiology and intensive care: tasks, questions and answers with explanations: textbook	Phoenix, 2006
Л2.11	Пермяков Н.К.	Pathology of intensive care and intensive care: manual	Moscow, Medicine, 1985.
Л2.12	Под ред. Г.Н. Цибуляка	Intensive Care: a guide	Leningrad, Medicine, 1985.
Л2.13	Данилов А.Б., Данилов Ал.Б	Pain management. The Biopsychosocial approach: a guide	М: АММ ПРЕСС -2012
Л2.14	Kyrgyz Republic	On the improvement of anesthesiological and resuscitation care for the population of the Kyrgyz Republic: Order No. 767	Ministry of Health 12.11.2009
Л2.15	Russian Federation	On approval of the Procedure for providing medical care to the adult population in the field of "Anesthesiology and intensive care: Order No. 919n	Ministry of Health 15.11. 2012
Л2.16	Russian Federation	On approval of the Procedure for providing medical care to children in the field of "anesthesiology and intensive care: Order No. 909n	Ministry of Health 12.11. 2012
Л2.17	Russian Federation	Procedure for the diagnosis of human brain death: Order No. 908n	Ministry of Health 25.12. 2014
6.1.3. Methodological literature			
	Authors, compilers	The title	Publisher, year
Л3.1	Бебезов Х.С., Нурманбетов Дж. Н., Мадаминов А. М., Чынгышпаев Ш. М.	Shock: an educational and methodical manual	Bishkek, KRSU publisher, 2002
Л3.2	Бебезов Х.С., Шерова А.А., Логачева Е. Г.	Selected lectures on intensive care and intensive care (part1): methodical manual	KRSU 2007
Л3.3	Бебезов Х.С., Шерова А.А., Логачева Е. Г.	Selected lectures on intensive care and intensive care (Part 2): guidelines	KRSU 2007
6.2. List of resources of the Internet information and telecommunication network			
Э1	Catalog of medical websites		http://www.medpoisk.ru
Э2	Electronic Medical Library		http://www.rosmedlib.ru
Э3	Russian Medical Server		http://www.med.ru
Э4	Russian Anesthesia Server		http://www.rusanesth.com
Э5	Critical Condition Medicine Website		http://www.critical.ru
Э6	Research Institute of Neurosurgery named after Academician N.N. Burdenko of the Russian Academy of Medical Sciences		http://www.nsi.ru
Э7	Regional Northwest Association of Enteral and Parenteral Nutrition		http://www.rnw-aspen spb.ru
Э8	The electronic library of the medical university		http://www.studmedlib.ru
Э9	Open Contour is an online club of anesthesiologists and intensive care specialists.		http://www.okontur.narod.ru
6.3. List of information and educational technologies			
6.3.1 Competence-based educational technologies			
6.3.1.1	Traditional educational technologies, such as lectures, practical seminars, and extracurricular activities, are primarily focused on communicating knowledge and methods of action that are transmitted to students in a ready–made form and intended for reproducible assimilation. Practical exercises are most often conducted directly on the basis of a surgical clinic with mandatory visits to patients.		

6.3.1.2	Innovative educational technologies are classes that form systematic thinking and the ability to generate ideas when solving various creative tasks. Interactive form of classes: formation of skills on simulator dummies, testing, multimedia opportunities with demonstration of lesson material, videos. Practical exercises are also possible, which use the brainstorming technique.
6.3.1.3	Information educational technologies is the student's independent use of computer technology and Internet resources to complete practical tasks and independent work, as well as to familiarize himself with Internet sources, photo and video materials on the relevant section. These include the preparation of lectures and presentations by the teacher.
6.3.2 List of information reference systems and software	
6.3.2.1	“Pirogov” complex is an interactive educational software product that allows you to clearly build the logic of teaching students and doctors a cycle of natural science disciplines: topographic anatomy, pathological anatomy, surgery.
6.3.2.2	Electronic Medical Library - www.rosmedlib.ru;
6.3.2.3	The electronic library of the medical university - www.studmedlib.ru;
6.3.2.4	Electronic medical library of the publishing house Vidar - www.vidar.ru/Library.asp;
6.3.2.5	Medical literature - http://www.medbook.net.ru;
6.3.2.6	Electronic Scientific Library - http://www.elibrary.ru;
6.3.2.7	Federal Electronic Medical Library - http://feml.scsml.rssi.ru;

7. LOGISTICAL SUPPORT OF THE DISCIPLINE (MODULE)	
7.1	The Department of Hospital Surgery is located on the basis of the I.K. Akhunbaev Clinic of the National Hospital of Ministry of Health of the Kyrgyz Republic - Bishkek, Togolok Moldo Street No. 1.
7.2	The number of classrooms, classrooms and other auxiliary facilities available to the department meets the requirements of the educational process.
7.3	The material and technical base of the department provides all types of training for students, in accordance with the curriculum and relevant applicable sanitary and technical standards.
7.4	A lecture hall with 200 seats equipped with a projector and an interactive whiteboard.
7.5	Practical classes are held at the clinic in classrooms with 15 seats each.
7.6	To ensure the teaching process, the department has the following equipment: Multimedia projectors - 2, a video camera - 3, a TV – 1, personal computers – 3, a laptop – 2, a set of thematic tables, a set of thematic slides and educational films on CD-ROMs and USB media, a set of test tasks and situational tasks, educational materials teaching aids, an adult mannequin for practicing basic basic resuscitation (BLS) techniques, mannequins for practicing prosthetics (ensuring patency) skills upper respiratory tract - installation of airways, tracheal intubation, a set of oro- and nasopharyngeal airways, laryngeal and facial masks, a laryngoscope with a set of blades, a set of intubation tubes with introducers (conductors), central and peripheral intravascular catheters (vasocan), manual breathing apparatus of the "AMBU" type (Artificial Manual Breathing Unit), samples of drugs for inotropic and vasotropic therapy, samples of drugs for infusion-transfusion therapy and nutritional support.

8. METHODOLOGICAL GUIDELINES FOR STUDENTS ON MASTERING THE DISCIPLINE (MODULE)

Methodological materials for mastering the discipline "Anesthesiology, resuscitation and intensive care". The main forms of studying the discipline (module) "Anesthesiology, resuscitation and intensive care" are classroom classes - a lecture course, clinical practical classes (active and interactive), extracurricular activities - independent work of the student. The teacher enters data on attendance at lectures and practical classes, as well as student academic performance in the cathedral journal. It reflects the content of classes and the daily assessment of knowledge, students of a given topic, the results of the student-curator's work with the patient. The characteristics of the group as a whole are also given and both the best and poorly performing students are noted. A lecture course, as part of classroom instruction, is one of the main forms of studying the discipline. The purpose of the lecture is to familiarize students with the key issues of the theoretical aspects of the topic being presented, and to form an indicative basis for their subsequent assimilation of the material using independent work methods.
The content of the lecture should meet the following didactic requirements: presentation of the material from simple to complex, from the known to the unknown; logic, clarity and clarity in the presentation of the material; the possibility of problematic presentation, discussion, dialogue in order to activate the activities of students; reliance of the semantic part of the lecture on authentic facts, events, phenomena, statistical data; close connection of theoretical the provisions and conclusions relate to the practice and future professional activities of students. In lecture classes, students learn how to: write lecture notes briefly, schematically; consistently record the main points, formulations, generalizations; mark important thoughts, conclusions; highlight keywords, terms. This contributes to a better assimilation of theoretical material and, ultimately, the acquisition of necessary professional skills and abilities. When presenting the material, it is important to remember that almost half of the information in the lecture is conveyed through intonation, using a laptop and a multimedia set-top box.

Clinical practical exercises are an integral part of the educational process, a group form of study with the active participation of students. Classes (seminars) They contribute to the in-depth study of the most complex problems of the discipline, are aimed at developing independence and acquiring skills, and serve as the main form of summarizing students' independent work. The main academic time is allocated to clinical practical work on mastering the skills of critical condition diagnosis and practical first aid skills and intensive care measures. Practical exercises are conducted in the form of interviews, discussions, analysis of specific clinical situations at the bedside in the intensive care unit and in the classroom using visual aids, training dummies, solving situational problems, and answering test tasks. At the seminars, students learn to present problems competently, freely express their thoughts and judgments, conduct polemics, convince, prove, refute, defend their beliefs, considering a specific situation during clinical analysis or when solving situational problems. All this helps to acquire and consolidate the practical skills and abilities necessary for a modern specialist. It should be borne in mind that the form of preparation for the seminar can be writing a report, a message, an abstract, followed by their discussion. The seminar is conducted on key and most complex issues (topics, sections) of the curriculum. It can be based on the material of a single lecture, or on a specific topic without giving a preliminary lecture. The main and defining feature of any seminar is the presence of discussion elements in the dialogues between the teacher and the students and the students themselves.

The most difficult form of situational test is a business (role-playing) game. This is a method of modeling professional activity, in which students do not just theoretically choose ways to solve the proposed tasks, but "lose" them in their behavior. For example, they conduct a "patient review", acting as a patient, doctor, head. the department. This method often involves the creation of several teams that compete with each other to solve a particular problem. The business game requires not only knowledge and skills, but also the ability to work in a team, to find a way out of unusual situations. The student's work in a group creates a sense of teamwork and sociability. The training of students helps them to develop communication skills with the patient, taking into account the ethical and deontological features of pathology and patients.

This method of teaching also makes it possible to sufficiently analyze the pathology under study in the absence of the patient in the departments. Independent work of students - extracurricular activities, as a form of preparation for practical clinical studies, include: independent study of the material, preparation and defense of an abstract or presentation, student bedside work (supervision) in intensive care units, as well as preparation for ongoing and interim monitoring.

Work with educational literature (basic and additional) is considered as a type of educational work in the discipline "Anesthesiology, resuscitation and intensive care" and is performed within the hours allotted for its study (in the section - independent work of the student). First of all, it is necessary to use the lecture material in order to clearly present the key issues that need to be revealed and consolidated during the practical lesson. Next, use the list of basic literature, which contains manuals on the subject (in the main sections of the discipline), educational manuals, monographs and methodological recommendations developed by the faculty of the department.

In preparation for each practical lesson, it is necessary to repeat the questions of previous disciplines, such as the anatomical structure of an organ, its relationship to others in a given location, functioning under normal and pathological conditions, and features of pathomorphological changes in an organ or system. You should also actively use the list of additional literature to complete the subject and, possibly, satisfy the interests of individual students. Each student is provided with access to the library collections of the University and the department. An abstract is a form of written work. It is a summary of the contents of scientific papers and literature on a specific scientific topic. Abstract preparation involves the student's independent study of several literary sources (monographs, scientific articles) on a specific topic that is not considered in detail in the lecture, the systematization of the material and its summary. The purpose of writing an abstract is to instill in the student the skills of a concise and concise presentation of the collected materials and facts in accordance with the requirements for scientific reports, reviews and articles. A presentation is a form of communication prepared using computer technology (Microsoft Power Point). It provides an overview of the relevant issue using medical resources on the Internet, their understanding and concise presentation in the form of slides. The presentation develops the skills of oral presentation of the material, justification, necessity and importance of the information presented. They teach students research skills. Curation is the independent work of students with patients, during which they draw up examination protocols, present an opinion on the patient's condition, surgical and anesthetic risk is filled out on the intensive care sheet or the protocol of resuscitation measures. Proper and careful management of medical records (legal document), helps to acquire and consolidate practical skills and abilities, which ultimately contributes to the formation of adequate professional behavior, accuracy and discipline.