



EDUCATIONAL PROGRAM OF THE RESIDENCY 7R01117
«ANESTHESIOLOGY AND RESUSCITATION (ADULTS, CHILDREN)»

The educational program of the residency 7R01117 "Anesthesiology and resuscitation (adults, children)" was developed by the Department of Emergency Medicine and Nursing Head of the Department, PhD Seidakhmetova A.A. Protocol no. 9 of "08" 04 2025
Agreed with employers: Deputy Chief Physician for the Medical Unit MUC under the REM "Municipal Hospital No. 2" Spantent 11 2 Zhakibayev A.K.
Discussed at the meeting of the AC EP "Anesthes roge" in the street adults, pediatric)" surgical residency Chairman of the AC EP Kaldygozov 33 F. Protocol no. 4 of "1 " 04 " 2025
Approved by the Clinical Council Chairman Nurmashev B.K. Protocol no. 4 9 26 26 " 2025
Approved by the Academic Council Protocol no. (3 of " 2 " " 05 " 2025

*Oнтустік Қазақстан медицина академиясы» АҚ

Emergency medicine and nursing department

Educational program «Anesthesiology and resuscitation (adults, children) »

30 и Онтустік Қазақстан медицина академиясы» АҚ

Educational program «Anesthesiology and resuscitation (adults, children) »

30 и Онтустік Қазақстанская медицинская академия»

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Passport of the educational program

1. Mission of the educational program

To be recognized as a leader in the field of training highly qualified, competitive anesthesiologists-resuscitators.

2. Purpose of the educational program:

To prepare a qualified, competitive physician for an anesthetist-resuscitator, including a pediatric one, who has a system of universal professional competencies, who is able to independently provide anesthesiological aid and resuscitation assistance to patients to restore and maintain the functions of vital organs and systems.

3. Justification of EP

Anesthesiology and intensive care are critical areas of medicine that require high qualifications and specialized knowledge. Training of specialists in these fields is necessary to ensure the safety and effectiveness of medical procedures. Differences in physiology, pathology, and treatment in adults and children require specialized training to ensure the best care and safety for patients of different ages. An anesthesiologist-intensive care specialist needs extensive knowledge about various methods of anesthesia, methods of managing critical patients, pharmacology, monitoring, respiratory and circulatory management, studying the physiology of adults and children, drug dosing, emergency care and resuscitation tactics, etc.

The need of medical organizations for adult and pediatric anesthesiologists-resuscitators is the justification for the need to train anesthesiologists-resuscitators, primarily at the regional level, taking into account strategies and programs for the development of the health system at the international, national and regional levels in order to improve the level and quality of medical care for adults and children.

4. The professional standard on the basis of which the educational program was developed

 Professional standard "Anesthesiology and resuscitation (adult, children)" approved by the Order of the Minister of Health of the Republic of Kazakhstan dated January 25, 2024 No. 46

 Order of the Minister of Health of the Republic of Kazakhstan dated 04.07. 2022 No.RK DSM-63 "On the approval of state mandatory standards for the levels of education in the field of healthcare"

 On amendments and additions to the Order of the Minister of Health of the Republic of Kazakhstan "On approval of the list of medical specialties of residency programs" dated May 25, 2021. No.RK DSM-43 and "On approval of standard training programs in medical and pharmaceutical specialties" dated January 9, 2023 No. 4 (Order of the Minister of Health of the Republic of Kazakhstan dated November 10, 2023 No. 164)

 The standard for the organization of anesthesiology and resuscitation care in the Republic of Kazakhstan, approved by Order No. 78 of the Minister of Health of the Republic of Kazakhstan dated April 26, 2023.

5. The field of professional activity. Healthcare

 Objects of professional activity. Medical organizations providing inpatient and outpatient care, healthcare systems of the Republic of Kazakhstan.

General information

No.	EP characteristics	Data		
1	Registration number	7R09100006		
2	Education area code and classification	7R01 Healthcare (medicine)		
3	Code and classification of training areas	7R011 Healthcare		
4	Group of educational programs	7R017 Anesthesiology and resuscitation (adults, children)		
5	Code, name of the educational program	7R01117 «Anesthesiology and resuscitation (adults, children)» (residency)		
6	Type of EP	Updated EP		
7	ISCED level	7		
8	NQF level	7		
9	SQF level	7		
		Compiled according to professional standards		
Partner university (JEP) -				

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	Partner university (TDEP)	
11	List of competencies	KC1. Patient supervision: able to formulate a diagnosis, prescribe a treatment plan and evaluate its effectiveness based on evidence-based practice at all levels of medical care. KC2. Communication and collaboration: able to effectively interact with the patient, his environment, and healthcare professionals in order to achieve the best results for the patient KC3. Safety and quality: able to assess risks and use the most effective methods to ensure a high level of safety and quality of medical care KC4. Public health: able to act within the legal and organizational framework of the healthcare system of the Republic of Kazakhstan in his specialty, provide basic assistance in emergency situations, work as a part of interprofessional teams to implement a policy of strengthening the health of the nation KC5. Research: able to formulate adequate research questions, critically evaluate professional literature, effectively use international databases in his daily activities, and participate in the work of the research team KC6. Training and development: able to study independently and train other members of a professional team, actively participate in discussions, conferences and other forms of continuous professional development
12 Educational outcome		EO1: is able to formulate a syndromic diagnosis, assign an intensive care plan and evaluate its effectiveness on the basis of evidence-based practice at a stationary level, conduct anesthesiology manuals in specialized sections of surgery, obstetrics-gynecology, transplantology, etc. EO2: able to effectively interact with the patient in need of anesthetic support / intensive care and his relatives, health professionals in order to achieve the best results for the patient. EO3: able to assess risks and use the most effective methods to ensure a high level of safety and quality of medical care during anesthesia and intensive care. EO4: able to act within the legal and organizational field of the healthcare system of the Republic of Kazakhstan in the provision of anesthetic benefits, intensive care, resuscitation care, provide basic and expanded assistance in critical and emergency situations, work as part of interprofessional teams to implement the policy of strengthening the health of the nation. EO5: able to formulate adequate research goals and objectives, critically evaluate the specialized literature on anesthesiology and intensive care, effectively use international databases in their daily activities, participate in the work of the research team. EO6: able to learn independently and train other members of a professional team, actively participate in discussions, conferences and other forms of continuous professional development.
13	Form of education	Full-time If necessary with the use of digital technologies
14	Language of education	Kazakh and Russian
15	Amount of credits	210
16	Duration of the training	3 years
17	Assigned degree, qualification	Doctor-anesthetist and resuscitator adults, children
18	Availability of an appendix to the license for the direction of training	KZ 36LAA00011387
	Laming	
19	Availability of EP accreditation	Exist

	Duration of accreditation	№KZ73LAA00011788 10.06.2022 - 09.06.2027
20	Information about disciplines	Appendix 1.2

Appendix 1.1

The matrix of correlation of learning outcomes according to the educational program as a whole with the competencies being formed

	LO1	LO2	LO3	LO4	LO5	LO6
C1	+	+	+			
C2		+		+		
C3			+		+	
C4				+		
C5					+	1.2
C6						+

Appendix 1.2

The matrix of achievability of competencies/learning outcomes

№	Name of the discipline	Short description of the discipline	Cycle (BD, PD)	Compo nent (MC, UC, EC)	Num- ber of cre- dits.	General lear- ning out- comes (codes
		Cycle of profiling disciplines (PD) Mandatory component (MC)				
1	Anesthetic management in surgical patients	After successful completion of the discipline, the student will have an understanding of the organization of anesthesiological and resuscitation care, and will be able to prepare a workplace and anesthesia and respiratory equipment. He will be able to determine the volume of preoperative examination of patients, taking into account the urgency of surgical intervention in patients. Determining the risk of anesthesia. The choice of premedication. Intraoperative measures aimed at maintaining hemodynamics. Infusion and transfusion therapy. He will have an understanding of the correction of the water-electrolyte balance and acid-base state, as well as the use of artificial intelligence during interpretation of data.	PD	UC	34	EO1 EO2 EO4
2	Intensive care in patients with a surgical and			UC	34	EO1 EO3 EO5

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	therapeutic profile	prevention of complications of the underlying disease, pathogenetic and syndromic intensive care. Rules for conducting infusion therapy, correction of violations of the water-electrolyte balance, acid-base state. Transfusion and complications during transfusion therapy. Blood-saving technologies and alternative methods of treatment. Parenteral Nutrition The basic principles of antibiotic therapy.				
3	Anesthetic management in pediatrics and neonatology	After successful completion of the discipline, the student will apply knowledge about the influence of the child's age, general condition and concomitant diseases of children on the choice of anesthesia method. He will conduct a preoperative examination. Malformations and diseases of organs and systems. Allergic diseases and conditions. Metabolic disorders of various etiologies and their correction. Inhalation anesthesia. Non-inhalation anesthesia. Combined methods of anesthesia. Features of tracheal intubation and indications for it.	PD	UC	34	EO1 EO2 EO3
4	Intensive care in pediatrics and neonatology	Diagnosis, etiopathogenetic treatment and intensive care of syndromic disorders and critical conditions in children and newborns. Nursing newborns. Monitoring vital functions of children. Calculation of infusion-transfusion therapy, correction of electrolyte disorders, coagulological potential and blood gas composition in children and newborns. Resuscitation and intensive care for critical conditions in newborns according to WHO programs.	PD	UC	34	EO4 EO3 EO5
5	Anesthesia and intensive care in obstetrics and gynecology	The degree of risk of anesthesia and surgery. Preparation. Obstetric anesthesia. Features of anesthesia in obstetrics and gynecology. Errors and complications. Anesthetic tactics in case of complications. Intensive therapy for hemorrhagic shock, disseminated intravascular coagulation syndrome. Intensive care for severe preeclampsia, eclampsia, and HELLP syndrome. Intensive care for thromboembolic complications in obstetric and gynecological practice. Amniotic embolism, intensive care. Possess the skills of cardiopulmonary resuscitation.	PD	UC	14	EO2 EO3 EO6
6	Anesthesia and intensive care in neurosurgery and neurology	Features of drug preparation for anesthesia of patients with damage to the bones of the skull, brain and spinal cord. The choice of components for maintaining anesthesia and its features. Features of anesthesia during operations in the sitting position. Coma and coma. Acute cerebrovascular accident in young children and newborns. Intensive care	PD	UC	11	EO1 EO2 EO3 EO5

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		of emergency conditions in neurosurgery and neurology.				11.0
7	Anesthesia and intensive care in cardiac surgery, perfusion	Successful completion of the discipline will help students to master the skills of general anesthesia in cardiac surgery, the use of information systems in the field of healthcare, also with the help of artificial intelligence. He will be able to choose methods of regional anesthesia, as well as draw conclusions about their features in cardiac surgery. It will interpret the data during monitoring during the anesthetic treatment, as well as apply various statistical methods for analysis. He will have the skills to successfully conduct anesthetic treatment in cardiac surgery in patients with concomitant pathology and summarize data for participation in scientific conferences. It will offer options for intensive care and monitoring in the postoperative period. He will be able to choose intensive care for critical conditions in cardiac surgery.	PD	UC	11	EO4 EO5 EO6
8	Intensive care in cardiology	Acute left ventricular failure: Severity of cardiogenic pulmonary edema. Differential diagnosis with bronchial asthma. Intensive care for acute left ventricular failure. Acute right ventricular failure. Diagnosis of pulmonary embolism. Intensive care for acute right ventricular failure. Intensive care for acute right ventricular failure. Intensive care for acute vascular insufficiency. Hemodynamic correction. Correction of respiration and metabolism. Correction of the blood coagulation system.	PD	UC	9	EO1 EO2 EO5
9	Anesthesia and intensive care in maxillofacial surgery, dentistry and otorhinolaryngol ogy, ophthalmology. Ambulatory anesthesiology.	Features of anesthesia in maxillofacial surgery, dentistry and otorhinolaryngology, ophthalmology. Basic requirements for anesthesia in outpatient dental practice. Features of preoperative preparation, indications and contraindications for anesthesia on an outpatient basis. Features of anesthesia and intensive care in children. Intensive care and monitoring in the postoperative period. Intensive care for critical conditions.	PD	UC	7	EO1 EO2 EO4 EO3
10	Intensive care for infectious diseases	Pathophysiological changes in vital organs and systems in infectious pathology and septic conditions in adults and children. Clinic, depending on the nature of microflora. The principles of intensive care. The place of sorption detoxification methods in the intensive care program. Infectious control and choice of antibacterial drugs. Prevention of purulent-septic complications in children and newborns.	PD	UC	6	EO1 EO2 EO3 EO6
11	Intensive care in	The main areas of intensive care for acute	PD	UC	6	

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	acute poisoning, efferent medicine.	poisoning: methods of limiting, slowing down, stopping the flow of poison into the body, depending on the route of its penetration (at the prehospital stage, in specialized hospitals). Antidotes and antidote therapy. Efferent therapy. Intracorporeal and extracorporeal detoxification methods. The mechanism of detoxification, indications, contraindications. Cycle of profiling disciplines (PD)				EO3 EO5 EO6
		Optional component (OC)				1.9 1.5
1	Innovative technologies in anesthesiology and intensive care	Ensuring patient safety in the operating room (SpO2, PetCO2, etc.), basic principles. General anesthesia with low-flow method, method, advantages, disadvantages. Modern modes of mechanical ventilation. Views. Indications. Hypothermia, types, methods, indications. Non-invasive and invasive methods of blood circulation control. Methods of evaluation of metabolic status.	PD	EC	4	EO1 EO3 EO5 EO6
	Specialized methods in anesthesiology	Neuroanesthesiology, hypothermia, controlled hypotension. High-frequency ventilation in anesthesiology. Ultrasound in neuroaxial anesthesia. Assessment of the level of depth of anesthesia, bispectral analysis. Cardiopulmonary bypass, pacemaker in cardiac anesthesia. Multimodal methods of anesthesia. Features Guided hemodilution during anesthesia. Features in critical conditions. Features of anesthesia during operations on the spinal cord.				
2	Features of reanimation and intensive therapy of medicine of catastrophes	The choice of anesthesia method in conditions of mass admission of victims. Features of preoperative preparation. Maintaining homeostasis during anesthesia. Principles of correction of infusion-transfusion therapy, oxygen regimen. Intensive care in the postoperative period. Intensive care for burn shock, with severe cold injury. Resuscitation assistance with electrical injury. Recovery of cardiac activity and breathing in case of electric shock.	PD	EC	4	EO2 EO3 EO4 EO6
	Efferent therapy in the clinic of endo- and ecotoxicol	Principles of efferent therapy. Pathogenetic basis of extracorporeal detoxification. Views. Toxicokinetic and toxicodynamic aspects. Endotoxicosis. Modern detoxification and corrective therapy. Efferent methods of detoxification Natural detoxification. 5 LC1 LC2 LC4 Hyperbaric oxygenation. Electrochemical oxidation of blood.				

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	Hemodialysis. Plasmapheresis. Ultramafites. Lymph hemo plasmasorption. Indications and contraindications, preparation, complications	
TOTAL		208
FINAL CERTIFICATION		2
TOTAL		210

Professional standard "Anesthesiology and resuscitation (adults, children)"

Profession card "7.2 Anesthesiologist and resuscitator"	Mandatory labor functions:	1. Conducting various methods of anesthesia during manipulations and surgical interventions in patients (adults, children). 2. Diagnosis of organ failure in life-threatening and critical conditions in patients (adults, children) 3. Intensive syndrome-based therapy for critical conditions in patients (adults, children), with continuity at all stages. 4. Participation in the management of medical documentation, medical and statistical information
	Additional labor functions:	Continuous professional development under the supervision of a mentor
Labor function 1: Conducting various methods of anesthesia during manipulations and surgical interventions in patients (adults, children).	Skill 1: Assessment of the patient's condition before planned, emergency or delayed surgery. Choosing the optimal method of anesthesia for patients (adults, children)	Skills: 1. Collect complaints, medical history, life history and conduct a clinical examination of patients (adults, children). 2. Interpret data from clinical, laboratory, and instrumental studies. 3. To determine the volume of preoperative examination of patients, taking into account the urgency of surgical intervention in patients (adults, children). 4. To assess the physical status of patients (adults, children) according to ASA. 5. Determine the optimal type of anesthetic care.
		Knowledge: 1. The amount of preoperative examination depending on the urgency of the operation 2. Methods of anesthetic aid in various fields of surgery, features of anesthetic aid in patients of different age groups, including those with concomitant diseases and pathological conditions, 3. Indications and contraindications for various types of anesthesia, depending on the patient's condition, the urgency of the operation and its volume.
	Skill 2: Conducting various methods of anesthesia during manipulations and surgical interventions in patients (adults, children).	Skills: 1. Check and operate anesthesia and respiratory equipment. 2. Possess the skills of intraoperative monitoring in patients (adults, children). 3. Possess the skills of ensuring the patency of the respiratory tract (duct, laryngeal mask, tracheal intubation) in patients (adults, children). 4. Have the skills to ensure the patency of "difficult airways" intubation using a bronchoscope, conicotomy, tracheostomy. 5. Possess the skills of regional anesthesia in patients (adults,

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		children). 6. Have the skills to provide venous access – catheterization of peripheral and central veins in patients (adults, children). 7. Master the skills of using ultrasound location for central vein catheterization and access for regional anesthesia.
		Knowledge: 1. Pharmacological properties of anesthetics, the possibilities of their combinations and doses during general and regional anesthesia. 2. Rules of intraoperative infusion and transfusion therapy 3. Possible complications, methods of their prevention and treatment. 4. Rules for waking up after general anesthesia.
Labor function 2: Diagnosis of organ failure in life- threatening and critical conditions in patients (adults, children)	Skill 1: Diagnosis of organ failure in life- threatening and critical conditions in patients (adults, children).	Skills: 1. To determine the presence and severity of organ failure based on data from clinical, laboratory and instrumental studies. 2. Possess the skills of primary resuscitation. 3. Possess the skills of cardiopulmonary resuscitation in patients (adults, children). 4. Advise doctors of specialized departments of a medical organization on intensive care and emergency care.
		Knowledge: 1. Physiology and pathophysiology of systems and organs in patients (adults, children). 2. Methods of diagnosis of diseases of organs and organ systems, indications and contraindications for their implementation. 3. Features of physiology and pathology in pregnant women. 4. Pathological physiology of acute trauma, including chemical, thermal, blood loss, shock, coagulopathy, hypothermia, hyperthermia, pain syndromes, acute respiratory, cardiovascular, renal, hepatic and multiple organ failure
Labor function 3: Intensive syndrome- based therapy for critical conditions in patients (adults, children), with continuity at all stages.	Skill 1: Intensive syndrome- based therapy for critical conditions in patients (adults, children).	Skills: 1. Determine a syndrome-by-syndrome treatment plan and make appointments. 2. To determine the tactics of infusion, transfusion therapy, enteral and parenteral nutrition in patients (adults, children). 3. To master the skills of non-invasive and invasive monitoring of vital body functions in patients (adults, children). 4. Possess the skills of carrying out various methods of oxygen therapy in patients (adults, children). 5. Possess the skills of carrying out therapeutic noninvasive artificial lung ventilation / artificial lung ventilation in patients (adults, children). 6. Possess the skills of conducting diagnostic and therapeutic bronchoscopy in patients (adults, children).
		Master the skills of extracorporeal detoxification methods in patients (adults, children).

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		1. Methods for assessing nutritional status disorders in patients (adults, children). 2. Features of physiology and pathology in pregnant women. 3. Features of the occurrence and development of complications of anesthesia, intensive care and intensive care, their diagnosis and treatment. 4. Artificial lung ventilation (hereinafter referred to as mechanical ventilation) using various types of artificial lung ventilation devices, respiratory kits for manual ventilation. 5. The use of mechanical ventilation in volume-controlled and pressure-controlled modes.
Labor function 4: Participation in the management of medical documentation, medical and statistical information	Skill 1: Maintaining medical records, analyzing medical and statistical information, in accordance with the requirements of regulatory legal acts in the field of	Skills: 1. Plan your work and compile a report analyzing your own performance indicators. 2. Maintain medical records, including in electronic form, and monitor the quality of its management. 3. To analyze the medical and statistical indicators of the work of the specialized medical department. 4. Use patients' personal data and information in accordance with the law. 5. Use information systems in accordance with the established procedure.
		Knowledge: 1. Order of the Acting Minister of Health of the Republic of Kazakhstan dated October 30, 2020 No. KR DSM-175/2020 "On approval of Accounting Documentation forms in the field of healthcare, as well as instructions for completing them (registered with the Ministry of Justice of the Republic of Kazakhstan on November 4, 2020 No. 21579). 2. Order of the Minister of Health of the Republic of Kazakhstan dated December 22 2020 No. KR DSM-313/2020 "On approval of forms of accounting documentation in the field of healthcare" (registered with the Ministry of Justice of the Republic of Kazakhstan on December 23, 2020 No. 21879). 3. Order of the Minister of Health of the Republic of Kazakhstan dated December 10, 2020 No. KR DSM-244/2020 "On approval of the rules for maintaining primary medical records and submitting reports" (registered with the Ministry of Justice of the Republic of Kazakhstan on December 11, 2020 No. 21761). 4. Electronic accounting and documentation systems. 5. Confidentiality of patients' medical information. 6. Fundamentals of medical statistics.
Additional labor function 1: Continuous professional development under the supervision of a mentor	Skill 1: Striving for a professional	Skills: 1. Participate in professional training events: conferences, seminars, webinars, advanced training courses. 2. Participate in academic and scientific activities. 3. Participate in the work of professional associations, committees, and working groups to discuss health issues and share experiences with colleagues.
		Knowledge: 1. Order of the Minister of Health of the Republic of

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Kazakhstan dated December 21, 2020 No. KR DSM-303/2020 "On Approval of the Rules for additional and non-formal education of healthcare Professionals, qualification requirements for organizations implementing educational programs for additional and non-formal education in the field of healthcare, as well as the rules for recognizing the learning outcomes obtained by healthcare professionals through additional and non-formal education (registered with the Ministry of Justice of the Republic of Kazakhstan on December 22, 2020, No. 21847). 2. Order of the Minister of Health of the Republic of Kazakhstan dated December 20, 2020 No. KR DSM-283/2020 "On approval of the rules for confirming the results of continuous professional development of healthcare workers" (registered with the Ministry of Justice of the Republic of Kazakhstan on December 22, 2020 No. 21843). 3. Opportunities for networking and communication with colleagues from their professional field. 4. Current trends, research and development in a specialized field. Communication skills Personal competence Empathy, emotional intelligence requirements: Adaptability and flexibility Collaboration and teamwork Stress Management Self-organization and self-motivation Reflection and introspection Systems and analytical thinking Activity and initiative Striving for professional development Ethical standards

Head of the Educational and Methodological Department

Doltayeva B.Z.