

JSC «SOUTH KAZAKHSTAN MEDICAL ACADEMY»



SOUTH KAZAKHSTAN  
MEDICAL  
ACADEMY


EDUCATIONAL RESIDENCY PROGRAM  
7R01117  
"ANESTHESIOLOGY AND RESUSCITATION (ADULT, CHILDREN)"



The educational program of the residency "Anesthesiology and resuscitation (adult, children)" was developed on the basis of the order of the Minister of Health of the Republic of Kazakhstan dated January 25, 2024 No.46 "On approval of professional standards in the field of healthcare".

Position	Full name	Signature
<b>Developed by</b>		
Teaching staff of the Emergency medicine and nursing department		
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Resident of the EP "Anesthesiology and resuscitation (adult, children)"	Yunusmetov E.Sh.	
Protocol of the department meeting No. 6 from "24" "01" "2024"		
<b>Discussed at the surgical profile Residency CEP meeting</b> <b>Chairman of the CEP</b> Protocol No. 5 from "26" "01" "2024"	Kulbaeva S.N.	
<b>Approved by the Clinical Council</b> <b>Chairman of the Clinical Council</b> Protocol No. 8 from "29" "01" "2024"	Kauizbai Zh.A.	
<b>Approved by the First Vice-Rector</b> <b>The First Vice-rector</b> Protocol No. ___ from "30" "01" "2024"	Yesirkepov M.M.	
<b>Approved by the Academic Council</b> Protocol No. 14 from "31" "01" "2024"		



ONTUSTIK-QAZAQSTAN <b>MEDISINA          AKADEMIASY</b> «Оңтүстік Қазақстан медицина академиясы» АҚ	 <b>SKMA</b>	SOUTH KAZAKHSTAN <b>MEDICAL          ACADEMY</b> АО «Южно-Казакстанская медицинская академия»
Department Emergency medicine and nursing EP 7R01117 «Anesthesiology and resuscitation (adult, children)»	044 – 3p. from 11	

### 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:**

In-depth training of a specialist who can assist the patient in restoring and maintaining the functions of vital organs and systems that are disrupted due to anesthesia, surgery, trauma, and other causes.

**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)"
- 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**

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

### General information

№	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 (adult, children)
5	Code, name of the educational program	7R01117 «Anesthesiology and resuscitation (adult, children)» (residency)
6	Type of EP	Updated EP
7	ISCED level	7
8	NQF level	7
9	SQF level	7
10	Distinctive features of the EP	None
	Partner university (JEP)	-
	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

		<p>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</p> <p>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</p> <p>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</p> <p>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</p>
12	Learning outcomes	<p>LO1: able to formulate a syndromic diagnosis, prescribe an intensive care plan and evaluate its effectiveness based on evidence-based practice at the hospital level, conduct anesthesia manuals in specialized sections of surgery, obstetrics and gynecology, transplantology, etc</p> <p>LO2: able to effectively interact with a patient in need of anesthesia support/intensive care and his relatives, by healthcare professionals in order to achieve the best results for the patient.</p> <p>LO3: 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.</p> <p>LO4: is able to act within the legal and organizational framework of the health care system of the Republic of Kazakhstan in the provision of anesthesia, intensive care, resuscitation, provide basic and extended assistance in critical and emergency situations, work as part of interprofessional teams to implement the national health promotion policy.</p> <p>LO5: able to formulate adequate research goals and objectives, critically evaluate the specialized literature on anesthesiology and resuscitation, effectively use international databases in their daily activities, and participate in the work of the research team.</p> <p>LO6: able to learn independently and train other members of the professional team, actively participate in discussions, conferences and other forms of continuous professional development.</p>
13	Form of education	<p>Full-time</p> <p>If necessary with the use of digital technologies</p>
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 adult, children
18	Availability of an appendix to the license for the direction of training	KZ22BFA00167288
19	Availability of EP accreditation	Exist
	Name of accreditation body	IAAR
	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					+	
C6						+

Appendix 1.2

**The matrix of achievability of competencies/learning outcomes**


№	Name of the discipline	Short description of the discipline	Cycle (BD, PD)	Component (MC, UC, CC)	Number of credits.	General learning outcomes (codes)
1	Anesthetic management in surgical patients	Organization of anesthetic and resuscitation care. Current legal and regulatory acts. Preparation of the workplace and anesthesia and respiratory equipment. Preoperative examination, assessment of the patient's condition. Choice of anesthesia based on the patient's initial condition and the amount of surgical intervention. Determining the risk of anesthesia. Preoperative preparation. Choice of premedication. Intraoperative measures aimed at maintaining hemodynamics. Infusion and transfusion therapy. Correction of WEB and ABS.	PD	MC	34	LO1 LO2 LO4
2	Intensive care in patients with surgical and therapeutic profile	Monitoring of vital functions of patients. Establishment of a syndromic diagnosis, identification of pathological leading syndromes, prevention of complications of the underlying disease, pathogenetic and syndromic intensive care. Rules for infusion therapy, correction of water-electrolyte balance disorders, and fasting. Transfusion and complications during transfusion therapy. Blood-saving technologies and alternative treatment methods. Parenteral nutrition. Basic principles of antibacterial therapy.	PD	MC	34	LO1 LO3 LO5

3	Anesthetic management in pediatrics and neonatology	Influence of the child's age, general condition and concomitant diseases on the choice of anesthesia method. 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	MC	34	LO1 LO2 LO3
4	Intensive care in pediatrics and neonatology	Diagnostics, etiopathogenetic treatment and intensive care of syndromic disorders and critical conditions in children and newborns. Nursing of newborns. Monitoring of vital functions of children. Calculation of infusion and transfusion therapy, correction of electrolyte disturbances, coagulation potential and blood gas composition in children and newborns. Resuscitation and intensive care for critical conditions in newborns according to WHO programs.	PD	MC	34	LO4 LO3 LO5
5	Anesthesia and intensive care in obstetrics and gynecology	Risk factors for anesthesia and surgery. Preparation. Labor pain relief. Features of anesthesia in obstetrics and gynecology. Errors and complications. Anaesthetic tactics in case of complications. Intensive care for hemorrhagic shock, DIC syndrome. Intensive care for severe preeclampsia, eclampsia, HELLP the syndrome. Intensive care for thromboembolic complications in obstetric and gynecological practice. Amniotic embolism, intensive care. CPR	PD	MC	14	LO2 LO3 LO6
6	Anesthesia and intensive care in neurosurgery and neurology	Features of preparation for anesthesia in patients with damage to the bones of the skull, brain and spinal cord. Selection of components for maintaining anesthesia and its features. Features of anesthesia during operations in the "sitting" position. Coma and comatose states. Acute cerebrovascular accident in young children and newborns. Intensive care of emergency conditions in neurosurgery and neurology.	PD	MC	11	LO1 LO2 LO3 LO5
7	Anesthesia and intensive care in cardiac surgery, perfusion	General anesthesia in cardiac surgery. Regional anesthesia in cardiac surgery. Monitoring during an anaesthetic benefit. Anaesthetic manual in cardiac surgery in patients with concomitant pathology. Intensive care and monitoring in the postoperative period. Intensive care of critical conditions in cardiac surgery.	PD	MC	11	LO4 LO5 LO6
8	Intensive care in cardiology	Acute left ventricular failure: Severity of cardiogenic pulmonary edema. Differential diagnosis with bronchial asthma. Intensive care of acute left ventricular failure. Acute right ventricular failure. Diagnosis of	PD	MC	9	LO1 LO2 LO3

		pulmonary embolism. Intensive care of acute right ventricular failure. Intensive care of acute vascular insufficiency. Correction of hemodynamics. Correction of respiration and metabolism. Correction of the blood coagulation system.				
9	Anesthesia and intensive care in maxillofacial surgery, dentistry and otorhinolaryngology, ophthalmology. Ambulatory anesthesiology.	Features of anesthesia in MFS, dentistry and otorhinolaryngology, ophthalmology. Basic requirements for anesthesia in outpatient dental practice. Features of preoperative preparation, indications and contraindications for performing 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	MC	7	LO1 LO2 LO4
10	Intensive care for infectious diseases	Pathophysiological changes of vital organs and systems in infectious pathology and septic conditions in adults and children. Clinic, depending on the nature of the microflora. Principles of intensive care. The place of sorption detoxification methods in the intensive care program. Infection control and selection of antibacterial drugs. Prevention of purulent-septic complications in children and newborns.	PD	MC	6	LO1 LO2 LO3 LO6
11	Intensive care for acute poisoning, efferent medicine.	The main directions of intensive care of acute poisoning: methods of limiting, slowing down, stopping the entry 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. Methods of intracorporeal and extracorporeal detoxification. Detoxification mechanism, indications, contraindications.	PD	MC	6	LO3 LO5 LO6
12	Innovative technologies in anesthesiology and intensive care	Ensuring patient safety in the operating room (SpO <sub>2</sub> , PetCO <sub>2</sub> , etc.), basic principles. General anesthesia with a low-flow method, technique, advantages, disadvantages. Modern ventilation modes. Kinds. Indications. Hypothermia, types, methods, indications. Noninvasive methods of blood circulation control (BP, MOS, SI, PPS, Echocardiography, rheography). Invasive methods of blood circulation control (BP, CVP, MOS, SI, OPPS, PiCCO monitors). Methods for assessing the metabolic status.	PD	CC	2	LO1 LO3 LO5 LO6

13	Specialized methods in anesthesiology	Neuroanesthesiology, hypothermia, controlled hypotension. High-frequency ventilation in anesthesiology. Ultrasound in neuroaxial anesthesia. Assessment of the level of anesthesia depth by bispectral analysis. Artificial blood circulation, electrocardiostimulation in cardioanesthesia. Multimodal methods of anesthesia. Features. Controlled hemodilution during anesthesia. Features in critical conditions. Features of anesthesia in spinal cord surgery.	PD	CC	2	LO1 LO3 LO5 LO6
14	Features of reanimation and intensive therapy in medicine of catastrophes	Choice of anesthesia method in conditions of mass admission of victims. Features of preoperative preparation. Maintaining homeostasis during anesthesia. Principles of correction of infusion and transfusion therapy, oxygen regime. Intensive care in the postoperative period. Intensive care for burn shock, severe cold trauma. Resuscitation care for electrotrauma. Restoration of heart activity and respiration in case of electric shock.	PD	CC		LO2 LO3 LO4 LO6
15	Efferent therapy in the clinic of endo- and exotoxicosis	Principles of efferent therapy. Pathogenetic basis of extracorporeal detoxification. Kinds. Toxicokinetic and toxicodynamic aspects. Endotoxicosis. Modern detoxification and corrective therapy. Efferent detoxification methods Natural detoxification. Hyperbaric oxygenation. Electrochemical oxidation of blood. Hemodialysis. Plasmapheresis. Ultrafiltration. Lymphohemoplasmosorption. Indications and contraindications, preparation, complication	PD	CC	4	LO2 LO3 LO4 LO6
	TOTAL				208	
	FINAL CERTIFICATION				2	
	TOTAL				210	



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### The matrix of achievement of LO by various teaching methods

LO	Applied teaching and learning methods	
LO1: able to formulate a syndromic diagnosis, prescribe an intensive care plan and evaluate its effectiveness based on evidence-based practice at the hospital level, conduct anesthesia manuals in specialized sections of surgery, obstetrics and gynecology, transplantology, etc	Analysis of clinical material, feedback from the resident	Curation of patients Modeling of the clinical situation
LO2: able to effectively interact with a patient in need of anesthesia support/intensive care and his relatives, by healthcare professionals in order to achieve the best results for the patient.	Reflective diary	Curation of patients
LO3: 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.	Supervision of clinical work	
LO4: is able to act within the legal and organizational framework of the health care system of the Republic of Kazakhstan in the provision of anesthesia, intensive care, resuscitation, provide basic and extended assistance in critical and emergency situations, work as part of interprofessional teams to implement the national health promotion policy.	Supervision of clinical work	
LO5: able to formulate adequate research goals and objectives, critically evaluate the specialized literature on anesthesiology and resuscitation, effectively use international databases in their daily activities, and participate in the work of the research team.	Writing abstracts, articles Analysis of scientific articles	Public speaking
LO6: able to learn independently and train other members of the professional team, actively participate in discussions, conferences and other forms of continuous professional development.	Observation	Curation of patients

### The matrix of achievement of LO by various teaching methods and assessment methods

LO	Assessment methods	
LO1: able to formulate a syndromic diagnosis, prescribe an intensive care plan and evaluate its effectiveness based on evidence-based practice at the hospital level, conduct anesthesia manuals in specialized sections of surgery, obstetrics and gynecology, transplantology, etc	Testing Oral interview	Mini-clinical exam Check-list Assessment of practical skills
LO2: able to effectively interact with a patient in need of anesthesia support/intensive care and his relatives, by healthcare professionals in order to achieve the best results for the patient.	Mini-clinical exam	Maintaining diary Assessment 360 <sup>0</sup>
LO3: 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.	Analysis of medical records Analysis of the anesthesia card Analysis of intensive care card	Check-list Assessment of practical skills

LO4: is able to act within the legal and organizational framework of the health care system of the Republic of Kazakhstan in the provision of anesthesia, intensive care, resuscitation, provide basic and extended assistance in critical and emergency situations, work as part of interprofessional teams to implement the national health promotion policy.	Feedback from patients Feedback from other residents	Assessment 360 <sup>0</sup>
LO5: able to formulate adequate research goals and objectives, critically evaluate the specialized literature on anesthesiology and resuscitation, effectively use international databases in their daily activities, and participate in the work of the research team.	Presentation, abstract Publications	Check-list RIW assessment
LO6: able to learn independently and train other members of the professional team, actively participate in discussions, conferences and other forms of continuous professional development.	Portfolio Clinical records Self-assessment	Check-list RIW assessment

**Work plan for the entire period of study**

Cycle of disciplines	Discipline code	Name of discipline/modules	Amount of credits	General hours	classroom	RIC		Year of study	2year of study	3year of study	Form of control	FE
						RIW T	RTI C					
PD		<b>Cycle of profiling disciplines</b>	<b>208</b>	<b>6240</b>								
PD	MC	<b>Mandatory component</b>	<b>200</b>	<b>6000</b>								
		R-AMSP	34	1020	204	663	153	34			Exam	
		R-ICPSTP	34	1020	204	663	153	34			Exam	
		R-AMPN	34	1020	204	663	153		34		Exam	
		R-ICPN	34	1020	204	663	153		34		Exam	
		R-AICOG	14	420	84	273	63			14	Exam	

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R-AICNN	Anesthesia and intensive care in neurosurgery and neurology	11	330	66	214	50			11	Exam
R-AICCS P	Anesthesia and intensive care in cardiac surgery, perfusion	11	330	66	214	50			11	Exam
R-ICC	Intensive care in cardiology	9	270	54	175	41			9	Exam
R-AICMS DOOA A	Anesthesia and intensive care in maxillofacial surgery, dentistry and otorhinolaryngology, ophthalmology. Ambulatory anesthesiology.	7	210	42	136	32			7	Exam
R-ICID	Intensive care for infectious diseases	6	180	36	117	27			6	Exam
R-ICAPE M	Intensive care in acute poisoning, efferent medicine.	6	180	36	117	27			6	Exam
OC	<b>Optional component</b>	<b>8</b>	<b>240</b>	<b>48</b>	<b>156</b>	<b>36</b>	<b>2</b>	<b>2</b>	<b>4</b>	
R-SMA	Specialized methods in anesthesiology	4	120	24	78	18	2			Exam
R-	Innovative							2		



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	ITAIC	technologies in anesthesiology and intensive care										
	R-FRITM C	Features of reanimation and intensive therapy in medicine of catastrophes	4	129	24	78	18			4	Exam	
	R-ETCEE	Efferent therapy in the clinic of endo- and exotoxicosis										
	<b>TOTAL</b>		<b>208</b>	<b>6240</b>	<b>1248</b>	<b>4056</b>	<b>936</b>					
<b>IC</b>	<b>Intermediate certification</b>											
<b>FE</b>	<b>Final examination</b>		<b>2</b>	<b>60</b>						<b>2</b>	<b>60</b>	
	<b>TOTAL</b>		<b>210</b>	<b>6300</b>	<b>1248</b>	<b>4056</b>	<b>936</b>					<b>60</b>