



APPROVED
Rector of SKMA
Zh. Seitzhanova
2025



SOUTH KAZAKHSTAN
MEDICAL
ACADEMY

EDUCATIONAL RESIDENCY PROGRAM

7R01120

"Neurosurgery (adult, child)"

Shymkent, 2025

The educational programme of the residency 7R01120 'Neurosurgery Adult, Child' was developed by the Department of Neurology, Psychiatry, Rehabilitation and Neurosurgery

Head of the department, Professor  Zharkinbekova N.A.

Protocol № 8 from ' 18 ' 03 2025.

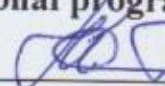
Agreed with the employer:

Chief freelance neurosurgeon of Shymkent city  Medetov E. Zh.

Discussed at the meeting of the AC surgical profile

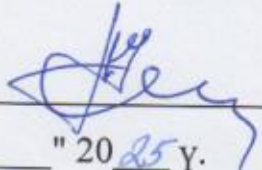


Discussed at the meeting of the Residency educational programs committee

Chairman of the educational programs committee  Kauyzbai Zh.A.

Protocol № 4 from " 21 " " 04 " 20 25 y.

Approved at the Clinical Council

Chairman of the Clinical Council  Nurmashev B.K.

Protocol № 8 from " 25 " " 04 " 20 25 y.

Approved by the Academic Council

Protocol № 13 from " 02 " " 05 " 20 25 y.

Educational program passport

1.The mission of educational program: To be a recognized leader in the training of competitive personnel, meeting the resident physician's need to achieve learning outcomes, providing the health care system and society with highly qualified neurosurgical physicians

2.The purees of educational program: Training of a neurosurgeon with a system of universal professional competencies, capable of independently providing neurosurgical care to a patient, including a child in primary health care; specialized medical care

Tasks of studying the discipline:

1. advanced study and mastering of theoretical sections neurosurgery;
2. improvement of practical skills on modern principles of diagnostics, interpretation of the results of the examination from the point of view of evidence-based medicine;
3. independent implementation of qualified medical care for various conditions and diseases.

3. Justification of the educational program:

Neurosurgery is a specialized branch of surgery concerned with the diagnosis, treatment, and rehabilitation of patients with diseases, injuries, or congenital abnormalities of the nervous system, including the brain, spinal cord, and peripheral nerves. Neurosurgeons undergo extensive training and education to perform advanced procedures and minimize the risks associated with surgery on one of the body's most complex and delicate systems.

Neurosurgery is closely related to neurophysiology, radiology, radiology and other areas of clinical medicine. Widely uses their research methods, primarily X-ray (including computed tomography), radionuclide, ultrasound, etc. Achievements in microsurgery play an important role in the development of neurosurgery. Specific to neurosurgery is the stereotactic method, which allows surgical instruments to reach deep structures and various points of the brain with minimal damage to other parts of the brain. The main sections of neurosurgery: neuro-oncology, neurotraumatology, neuroangiology, pediatric neurosurgery, surgery of the consequences and complications of infectious-inflammatory processes and congenital malformations of the central nervous system, functional and stereotactic neurosurgery, spinal neurosurgery.

Modern neurosurgery deals with the problems of surgical and non-operative treatment of a fairly wide range of diseases of the nervous system. This includes the treatment of tumors of the brain and spinal cord, and trauma to the central nervous system, as well as peripheral nerves, infections of the nervous system, and anomalies of its development.

One of the pressing problems today is also the problem of osteochondrosis and vertebral hernias. An equally serious area of neurosurgery is the treatment of cerebral circulatory disorders, which include strokes. Modern trends in the development of vascular surgery have made it possible to achieve certain successes in reconstructive surgery of cerebral circulatory disorders. These are methods such as carotid endarterectomy, in which an atheromatous plaque is removed from the lumen of the carotid artery, the application of extra-intracranial anastomoses to provide the brain with an additional source of blood supply, as well as balloon angioplasty and stenting of the corresponding vessels. Another achievement of modern neurosurgery is the surgical treatment of epilepsy. If earlier this disease was treated exclusively with drug therapy, which was not always successful, now with the development of stereotactic methods, surgical treatment of epilepsy has developed. The treatment of brain tumors remains a very important problem in neurosurgery. In addition to the surgical method, which involves a mandatory craniotomy to access the tumor, radiosurgical methods are widely used - the so-called stereotactic radiosurgery. This method involves irradiating the tumor from different angles with a powerful flow of radiation.

Of particular importance was the introduction into the practice of neurosurgery of modern methods of pain relief and resuscitation, which made it possible to control the vital functions of the

body during and after neurosurgical interventions. The use of intravascular surgery and microsurgery methods is promising.

4. Professional standard on the basis of which the educational program was developed: Professional standard "Neurosurgery (adults, children)".

According to the Order of the Minister of Health dated July 04, 2022 No. KR DSM -63 "On approval of professional standards in the field of healthcare."

5. Area 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

№	Field names	Note
1	Registration number	7R09100164
2	Code classification about the field of education	7R01 Healthcare (Medicine)
3	Code classification of training areas	7R011 Healthcare
4	Group of educational programs	R020 Neurosurgery (adult, child)
5	Name of the educational program	7R01120 Neurosurgery (adult, child) (residency)
6	Type of EP	Updated EP
7	Level according to the international standard classification of education	7
8	Level according to the national qualifications framework	7
9	Level according to the industry qualifications framework	7
10	Distinctive features of the EP	No
11	List of competencies	FC1 Patient supervision: able to formulate a clinical diagnosis, prescribe a treatment plan and evaluate its effectiveness based on evidence-based practice at all levels of medical care for patients with diseases of the nervous system. FC2 Communication and collaboration: able to effectively interact with the neurological patient, his environment, and healthcare professionals in order to achieve the best results for the patient FC3 Professionalism: Able to assess risks and use the most effective methods to ensure a high level of safety and quality of neurosurgical medical care. FC4 Public health: able to act within the legal and organizational framework of the healthcare system of the Republic of Kazakhstan in the specialty "Neurosurgery (adult, child)", provide

		basic care in emergency situations, work as part of interprofessional teams to implement policies to improve the health of the nation FC5 Research: able to formulate adequate research questions, critically evaluate professional literature, effectively use international databases in their daily activities, participate in the work of a research team FC6 Training and Development: Able to learn independently and train other members of the professional team, actively participate in discussions, conferences and other forms of continuing professional development in the field of neurosurgery.
12	Learning outcomes	LO1. able to act within the legal and organisational framework of the health care system of the Republic of Kazakhstan when providing neurosurgical care, provide basic care in emergency situations, provide primary and secondary prevention of diseases of the nervous system in patients (adults, children), work as part of interprofessional teams to implement health promotion policies. LO2. able to assess risks and use the most effective methods to ensure a high level of safety and quality of pediatric surgical care LO3. able to formulate a clinical diagnosis, prescribe a treatment plan and evaluate its effectiveness based on evidence-based practice at all stages of neurosurgical care, participate in the management of medical records, medical and statistical information using artificial intelligence. LO4. able to learn independently and train other members of the professional team of pediatric surgeons, actively participate in discussions, conferences and other forms of continuous professional development. LO5. able to effectively interact with relatives of the child, with health professionals in order to achieve the best results for the child. LO6. able to formulate adequate research questions, critically evaluate professional literature on pediatric surgery, effectively use international databases in their daily activities, participate in the work of the research team.

13	Form of training	Full - time
14	Language of instruction	Kazakh and Russian
15	Volume of loans	280
16	Training period	4 years
17	Qualification awarded	Neurosurgeon (adult, child)
18	Availability of provisions for the license for the direction of personnel training	KZ 36LLA00011387
19	Availability of EP accreditation	yes
	Name of the accreditation organ	IAAR
	Validity period of accreditation	Certificate № AB 3513, 27.05.2021 - 26.05.2026
20	Information about disciplines	Appendix 1.2

Appendix 1.1

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

Matrix of achievability of competencies/learning outcomes

№	Matrix of achievability of competencies/learning outcomes Name of the discipline	Short description	CYC LE (PD)	Component (MC, OC)	Number of credits.	Formed LO
1	Basics of neurosurgery	Develops comprehensive knowledge and practical skills in the field of neurosurgery: establishing a diagnosis in adult and pediatric patients with neurosurgical pathology; using instrumental and radiation diagnostic methods, including radiography and modern artificial	PD	UC	33	LO3 LO5 LO6

		intelligence technologies; developing and implementing therapeutic and preventive measures; conducting medical examinations and organizing medical rehabilitation. Effectively interacts with patients and their environment – relatives, various healthcare professionals, uses digital tools in healthcare; in the management of medical documentation and medical statistical information.)				
2	Neurosurgery of peripheral nerves	Comprehensive diagnosis of pathology of peripheral nerves: surgery of the brachial plexus, damage to the nerves of the upper and lower extremities, tunnel syndromes, pain syndromes, tumors of the peripheral nerves. Indications for surgery. Methods of surgical intervention on the peripheral nerves. The basics of plastic surgery when closing extensive soft tissue defects.	PD	UC	30	LO1 LO4 LO6
3	Neuro-oncology, parasitic diseases and malformations of the brain	Possesses knowledge and practical skills in establishing brain tumours of different location, histological structure, degree of malignisation. Possesses knowledge of instrumental methods of diagnosis, treatment, prophylaxis, operative treatment, medical expertise, medical rehabilitation in adults and children with neurosurgical pathology. Interacts effectively with patients and their relatives, various health care professionals, and participates in the management of medical records, medical and statistical information, provides basic care in emergency situations, and works as part of interprofessional teams. Utilises digital tools in healthcare.	PD	UC	32	LO2 LO3 LO5
4	Pediatric Neurosurgery	Clinical anatomy and physiology of the nervous system in children. Etiology, prevention, classification, clinical symptoms, differential diagnosis of neurosurgical pathology in children: congenital malformations of the brain and spinal cord, traumatic brain injury, vascular diseases, neurooncology and parasitic diseases of the central nervous system. Features of the clinical course of neurosurgical diseases in children.	PD	UC	24	LO1 LO4 LO6

5	Spinal neurosurgery	Classification, pathomorphology, clinic and diagnosis of diseases and injuries of the spine and spinal cord. Biomechanics and types of damage. Instrumental examination methods. Indications for conservative and surgical treatment. Endoscopic surgery. Stabilizing operations. Indications for repeated operations. Complications.	PD	UC	33	LO1 LO3 LO5
6	Neurosurgery traumatic brain injury	Biomechanics, structure, classification, pathomorphology, clinical forms, clinic and comprehensive diagnosis of traumatic brain injury. Features of the course of traumatic brain injury in patients of various ages against the background of concomitant diseases and exogenous intoxication. Indications for surgery. Conservative therapy. Intensive therapy. Prognosis and outcomes of traumatic brain injury	PD	UC	33	LO2 LO3 LO5
7	Vascular, including interventional angioneurosurgeons	Interventional angioneurology. Clinical anatomy and physiology of the vascular system of the brain. Diagnosis, treatment and rehabilitation of cerebrovascular diseases: arterial aneurysms, vascular malformations, thromboembolism, acute cerebrovascular accident. The choice of laboratory and instrumental methods of research and interpretation of the results. Emergency conditions in angioneurology and hospital care.	PD	UC	31	LO2 LO3 LO5
8	Functional and stereotactic neurosurgery	Indications for the use of functional and stereotactic treatment methods in neurosurgery. Types of surgical treatment: open, puncture and stereotactic. Treatment of muscular dystonia, pain syndromes, parkinsonism, hyperkinesia. Surgical treatment of epilepsy using functional and stereotactic neurosurgery methods. Neuroimplantation: deep brain stimulation, cerebral cortex stimulation, spinal cord stimulation.	PD	UC	32	LO1 LO4 LO6

9	General surgery	History of surgery and organization of surgical care. Aseptic and antiseptic. Anesthesia. Emergency care in critical conditions of the body. Bleeding. Blood transfusion. Blood substitute fluids. Surgery. Examination of the surgical patient. General issues of traumatology. Surgical infection (purulent-inflammatory diseases). Specific surgical infection. Insufficiency of blood circulation and lymph circulation of the extremities. Tumors. Parasitic surgical diseases. Developmental defects. Plastic (restorative) surgery.	PD	UC	6	LO1 LO2 LO3
10	Neurophysiology and Neuropathomorphology	The function of the nervous system and its structure. Neuroanatomy, neurobiology, neuropsychology, electrophysiology, which study the brain. Functional organization of the nervous system, neural mechanisms of organization of reflex behavior and principles of systemic organization of brain functions. Surgical neurophysiology, electrophysiological study of parts of the patient's nervous system. Neuromonitoring.	PD	UC	8	LO1 LO3 LO6
11	Pediatric Surgery	The main surgical diseases of childhood. Clinical and instrumental methods for examining children with surgical pathologies. Clinical diagnosis. Differential diagnosis with other childhood diseases. Modern methods of surgical intervention. Management of patients in the postoperative period, taking into account individual and age characteristics.	PD	EC	4	LO3 LO5 LO6
12	Oncology in the hospital	Diagnostic possibilities using morphological, immunological, genetic and molecular biological methods for the identification of CNS tumors. Advanced achievements of science. Practical recommendations for the diagnosis and surgical treatment of tumor diseases. The use of the most modern drugs and modern methods of treatment.	PD	EC		LO1 LO2 LO5
13	Angiosurgery in the hospital	Clinical symptoms, treatment methods and diagnosis of vascular diseases, which are also found in neurosurgical practice.	PD	EC		LO3 LO5 LO6

		Interventional medicine and infusion therapy in angiosurgery. Diagnosis, treatment of angiosurgical diseases in children and with pathologies of the cardiovascular system.			4	
14	Methods of neuroimaging and functional diagnostics	The modern achievement of neuroimaging and functional diagnostics. Visualization of the structures, functions and biochemical characteristics of the human body, especially the brain and spinal cord. Computed tomography, magnetic resonance imaging, echoencephalography, functional diagnostic methods (EEG, ENMG) caused by somatosensory potentials.	PD	EC		LO2 LO4 LO6
15	Intensive therapy in surgical patients	Acute pathological conditions in surgical patients requiring urgent diagnostic and therapeutic actions, taking into account age-related characteristics and the nature of the course of the disease. Diagnostic and treatment technologies used in patients with surgical diseases. Algorithms of the resuscitator's actions during the taking of an anamnesis, clinical examination and making tactical decisions in critical situations.	PD	EC	8	LO1 LO2 LO5
16	Neurology in the hospital	Basic information on general and private clinical neurology. Morphology and function of the nervous system, methods for examining patients. Etiology, clinical manifestations, diagnosis, treatment methods and prevention of diseases of the nervous system. Fundamentals of rehabilitation measures and medical and social expertise.	PD	EC		LO2 LO3 LO5

Appendix B

Professional Standard: "Neurosurgery (adult, paediatric)"

Occupation card "7.2 Neurosurgeon"	Mandatory Labour Functions:	1 Provision of specialized medical care, high-tech medical services to patients (adults, children) with neurosurgical diseases and traumas with continuity at all stages 2. treatment of diseases of the nervous system in patients (adults, children), with continuity at all stages 3. Carrying out medical examinations of patients with neurological diseases. 4. Participation in the management of medical records, medical and statistical information
	Additional Labour Functions.	1. Continuous professional development
Job Function 1: Provision of specialised medical care, high-tech medical services to patients (adults, children) with neurosurgical diseases and injuries with continuity at all stages.	Skill 1: Providing specialised neurosurgical care	Skills: 1. Collect anamnesis and objective examination with a focus on neurological and neurosurgical pathology, analyze data, assess the level of consciousness (neurological status). 2. Obtain informed consent, conduct a conversation with patients and their relatives before surgery. 3. Position and lay the patient during neurosurgical operations 4. Work with the neuronavigation system, surgical microscope, angiographic unit. 5. Perform primary surgical treatment, suturing the skin, subcutaneous tissue. 6. Perform suturing of the dura mater. 7. Perform neurosurgical treatment for skull bone fractures or bone defect plastic surgery, hemostasis. 8. Perform lumbar puncture. 9. Install lumbar drainage. 10. Perform revision of the cerebrospinal fluid fistula. 11. Perform the imposition of a trephination hole. 12. Perform osteoplastic trepanation. 13. Perform a bifrontal approach. 14. Perform a pterional approach. 15. Perform a transnasal transsphenoidal approach. 16. Perform removal of an acute subdural hematoma. 17. Perform removal of an epidural hematoma.

		18. Perform removal of an intracerebral hematoma. 19. Perform implantation of an intracranial pressure monitoring system, ventriculostomy. 20. Perform removal of a chronic subdural hematoma. 21. Assist in the removal of tumors of the base of the skull, posterior cranial fossa of the brain. 22. Perform microsurgical treatment of aneurysms of the middle cerebral artery of the brain. 23. Skills in microsurgical treatment of aneurysms of the anterior cerebral artery of the brain. 24. Assist in microsurgical treatment of aneurysms of the internal carotid and basilar arteries of the brain. 25. Perform microsurgical treatment of arteriovenous malformations, fistulas of the cerebral vessels on the cerebral cortex. 26. Assist in microsurgical treatment of arteriovenous malformations, fistulas of the deep sections of the cerebral vessels. 27. Skills in endovascular treatment of aneurysms, arteriovenous malformations and arteriovenous anastomoses of the brain. 28. Skills in applying extra-intracranial microvascular anastomosis. 29. Skills in performing radiofrequency thermal destruction for trigeminal neuralgia. 30. Perform selective cerebral and spinal angiography. 31. Perform ventriculoperitoneostomy. 32. Skills in microsurgical removal of supratentorial benign brain tumors. 33. Skills in microsurgical removal of cavernous angiomas of the supratentorial parts of the brain. 34. Skills in stereotactic brain biopsy. 35. Assist in stereotactic implantation of electrodes into the deep parts of the brain for movement disorders. 36. Skills in microsurgical removal of herniated lumbar intervertebral discs. 37. Skills in performing operations for congenital spinal dysraphism.
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	38. Skills of decompression of craniovertebral junction structures in Arnold-Chiari malformation. 39. Skills of microsurgical removal of benign spinal cord tumors. 40. Skills of drainage of syringomyelic cysts. 41. Skills of cranioplasty of skull defects in children and adults.
	Knowledge: 1. Knowledge of evidence-based medicine in clinical practice within the specialty "Neurosurgery (adult, pediatric)". 2. Knowledge of normal, topographic and pathological anatomy, normal and pathological physiology, biochemistry of the central and peripheral nervous system of children and adults. 3. Knowledge of the main clinical and laboratory symptoms and syndromes in children and adults. 4. Knowledge of the etiology, pathogenesis, classification, clinical manifestations, diagnosis of the most common diseases of the central and peripheral nervous system in adults and children. 5. Knowledge of the standard survey and physical examination of an adult patient and a child. Standard neurological status assessment scheme. 6. Knowledge of complications after neurosurgical procedures or treatment methods, prevention and control measures. 7. Knowledge of the basics of preoperative preparation of patients for emergency and planned operations, timing of neurosurgical interventions. 8. Knowledge of pathophysiology of neurosurgical pathology, including: 1) ICP monitoring; 2) head and spine injuries; 3) intracranial space-occupying lesions; 4) spinal dysraphism.



		9. Knowledge of indications for X-ray, CT, MRI, myelography and angiography. 10. Knowledge of etiology, pathogenesis of neurosurgical diseases, including: intracranial hemorrhage, trauma, tumors, hydrocephalus and infection. 11. Knowledge of pathological conditions in neurosurgery requiring emergency medical care. 12. Knowledge of modern medical literature based on evidence-based medicine in the treatment of patients with TBI, SI, intracranial hemorrhage, intracranial space-occupying lesions, malformations.
	Skill 2: Provide emergency medical care to patients (adults, children) with diseases and injuries of the central and peripheral nervous system.	Skills: 1. Recognize life-threatening conditions, including clinical death (cessation of vital functions of the human body (circulation and (or) respiration), requiring emergency medical care. 2. Assess the cause and severity of the patient's condition and take the necessary measures to bring the patient out of this condition. 3. Perform cardiopulmonary resuscitation. 4. Provide emergency medical care in life-threatening conditions, including clinical death (cessation of vital functions of the human body (circulation and (or) respiration). 5. Use drugs and medical devices when providing emergency medical care. 6. Assess the effectiveness and safety of drugs and medical devices when providing emergency medical care. 7. Identify critical conditions in diseases and injuries of the central and peripheral nervous system in conditions outside a medical organization. Knowledge: 1. Clinical signs of sudden cessation of blood circulation and (or) breathing.

		2. Cardiopulmonary resuscitation. 3. Methods for identifying critical conditions in patients outside of a medical organization. 4. Methods of intensive care and resuscitation for diseases and injuries of the central and peripheral nervous system outside of a medical organization.
Job function 2: Treatment of diseases of the nervous system in patients (adults, children), maintaining continuity at all stages.	Skill 1: Use of drug and non-drug therapies in the treatment of nervous system disorders in patients (adults, children).	Skills: 1. Create and justify a patient treatment plan. 2. Treat patients with diseases of the nervous system at the outpatient and inpatient stages, including orphan diseases. 3. Select and refer patients with diseases of the nervous system for hospitalization in a day hospital, for inpatient treatment. 4. Participate in the selection and referral of patients with diseases of the nervous system for the provision of high-tech medical services. 5. Determine indications, contraindications and conduct immunosuppressive and biological therapy for autoimmune diseases of the nervous system and orphan diseases. 6. Assess the effectiveness of treatment and adjust it taking into account dynamic changes in the results of clinical, laboratory, radiological, morphological and other studies. 7. Ensure the safety of treatment. 8. Set priorities in the provision of medical care. Knowledge: 1. Methods of treating diseases of the nervous system, indications, contraindications and complications. 2. Principles of diet therapy, features of dietary, enteral and parenteral nutrition of patients with diseases of the nervous system in patients (adults, children). 3. Mechanisms of action of drugs, their interaction, indications, contraindications, side effects, features of administration depending on age, taking into account the principles of evidence-based medicine. 4. Indications for planned and emergency hospitalization for inpatient treatment.
		Skills: 1. Determine medical indications for medical rehabilitation of patients with diseases and

	Skill 2: Plan and monitor the effectiveness of medical rehabilitation of patients (adults, children) with diseases and injuries of the central and peripheral nervous system.	injuries of the central and peripheral nervous system. - Determine medical indications for referring patients with diseases and injuries of the central and peripheral nervous system to specialist doctors for the appointment and implementation of medical rehabilitation and spa treatment. - Develop a plan of measures for the rehabilitation of patients with diseases and injuries of the central and peripheral nervous system. - Develop individual rehabilitation and habilitation programs for persons with disabilities. - Monitor the effectiveness of medical rehabilitation. Knowledge: - Fundamentals and methods of medical rehabilitation of patients with diseases and injuries of the central and peripheral nervous system. - Medical indications and medical contraindications for medical rehabilitation of patients with diseases and injuries of the central and peripheral nervous system.
Job Function 3. Carrying out medical examinations in relation to patients with neurological diseases.	Skill 1: Expertise of incapacity for work	Skills: - Formulate medical reports based on the results of a medical examination. - Determine signs of temporary disability and signs of persistent impairment of human body function caused by neurological diseases and the need for care when issuing a sick leave certificate to care for sick family members. - Refer patients with neurological diseases for medical and social examination. - Prepare the necessary medical documentation for patients with neurological diseases to undergo medical and social examination. - Issue a sick leave certificate to patients with neurological diseases. Knowledge: - Order of the Minister of Health of the Republic of Kazakhstan dated November 18, 2020 No. ҚР ДСМ-198/2020 "On approval of the rules for conducting an examination of temporary disability, as well as issuing a sheet or certificate of temporary disability" (registered

		with the Ministry of Justice of the Republic of Kazakhstan on November 20, 2020 No. 21660). 2. Registration of medical documentation for the implementation of medical and social examination. 3. Medical indications for referring patients with persistent impairment of body functions caused by poisoning and their consequences to undergo medical and social examination.
Job Function 4: Participate in the management of medical records, medical and statistical information	Skill 1: Maintain medical records, analyze medical and statistical information, in accordance with the requirements of regulatory legal acts in the area of	Skills: 1. Plan work and prepare a report with an analysis of their own performance indicators. 2. Maintain medical records, including in electronic form, and monitor the quality of their maintenance. 3. Conduct an analysis of medical and statistical indicators of the work of a specialized medical department. 4. Use personal data of patients and information in work, 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. ҚР ДСМ-175/2020 "On approval of forms of accounting documentation in the field of healthcare, as well as instructions for filling them out (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. ҚР ДСМ-313/2020 "On approval of reporting forms in the field of healthcare" (registered in 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. ҚР ДСМ-244/2020 "On approval of the rules for maintaining primary medical documentation and submitting reports"

		(registered in 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 job function 1: Continuous professional development	Skill 1: Striving for professional development	Skills: 1. Participate in professional training events: conferences, seminars, webinars, advanced training courses. 2. Participate in academic and scientific activities. 3. Take part in the work of professional associations, committees and working groups to discuss healthcare issues, exchange experiences with colleagues. Knowledge: 1. Order of the Minister of Health of the Republic of Kazakhstan dated December 21, 2020 No. ҚР ДСМ-303/2020 "On approval of the rules for additional and informal education of specialists in the field of healthcare, qualification requirements for organizations implementing educational programs of additional and informal education in the field of health care, as well as the rules for recognizing the learning outcomes obtained by specialists in the field of health care through additional and informal 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. ҚР ДСМ-283/2020 "On approval of the rules for confirming the results of continuous professional development of health 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 your professional field. 4. Current trends, research and developments in the specialized field.

Requirements for personal competencies:	Empathy Communication skills Tolerance and respect Co-operation and teamwork Stress tolerance Reflection and self-analysis Observance of professional ethics Openness and willingness to learn Activity and initiative Striving for professional development
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LO	Labor functions
LO1. Able to act within the legal and organisational framework of the health care system of the Republic of Kazakhstan when providing neurosurgical care, provide basic care in emergency situations, provide primary and secondary prevention of diseases of the nervous system in patients (adults, children), work as part of interprofessional teams to implement health promotion policies.	LF2. Treatment of diseases of the nervous system in patients (adults, children), with continuity at all stages
LO2. Able to assess risks and use the most effective methods to ensure a high level of safety and quality of neurosurgical care.	LF1. Provision of specialized medical care and high-tech medical services to patients (adults, children) with neurosurgical diseases and injuries with continuity at all stages
LO3. Able to formulate a clinical diagnosis, prescribe a treatment plan and evaluate its effectiveness based on evidence-based practice at all stages of neurosurgical care, participate in the management of medical records, medical and statistical information using artificial intelligence.	LF3. Conducting medical examinations in relation to patients with neurological diseases.
LO4. Able to learn independently and train other members of the neurosurgical professional team, actively participate in	LF2. Treatment of diseases of the nervous system in patients (adults, children), with continuity at all stages



discussions, conferences and other forms of continuing professional development.	LF4. Participation in the management of medical documentation, medical and statistical information
LO5. Able to communicate effectively with patient's relatives, health care professionals to achieve better treatment outcomes.	LF4. Participation in the management of medical documentation, medical and statistical information
LO6. Able to formulate adequate research questions, critically evaluate the professional literature on neurosurgery, effectively use international databases in his/her daily activities, and participate in a research team	Additional labor functions: Continuous professional development

Head of the Training and Methodological Centre



B.Z. Doltaeva