



MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN FEDERATION  
Federal state autonomous educational institution  
of higher education  
**«Far Eastern Federal University»**  
(FEFU)

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**SCHOOL OF BIOMEDICINE**

«AGREED»

Head of education program  
«General medicine»

  
\_\_\_\_\_  
(signature) Khotimchenko Yu.S.  
(Full name)  
«09» of July 2019

«APPROVED»

Director of the Department of Clinical  
Medicine



  
\_\_\_\_\_  
(signature) Geltser B.I.  
(Full name)  
«09» of July 2019

**WORKING PROGRAM OF ACADEMIC DISCIPLINE (WPAD)**

**«Neurosurgery»**

Education program

Specialty 31.05.01 «General medicine»

**Form of study: full time**

year 4, semester 8  
lectures 18 hours  
practical classes 18 hours  
laboratory works not provided  
total amount of in-classroom works 36 hours  
independent self-work 36 hours  
control works ()  
pass-fail exam year 4, semester 8  
exam is not provided

The working program is drawn up in accordance with the requirements of the Federal state educational standard of higher education (level of training), approved by the order of the Ministry of education and science of the Russian Federation from 09.02.2016 № 95.

The working program of the discipline was discussed at the meeting of the Department of fundamental and clinical medicine. Protocol No. 8, 09 of July 2019

Author: prof. A.A. Ovchinnikova

## **Resume of the working program of discipline**

### **«Neurosurgery»**

The discipline "Neurosurgery" is intended for students enrolled in the direction of 31.05.01 "General Medicine" and is an optional discipline. Discipline is implemented on the 4th course, in the 8th semester. The complexity of the discipline 2 credits, 72 hours.

In developing the work program of the discipline, the Federal State Educational Standard of Higher Education in the specialty 31.05.01 "Medicine", the curriculum for training specialists in the specialty 31.05.01 "Medicine" from 2016 were used.

The course program is based on the basic knowledge gained by students:

GCC-1 - the ability to abstract thinking, analysis, synthesis

GCC-5 - the readiness to self-development, self-realization, self-education, to use ofcreativity

GPC-1 - the willingness to solve common tasks of professional activity with the use of information and bibliographic resources, biomedical terminology, information and communication technologies, taking into account the main requirements for information security

GPC-2 - the willingness to communicate in oral and written forms in Russian and foreign languages to solve the problems of professional activity

GPC-4 - the ability and willingness to implement the ethical and deontological principles in professional activities

GPC-7 - the readiness to use basic physical and chemical, mathematical and other natural science concepts and methods in solving professional problems

GPC-9 - the capacity for the assessment of morphological and physiological states and pathological processes in the human body for solving professional task

**The goal** of the the discipline "Neurosurgery" mastering is to study the main diseases of the nervous system, requiring surgical treatment, acquisition of skills of building classifications, in mastering the methodology of patient examination with pathology of the nervous system with the interpretation of laboratory and

instrumental methods of examination of nervous system structures, in the development of the principles of neurological diagnosis (syndrome, topical, etiological) for the formation of clinical thinking of the future doctor.

**The objectives** of the discipline are:

- development in students the knowledge of etiology, epidemiology, pathogenesis and risk factors of nervous diseases;
- teaching students the most important methods of objective examination, allowing timely diagnostics of the nervous system disorders;
- teaching students to recognize clinical signs of neurosurgical pathology during examination of the patient determining the severity of pathological process;
- teaching students the ability to identify the leading syndromes of nervous diseases;
- teaching students to choose the best methods of laboratory and instrumental examination in major neurological diseases and the algorithm of differential diagnosis;
- training to conduct a full range of medical, rehabilitation and preventive measures among patients with various nosological forms of neurological diseases;
- training students to provide patients with the first aid in the event of emergency conditions;
- teaching students to choose the optimal schemes of etiopathogenetic treatment of the most common diseases of the nervous system;
- familiarization of students with the principles of organization and work of medical institutions providing surgical care to patients with neurological pathology;
- development of skills in the study of scientific literature and official statistical reviews;
- formation of communication skills with the neurosurgical patient and his representatives taking into account ethics and deontology depending on the revealed pathology and characterological features of patients;
- formation of communication skills of student with a team.

As a result of studying this discipline the following general professional/ professional competences (elements of competences) are to be formed in students.

Code and formulation of competence	Stages of competence formation	
<p>GPC-8 the readiness for medical use of drugs and other medical substances and their combinations in solving professional problems</p>	Knows	Principles of etiological, pathogenetic, symptomatic and surgical treatment of major diseases of the central nervous system and peripheral nervous system.
	Is able to	Assign pathogenetic therapy and surgical treatment, taking into account the etiology of the disease with the use of drugs, therapy in patients in need of medical rehabilitation.
	Possesses	Methods of medical care
<p>PC-5 the readiness to collect and to analyze patient complaints, data of its history, the results of laboratory, instrumental, postmortem and other examinations to recognize the incidence or the absence of diseases</p>	Knows	<ol style="list-style-type: none"> <li>1. Maintenance of standard accounting and reporting medical documentation in medical organizations of neurosurgical profile</li> <li>2. Basics of preventive medicine, organization of preventive measures aimed at improving the health of the population</li> </ol>
	Is able to	<ol style="list-style-type: none"> <li>1. To plan, analyze and evaluate the quality of medical care, the health status of the population and the impact of environmental and industrial factors on it.</li> <li>2. To assess the social factors affecting the physical and psychological health of the patient: cultural, ethnic, religious, individual, family, social risk factors; to make a preliminary diagnosis; -to synthesize information about the patient in order to determine the pathology and causes of its causes;</li> <li>3. To outline the scope of additional studies in accordance with the prognosis of the disease, to clarify the diagnosis and obtain reliable results</li> </ol>
	Possesses	<ol style="list-style-type: none"> <li>1. Proper maintenance of medical records</li> <li>2. Methods of general clinical examination</li> </ol>
<p>PC-6 the ability of determining the patient's basic pathological conditions, symptoms, syndromes, diseases in accordance with the International Statistical Classification of Diseases and problems related to health, the 10th review.</p>	Knows	Principles of etiological, pathogenetic, symptomatic and surgical treatment of major diseases of the central nervous system and peripheral nervous system. Provision of emergency and emergency care, indications and contraindications for surgical treatment, evaluation of treatment results
	Is able to	Assign pathogenetic therapy based on the etiology of the disease
	Possesses	Methods of medical care
PC-8	Knows	Principles of etiological, pathogenetic, symptomatic

the ability to determining the tactics of patient surveillance with different nosological entities.		and surgical treatment of major diseases of the central nervous system and peripheral nervous system. Provision of emergency and emergency care, indications and contraindications for surgical treatment, evaluation of treatment results
	Is able to	Prescribe pathogenetic therapy based on the etiology of the disease
	Possesses	Methods of medical care

## **I. THE STRUCTURE AND CONTENT OF THE THEORETICAL PART OF THE COURSE (18 HOURS)**

### **Module 1 Fundamentals of neurosurgery**

#### **Theme 1. Brain shells, cerebrospinal fluid. Meningeal and hypertensive syndromes. Hydrocephalus. (2 hours)**

The structure and functions of the spinal cord and brain shells. Cerebrospinal fluid: functional significance. Meningeal syndrome: manifestations, diagnostics. Study of cerebrospinal fluid: composition in normal and basic pathological conditions, protein-cell and cell-protein dissociation. Dislocation syndrome.

### **Module 2 Clinical issues of neurosurgery**

#### **Theme 2. Brain tumors. (2 hours)**

Brain tumors: classification, symptoms, diagnostics. Indications and principles of surgical interventions in brain tumors

#### **Theme 3. Spinal cord tumors. (2 hours)**

Spinal cord tumors: symptoms, diagnostics. Indications and principles of surgical interventions in spinal cord tumors.

#### **Theme 4. Traumatic brain injury. (2 hours)**

Classification of closed traumatic brain injury. Brain concussion. Brain contusion. Intracranial traumatic hematomas. Principles of surgical and conservative treatment

#### **Theme 5. Spinal cord injury (2 hours)**

Pathogenesis, clinic, diagnosis, medical tactics. Rehabilitation of patients.

**Theme 6. Principles of surgical treatment of cerebrovascular diseases (2 hours)**

Hemorrhagic stroke, principles of surgical treatment, surgical treatment of arterial aneurysms and arterio-venous malformations.

**Theme 7. Surgical treatment of complications of lumbosacral osteochondrosis. Pathology of the peripheral nervous system.**

Etiology, pathogenesis of pain syndromes, indications and contraindications for surgical treatment. Types of surgical treatment. Rehabilitation. Surgical anatomy of nerve trunks and plexuses. Basic principles of neurosurgical treatment of peripheral nerve lesions.

**Theme 8. Functional neurosurgery. (2 hours)**

General concepts. Neurosurgical treatment of patients with Parkinson's disease. Neurosurgical treatment of dystonia and atetosis. Neurosurgical treatment of spasticity. Treatment of severe pain syndromes. Surgical treatment of epilepsy. Trigeminal neuralgia and vascular decompression of the cranial nerves. Indications and contraindications for surgical treatment.

**Theme 9. Surgical treatment of inflammatory and parasitic lesions of the central nervous system. (2 hours)**

Abscesses of brain and spinal cord. Subdural empyema. Parasitic infection. Indications and contraindications for surgical treatment

**II. THE STRUCTURE AND CONTENT OF THE PRACTICAL PART OF THE COURSE**

**Practical classes (18 hours)**

**Section Neurosurgery**

**Lesson 1. Brain shells, cerebrospinal fluid. Meningeal and hypertensive syndromes. Hydrocephalus. (4 hours)**

1. Structure and functions of the spinal cord and brain membranes.
2. Cerebrospinal fluid: functional value.
3. Meningeal syndrome: manifestations, diagnosis.
4. Examination of cerebrospinal fluid: the composition is normal and in the main pathological conditions, protein-cell and cell-protein dissociation.
5. Dislocation syndrome.
6. Congenital and acquired hydrocephalus, open and occlusive ones.

### **Lesson 2. Tumors of the nervous system (6 hours)**

1. Brain tumors: classification, symptoms, diagnostics
2. Spinal cord tumors: symptoms, diagnostics;
3. Indications and principles of surgery for tumors of the brain and spinal cord

### **Lesson 3. Cranial and spinal injury (4 hours)**

1. Classification of the closed traumatic brain injury,
2. Brain concussion.
3. Brain contusion.
4. Intracranial traumatic hematomas.
5. Spinal cord injury: pathogenesis, symptoms, diagnostics, medical tactics.  
Rehabilitation of patients.

### **Lesson 4. Principles of surgical treatment of cerebrovascular diseases (4 hours)**

1. Blood supply to the brain and spinal cord
2. Hemorrhagic stroke, diagnostics, principles of surgical treatment,
3. Diagnostics and surgical treatment of arterial aneurysms and arterio-venous malformations.

### **Laboratory workshop**

Not provided in FSES HE.

### III. TRAINING AND METHODOLOGICAL SUPPORT INDEPENDENT WORK OF STUDENTS

Educational and methodological support of independent work of students in the discipline "Neurosurgery" is presented in Appendix 1 and includes: schedule of independent work in the discipline, as well as the approximate time standards for each task; characteristics of tasks for independent work of students and guidelines for their implementation; requirements for the presentation and design of the results of independent work; criteria for assessing the implementation of independent work.

### IV. MONITORING THE ACHIEVEMENT OF THE OBJECTIVES OF THE COURSE

Competence and its code		Stages of competence formation			
No.	Controlled sections / topics of disciplines	Codes and stages of the formation of competencies	Evaluation tools		
			Current control	Intermediate certification / exam	
1	<b>Module 1</b> Fundamentals of neurosurgery <b>Module 2</b> Clinical issues of neurosurgery	the readiness for medical use of drugs and other medical substances and their combinations in solving professional problems (GPC – 8)	Knows	EO-1 Interview	Questions of final control A semester - 1-36
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
	<b>Module 1</b> Fundamentals of neurosurgery <b>Module 2</b> Clinical issues of neurosurgery	the readiness to collect and to analyze patient complaints, data of its history, the results of laboratory, instrumental, postmortem and other examinations to recognize the incidence or the absence of diseases (PC – 5)	Knows	EO-1 Interview	Questions of final control A semester - 1-38
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
	<b>Module 1</b> Fundamentals of neurosurgery <b>Module 2</b> Clinical	the ability of determining the patient's basic pathological conditions, symptoms,	Knows	EO-1 Interview	Questions of final control A semester - 36-110



	issues of neurosurgery	syndromes, diseases in accordance with the International Statistical Classification of Diseases and problems related to health, the 10th review. (PC – 6)	Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
	<b>Module I.</b> Problems of Fundamentals of neurosurgery <b>Module 1</b> <b>Module 2</b> Clinical issues of neurosurgery	the ability to determining the tactics of patient surveillance with different nosological entities. (PC – 8)	Knows	EO-1 Interview	Questions of final control A semester - 1-38
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium

Control and methodological materials as well as criteria and indicators necessary for the assessment of knowledge and skills and characterizing the stages of the formation of competencies in the process of mastering the educational program are presented in Appendix 2.

## **V. A LIST OF TEXTBOOKS AND METHODOLOGICAL SUPPORT OF THE DISCIPLINE**

### **Main literature**

1. Surgery of the Spine and Spinal Cord / Erik van de Kelft / Springer International Publishing Switzerland 2016

<https://link.springer.com/book/10.1007/978-3-319-27613-7#editorsandaffiliations>

2. Diagnosis and Management of Craniopharyngiomas / Andrea Lania, Anna Spada, Giovanni Lasio / Springer International Publishing Switzerland 2016

<https://link.springer.com/book/10.1007/978-3-319-22297-4#editorsandaffiliations>

### **Additional literature**

1. Atlas of Neurotologic and Lateral Skull Base Surgery / John S. Oghalai, Colin L. W. Driscoll / Springer-Verlag Berlin Heidelberg 2016  
<https://link.springer.com/book/10.1007/978-3-662-46694-0#authorsandaffiliationsbook>

### **Legislative and regulatory documents:**

1. The Constitution of the Russian Federation (taking into account the amendments introduced by Laws of the Russian Federation about amendments to the Constitution of the Russian Federation from 30.12.2008 № 7-FKZ).
2. Civil procedure code of the Russian Federation (as amended by Federal laws of 24.07.2008 № 161-FZ (part one) (with amendments).
3. The Federal law of 24.11.1995 N 181-FZ (edition of 30.11.2011) "about social protection of disabled people in the Russian Federation".
4. The Federal law of the Russian Federation of November 21, 2011 N 323-FZ "about bases of protection of health of citizens in the Russian Federation".
5. Federal law of the Russian Federation "on amendments to the Law of the Russian Federation" on education "and the Federal law" on higher and postgraduate professional education" dated June 16, 2011 № 144-FZ.
6. Law of the Russian Federation (as amended by Federal laws of 25.10.2007 № 234-FZ)"on protection of consumer rights".
7. Federal law of the Russian Federation "on amendments to the Law of the Russian Federation" on education "and the Federal law" on higher and postgraduate professional education" dated June 16, 2011 № 144-FZ
8. Law of the Russian Federation (as amended by Federal laws of 25.10.2007 № 234-FZ)"on protection of consumer rights".
9. Resolution of the government of the Russian Federation (in edition of resolutions of the Government of the Russian Federation from 02.09.2010 № 659) "On organization of licensing of separate kinds of activity".

10. Resolution of the state standard of the Russian Federation from 06.11.2001 № 454-St Committee on standardization, Metrology and certification OK 004-93 "all-Russian classifier of economic activities, products and services.
11. Order of MOH and SR of the Russian Federation of September 26, 2011 N 1074n "about modification of the Order of the Ministry of health and social development of the Russian Federation of August 19, 2009
12. The order of MOH & SD of the Russian Federation dated 19 August 2009 N 597H "On organization of activities of health centers to promote healthy lifestyle among citizens of the Russian Federation, including reduction of alcohol and tobacco consumption" (as amended by Orders of the health Ministry of the Russian Federation dated 08.06.2010 N 430H, from 19.04.2011 N 328H, from 26.09.2011 N 1074H)
13. The order of MOH & SD of the Russian Federation dated 19 August 2009 N 597H "On organization of activities of health centers to promote healthy lifestyle among citizens of the Russian Federation, including reduction of alcohol and tobacco consumption" (as amended by Orders of the health Ministry of the Russian Federation dated 08.06.2010 N 430H, from 19.04.2011 N 328H, from 26.09.2011 N 1074H)
14. The order of the Ministry of health and social development of the Russian Federation of April 13, 2011 N 316N "about the statement of the Order of rendering medical care to the adult population at diseases of nervous system on the profile" neurology"
15. Order of the Ministry of health of the Russian Federation of August 22, 2005 N 534 "on measures to improve the organization of neurorehabilitation care for patients with stroke and traumatic brain injury.
16. The order of the health Ministry of the Russian Federation from 04.02.2010 N 55h (as amended on 31.01.2012) "On the procedure for conducting additional clinical examination of working citizens".
17. Order of the Ministry of health and social development of the Russian Federation of 14.12.2009 No. 984n "About the statement of the Order of passing of

medical examination by the public civil servants of the Russian Federation and municipal employees, the list of the diseases interfering receipt on the public civil service of the Russian Federation and municipal service or"

18. The order of the health Ministry of Russia dated 29.06.2011 N 624H (as amended on 24.01.2012) "On approval of the Procedure for issuing sick leave"

## LIST OF INFORMATION TECHNOLOGIES AND SOFTWARE

The location of the computer equipment on which the software is installed, the number of jobs	List of licensed software
<p>Multimedia auditorium Vladivostok Russian island, Ayaks 10, building 25.1, RM. M723 Area of 80.3 m2 (Room for independent work)</p>	<p>Windows Seven enterprise SP3x64 Operating System Microsoft Office Professional Plus 2010 office suite that includes software for working with various types of documents (texts, spreadsheets, databases, etc.); 7Zip 9.20 - free file archiver with a high degree of data compression; ABBYY FineReader 11 - a program for optical character recognition; Adobe Acrobat XI Pro 11.0.00 - software package for creating and viewing electronic publications in PDF; WinDjView 2.0.2 - a program for recognizing and viewing files with the same format DJV and DjVu.</p>

In order to provide special conditions for the education of persons with disabilities all buildings are equipped with ramps, elevators, lifts, specialized places equipped with toilet rooms, information and navigation support signs

## **V. GUIDELINES FOR THE DISCIPLINE STUDYING**

The purpose of practical training is to consolidate the knowledge gained by students in lectures, modeling of practical situations, as well as checking the effectiveness of independent work of students.

The practice session usually includes an oral questioning of participants on the seminar. This reveals the degree of students' knowledge of the material of the lecture course, basic textbooks, knowledge of current problems and temporary situation in the modern educational space. Further, the ability of students to apply the theoretical knowledge to the solution of the situational problem is revealed.

Preparation for practical classes is advisable to start with a repetition of the material of lectures. It should be borne in mind that the lecture course is limited in time and does not allow the lecturer to consider in detail all aspects of the issue under study. Therefore, it is required to expand knowledge both theoretical and practical. At the same time, lectures give a good guide to the student to find additional materials, as they set a certain structure and logic of studying a particular issue.

In the course of independent self-work, the student must first study the material presented in the teacher's educational literature and monographs. Students should pay attention to the fact that the library list includes not only basic textbooks, but also more in-depth sources on each topic of the course. Consistent study of the subject allows the student to form a stable theoretical base.

An important part of the preparation for practical classes is the work of students with scientific and analytical articles that are published in specialized periodicals. They allow you to broaden students' horizons and get an idea of current problems, possible ways to solve them and/or trends in the study area.

As a final step in preparing for the practical lesson, the student should be encouraged to review the results of research relevant to each topic.

## LOGISTICS DISCIPLINE

For practical work, as well as for the organization of independent work, students have access to the following laboratory equipment and specialized classrooms that meet the current sanitary and fire regulations, as well as safety requirements during training and scientific and industrial works:

<b>Name of the equipped rooms and rooms for independent work</b>	<b>List of main equipment</b>
690922, Primorsky Krai, Vladivostok, island Russian, the Saperny Peninsula, the village of ayaks, 10, RM. M 516	Class of topographic anatomy and operative surgery Set of surgical large (1 PC.) Package d / disposal CL. B (yellow) with screed, 50*60 cm Needles W 204/3 DS 70 (130) Disposable robe (sleeve: knitted cuff) Disposable gloves, non-sterile (size M) Disposable, non-sterile gloves (size S) Disposable, non-sterile gloves (size L) Pointed scissors (2 PCs.) Spatula neurosurgical 2-sided small (2 PCs .) Suture Polyester braided M 3.5 (0) a coil of 10 meters PR-VA Russia Dacron braided white M 3 (2/0) 200 meters tape, PR-VA Russia Functional model of the knee joint "luxury" (1 PC .) Model of knee joint, 12 parts (1 PC.) Posters of the abdominal cavity – plastic) - laminated Chest posters ( plastic) - laminated Fake hernia (1 PC .) Dummy brush (collapsible) (1 PC.) Laryngoscope intubation (1 PC.)
Multimedia audience	AIO PC HP ProOne 400 G1 AiO 19.5" Intel Core i3-4130T 4GB DDR3-1600 SODIMM (1x4GB)500GB; Screen projection Projecta Elpro Electrol, 300x173 cm; Multimedia projector, Mitsubishi FD630U, 4000 ANSI Lumen 1920 x 1080; Flush interface with automatic retracting cables TLS TAM 201 Stan; Avervision CP355AF; lavalier Microphone system UHF band Sennheiser EW 122 G3 composed of a wireless microphone and receiver; Codec of videoconferencing LifeSizeExpress 220 - Codeconly - Non-AES; Network camera Multipix MP-HD718; Two 47 " LCD panels, Full HD, LG M4716CCBA; audio commutation and sound amplification Subsystem; centralized uninterruptible power supply
Reading rooms of the Scientific library of the University open access Fund (building a - 10)	Monoblock HP Loope 400 All-in-One 19.5 in (1600x900), Core i3-4150T, 4GB DDR3-1600 (1x4GB), 1TB HDD 7200 SATA, DVD+/-RW,GigEth,wifi,BT,usb kbd/mse,Win7Pro (64-bit)+Win8.1Pro(64-bit),1-1-1 Wty Speed Internet access 500 Mbps. Jobs for people with disabilities equipped with displays and Braille printers.; equipped with: portable reading devices flatbed texts,

	scanning and reading machines videovelocity with adjustable color spectrums; increasing electronic loops and ultrasonic marker
Accreditation-simulation center of the school of Biomedicine	

**Clinical base:**

State budgetary institution of health care "Primorsky regional clinical hospital №1»



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**SCHOOL OF BIOMEDICINE**

**TRAINING AND METHODOLOGICAL SUPPORT OF INDEPENDENT  
WORK OF STUDENTS**

**Neurosurgery**

**Direction of study 31.05.01 «General medicine»**

**Form of study: full time**

**Vladivostok**

**2018**



### Schedule of independent work on the discipline

No.	Date / Deadline	Type of independent work	Estimated norms of time for execution (hour)	Form of control
1.	Practical class	Preparation for clinical practical classes on the basis of training and lecture material, preparation home tasks. Preparation for testing to consolidate knowledge about the organization of the nervous system in normal and pathological conditions. Preparation for clinical practical classes on the basis of lecture material and work with literature	12 hours	OA-1 Interview OA-2 Colloquium PW -1 Test PW -7 Notes PW -11 Case study
2	Medical history writing	Writing and preparation for the defense of the educational history of the patient with neurological pathology	12 hours	OA-1 Interview
	Preparing for the pass-fail exam	Repetition and consolidation of the studied material (work with lecture material, educational literature);	12 hours	OA-1 Interview PW -7 Notes PW -11 Case task

## **Recommendations for independent self-work of students**

### **Methodical instructions**

#### **on writing and protecting the educational history of patient with neurosurgical pathology**

The medical history of patient with neurosurgical pathology should be written in accordance with the scheme of the medical history. Allowed handwritten and electronic versions of the presentation. In the case of curation of one patient by several students in each case history should be present as individual interpretation of the clinical situation by the student.

### **SCHEME OF MEDICAL HISTORY**

#### **1. GENERAL INFORMATION**

Surname, name, patronymic

Age

Occupation. Marital status. Place of work and position of residence. <sup>[[[</sup> Date of admission to the clinic. <sub>SEP]</sub>

#### **2. COMPLAINTS**

Identified targeted questioning (recorded if possible in the form of presentation of the patient).

#### **3. THE HISTORY OF THE DISEASE**

When and how the disease began. Initial symptoms (with infectious diseases, note prodromal phenomena and the incubation period). The nature of the development of painful phenomena (sudden, gradually increasing). The time of appearance and the sequence of development of individual signs of the disease. Identification of factors that preceded the disease (infection, intoxication, physical and mental injuries, hypothermia, etc.).

The course of the disease: progressive, remitting (specify the duration of periods of growth and progress of symptoms). The treatment, its effectiveness.

#### **4. THE HISTORY OF LIFE**

Features of the development stages by the child age. Age of parents at birth of the subject. Whether was born in time, what was the account and whether there was asphyxia at birth, on which day after birth was discharged from the maternity hospital. When patient started walking, talking. Children's infections and other diseases (rickets, seizures, sleepwalking, urinary incontinence, stuttering). The age at which school began, academic performance. Behavior in school, attitude to learning, to comrades who. Habits, skills, inclinations. A similar characteristic for the period of study in college, in high school. Puberty, sex life. In women: time of menstruation, pregnancy, their course, childbirth, miscarriage, abortion, menopause. Marital status, number of children. Previous diseases (tuberculosis, malaria, venereal diseases, etc.), professional intoxication, trauma. Alcohol consumption, tobacco smoking. Occupational and living conditions. The beginning of independent working life. Total work experience and experience in occupation. The conditions and nature of work. Military service. Characteristics of the home environment. Food, duration of sleep and rest. Family relationships. Information on the health of family members and other relatives. Chronic infections (lues, tuberculosis), intoxication (alcoholism), diseases of the cardiovascular system, metabolism. Hereditary, degenerative and other diseases of the nervous system.

## 5. OBJECTIVE EXMINATION RESULTS

General condition of the patient (satisfactory, moderate, severe). Position of the patient (active, passive, forced). Skin, mucous membranes. Lymph nodeS. Body temperature, height, weight. The shape of the skull-brachycephaly, dolichocephaly, hydrocephalus, microcephaly, tower skull. Percussion of the skull bones. When complaining of noise in the head, the data of auscultation of the skull. The presence of scars, defects in the head. The configuration of the spine: the presence of scoliosis, pathological kyphosis and flattening of lumbar lordosis. Percussion of spinous processes of the spine, paravertebral points. Test with a load on the spine. Mobility of the spine in the cervical and lumbosacral parts.

Anomalies in the skeleton structure: asymmetry of the thorax, syndactyly, polydactyly, flat foot, Fridreigh's foot, change the shape of the joints.

Internal organs (cardiovascular system, respiratory, digestive, urogenital system).

Endocrine system (thyroid gland, function of the sexual glands, etc.).

### **Neurological status**

Cerebral symptoms - headache, dizziness, nausea, vomiting. Meningeal symptoms - stiff neck muscles, symptoms of Kernig, upper and lower symptoms of Brudzinsky, in children a symptom of Lesage (hanging), swelling of fontanelle, meningeal posture (extension of the head and trunk, bending of the legs).

### **Cranial nerves**

I. Olfactory nerve: Investigate the sense of smell with a set of odorous olfactory substances separately on the right and left (sense of smell preserved, hyposmia, anosmia, olfactory hallucinations, olfactory agnosia).

II. Optic nerve. Visual acuity of each eye (if it is reduced, whether it is corrected by glasses). Field of view (hemianopsia: homonymous, heteronymous, bitemporally, scotoma). Draw a diagram of the fields of view. Fundus (normal, stagnant nipples, neuritis, optic nerve atrophy, etc.).

III-IV-VI. Oculomotor, trochlear, abducens nerves. The width of the eye slits (ptosis). The volume of movements of the eyeballs (paralysis or paresis of the eye muscles, paralysis of the eye). Diplopia. Strabismus (convergent, divergent). Exophthalmos. Pupils, their shape, size (mydriasis, myosis, anisocoria). Reaction of pupils to light (direct, consensual), to convergence and accommodation (reflex immobility of pupils, Argyle-Robertson's symptom).

V. Trigeminal nerve. Pain and paresthesia in the face. Pain when pressure is applied to the exit points of the trigeminal nerve branches. The skin sensitivity (peripheral segmental type of violation). Taste on the front two-thirds of the tongue. Tension of the masticatory muscles. Deviation of the lower jaw when opening the mouth. Corneal and nasal reflexes (live, reduced, absent), mandibular reflex.

VII. Facial nerve. The state of facial muscles at rest-the uniformity of the eye slits, smoothness of the frontal and nasolabial folds, omission of the mouth corners, rare blinking on the damaged side. The condition of the facial muscles during

movement asymmetry during wrinkling of forehead, frowning eyebrows, eye squinting, grinning teeth, whistling, superciliary reflex on both sides.

VIII. Auditory nerve. Complaints of hearing loss, ringing, tinnitus, dizziness, auditory hallucinations. Hearing acuity (whispering and speaking), tuning fork tests. (Weber, Rinne, Schwabach). Nystagmus (horizontal, vertical, rotary).

IX, X. Glossopharyngeal and vagus nerves. Violation of the phonation, nasal tone of voice, aphonia. The mobility of the soft palate - sufficient, are limited. Swallowing - free, dysphagia. Pharyngeal reflex (with two sides). Taste on the back third of the tongue. Pulse rate, respiration. Bulbar syndrome.

XI. Accessory nerve. Inspection and palpation of trapezoid and sternoclavicular - peripapillary muscle, the presence of atrophy. Head turns. Shoulder lift.

XII. Hypoglossal nerve. The position of tongue in mouth and when protruding (deviation to the side). Atrophy of the muscles of the tongue, fibrillar twitchings.

### **Sensitive sphere**

Paresthesia, pain, their nature, localization, intensity. Pain of nerve trunks in palpation, symptoms of Laseg, Wasserman, Neri. Sensitivity study: superficial (pain, temperature, tactile) and deep (muscular-articular, vibration). Stereognosis. Type of sensitivity disorder (mononeuric, polyneuric, radicular, segmental, conductive, cortical). To sketch the scheme of violations of sensitivity.

### **Motor sphere**

Gait (not changed, atactic, paretic, hemiparetic, spastic). The ability to walk on socks, heels. Volume of active movements of neck, trunk, upper and lower extremities (limitation of active movements describe in degrees of all joints). Passive movements (presence of contractures, ankylosis). Muscle strength (in all groups) on a five-point system. Barre probe. Dynamometry.

Muscle tone (unchanged, hypotension, spastic hypertension, extrapyramidal rigidity). Oligokinesia, amimia, stiffness, bradykinesia. The presence of atrophy. Fibrillar, fascicular twitches. Mechanical excitability of muscles.

### **Reflex sphere**

Tendon and periosteal reflexes with biceps and triceps, radiocarpal, knee,

achilles. Abdominal reflexes (upper, middle, lower), cremaster, plantar.

Pathological reflexes: extensor (Babinski, Oppenheim, Gordon, Shaffer), flexure (Rossolimo, Bekhterev, and Komilov-Zhukovsky). Clonus of feet and kneecaps. Defensive reflexes. Grasp reflex. Reflexes of oral automatism (proboscis, Palmar chin). Pathological synkinesia.

**The presence and nature of hyperkinesia** (chorea, atetoz, chorea - atetosis, mioclonus, torsion spasm, hemiballism, tics, tremor).

**Coordination of movements**, finger-nose and calcaneal-knee probes (myoporaceae, intention tremor, diazoketones, asynergia, dysmetria). Romberg's symptom.

### **Vegetative nervous system**

Bernard-Horner's syndrome (ptosis, myosis, enophthalmos). Skin color, temperature, pigmentation, sweating (hyperhidrosis, anhidrosis). Skin oiliness. Acrocyanosis. Trophic disorders (growth of nails, hair, bedsores). Dermography: local (white, red, spilled) and reflex. Asner's Symptom. Ortho- and clinostatic tests. Pilomotor reflex. The function of the pelvic organs (not disturbed, true urinary incontinence, intermittent urinary incontinence, imperative urges, urinary retention).

### **Higher cortical functions**

State of consciousness (clear, stunned, sopor, coma, psychomotor agitation). Orientation in time and place, the possibility of contact with others. Delirium, delusions, hallucinations, obsessive-compulsive disorder. General level of mental development (corresponds to age and education, underdevelopment). Memory, attention. Emotional sphere, mood (adequate, depressed, euphoria), behavior.

**Speech.** The ability of the patient to tell about himself, to answer questions, to repeat complex and simple phrases, words, syllables. Automated speech (sequential counting, the name of the days of the week, months) understanding of speech, assignments, understanding of incorrectly composed sentences, Proverbs, metaphors, stories. Logorrhea. The name of the items. Motor, sensory, amnesic aphasia. Letter (self, cheating, dictation). Agraphia. Reading (check reading

phrases, words, letters, read tasks). Alexia.

**Praxis, gnosis.** Check the possibility of simple actions (fasten the button, light a match, etc., perform an action with imaginary objects). Apraxia. Agnosia (auditory, visual, olfactory). Violation of the scheme of the body. Astereognosis.

## STATUS LOCALIS

### 6 SYNDROMIC DIAGNOSIS

Summarize the data obtained, highlight pathological syndromes

### 7. TOPICAL DIAGNOSIS

To justify the localization of the pathological focus.

### 8. DIFFERENTIAL DIAGNOSIS.

To confirm the presumptive diagnosis by exclusion of similar diseases. The starting point for this is the choice of the most indicative, leading syndrome/symptom. Then list and give all those diseases in which this syndrome/symptom occurs and for which it is common. Consistently compare the observed picture of the disease with the description of those diseases with which it has similarities in this syndrome/symptom. Looking for differences between this case and similar diseases. Based on the differences found exclude all diseases that could be thought of in this particular case. If when comparing the picture of the disease in the studied patient found the greatest similarity and the smallest difference with any of the possible in this syndrome/symptom of diseases and managed to exclude the rest, it can be concluded that this patient has this disease.

### 9. DATA OF ADDITIONAL METHODS OF RESEARCH

Blood and urine. analysis Cerebrospinal fluid (color, clarity, pressure, protein, cell count). Fluoroscopy, chest X-ray. Craniography, spondylography, pneumoencephalography and ventriculography, electroencephalography, angiography, MRI, CT. Otoneurological examination. Electrical excitability of muscles and nerves. Electromyography.

### 10. CONCLUSION

Clinical diagnosis (main and concomitant diseases). Pathogenesis.

### 11. TREATMENT PLAN

Conservative, surgical

### **Requirements for the defense of patient's medical history with neurological pathology**

1. The student must present the patient (the passport part), to describe the complaints, anamnesis of disease, anamnesis of life and comorbidities.
2. The student must demonstrate the pathological symptoms detected in the patient, in accordance with the method of study of the nervous system.
3. The student must sum up the questioning outcome of the clinical examination: to identify pathological syndromes, to assume the lesion.
4. Taking into account the leading pathological syndrome/syndromes, student should verbally assume the most probable nosological forms of diseases and propose a plan for paraclinical examination of the patient.

#### **11. PROGNOSIS**

5. The student should verbally give arguments to confirm / deny a particular nosological form of the disease.
6. The student must verbally formulate the final clinical diagnosis in accordance with ICD-10.

### **Criteria for assessing the medical history of disease:**

Grade "excellent" deserves a student who showed a comprehensive, systematic and in-depth knowledge of educational and program material, the ability to competently and fully collect complaints, anamnesis, in a comprehensive volume to conduct an objective study of the patient, to appoint additional methods of examination for this pathology, to conduct a differential diagnosis and to justify the diagnosis, to prescribe treatment in accordance with modern concepts of medical science, to productively use the basic and additional literature recommended by the program.

Grade "good" deserves a student who discovered in the performance of the medical history full knowledge of educational and software material, the ability to



competently collect complaints, anamnesis, in the required volume to conduct an objective study of the patient, to appoint additional methods of examination for this pathology, to conduct differential diagnosis and to justify the diagnosis, to prescribe treatment corresponding to the identified disease, to use the basic and additional literature recommended by the program. As a rule, the grade "good" is given to students who are able to fully identify the patient and set out in the history of the disease signs of the revealed pathology, which showed the systematic nature of knowledge of the discipline, but made single errors in the use of medical terminology, single stylistic errors and deviations from the consistent presentation of the text, inaccuracies in the subjective or objective study of the patient, insufficient ability to effectively use the data of objective research in the formulation and solution of therapeutic and diagnostic tasks.<sup>[1][2]</sup>

Grade "satisfactory" deserves the student who showed in the performance of the medical history knowledge of educational and program material in the amount necessary for further study and future work in the profession, coping with the collection of complaints, history, able to conduct a patient examination to the extent necessary to identify typical signs of the studied pathology, familiar with the principles of appointment of additional examination and treatment, using the basic literature recommended by the program.

As a rule, the grade "satisfactory" for students who made multiple errors in the examination of the patient, the use of scientific medical terminology, multiple stylistic errors and deviations from the consistent presentation of the text, who do not have enough knowledge of the methods of objective study of the patient and the interpretation of the results of additional research methods, but have the necessary knowledge and abilities to eliminate them under the guidance of the teacher.

Grade "unsatisfactory" is given to a student who discovered while writing the history of the disease, significant gaps in knowledge of basic educational program material that have committed fundamental errors in patient examination, is not able

to conduct differential diagnostics, to assign diagnostic and therapeutic measures for a given pathology.



MINISTRY OF EDUCATION AND SCIENCE OF THE RUSSIAN  
FEDERATION

Federal state autonomous educational institution  
of higher education

**« Far Eastern Federal University »**

(FEFU)

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**SCHOOL OF BIOMEDICINE**

**ASSESSMENT FUND**

**Neurosurgery**

**Direction of study 31.05.01 «General medicine»**

**Form of study: full time**

**Vladivostok**

**2018**

## Passport of assessment fund

Completed in accordance with the Regulations on the Funds of Evaluation Assets of Educational Programs of Higher Education - Bachelor's Programs, Specialties, FEFU Magistrates, approved by order of the Rector No. 12-13-850 of May 12, 2015.

Code and formulation of competence	Stages of competence formation	
GPC-8 the readiness for medical use of drugs and other medical substances and their combinations in solving professional problems	Knows	Principles of etiological, pathogenetic, symptomatic and surgical treatment of major diseases of the central nervous system and peripheral nervous system.
	Is able to	Assign pathogenetic therapy and surgical treatment, taking into account the etiology of the disease with the use of drugs, therapy in patients in need of medical rehabilitation.
	Possesses	Methods of medical care
PC-5 the readiness to collect and to analyze patient complaints, data of its history, the results of laboratory, instrumental, postmortem and other examinations to recognize the incidence or the absence of diseases	Knows	1. Maintenance of standard accounting and reporting medical documentation in medical organizations of neurosurgical profile 2. Basics of preventive medicine, organization of preventive measures aimed at improving the health of the population
	Is able to	1. To plan, analyze and evaluate the quality of medical care, the health status of the population and the impact of environmental and industrial factors on it. 2. To assess the social factors affecting the physical and psychological health of the patient: cultural, ethnic, religious, individual, family, social risk factors; to make a preliminary diagnosis; -to synthesize information about the patient in order to determine the pathology and causes of its causes; 3. To outline the scope of additional studies in accordance with the prognosis of the disease, to clarify the diagnosis and obtain reliable results
	Possesses	1. Proper maintenance of medical records 2. Methods of general clinical examination
PC-6 the ability of determining the patient's basic pathological conditions, symptoms, syndromes, diseases in accordance with the International Statistical Classification of Diseases and	Knows	Principles of etiological, pathogenetic, symptomatic and surgical treatment of major diseases of the central nervous system and peripheral nervous system. Provision of emergency and emergency care, indications and contraindications for surgical treatment, evaluation of treatment results
	Is able to	Assign pathogenetic therapy based on the etiology of the disease
	Possesses	Methods of medical care

problems related to health, the 10th review.		
PC-8 the ability to determining the tactics of patient surveillance with different nosological entities.	Knows	Principles of etiological, pathogenetic, symptomatic and surgical treatment of major diseases of the central nervous system and peripheral nervous system. Provision of emergency and emergency care, indications and contraindications for surgical treatment, evaluation of treatment results
	Is able to	Prescribe pathogenetic therapy based on the etiology of the disease
	Possesses	Methods of medical care

## V. VI. MONITORING THE ACHIEVEMENT OF THE OBJECTIVES OF THE COURSE

Competence and its code		Stages of competence formation			
No.	Controlled sections / topics of disciplines	Codes and stages of the formation of competencies	Evaluation tools		
			Current control	Intermediate certification / exam	
1	<b>Module 1</b> Fundamentals of neurosurgery <b>Module 2</b> Clinical issues of neurosurgery	the readiness for medical use of drugs and other medical substances and their combinations in solving professional problems (GPC – 8)	Knows	EO-1 Interview	Questions of final control A semester - 1-36
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
	<b>Module 1</b> Fundamentals of neurosurgery <b>Module 2</b> Clinical issues of neurosurgery	the readiness to collect and to analyze patient complaints, data of its history, the results of laboratory, instrumental, postmortem and other examinations to recognize the incidence or the absence of diseases (PC – 5)	Knows	EO-1 Interview	Questions of final control A semester - 1-38
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium
	<b>Module 1</b> Fundamentals of neurosurgery <b>Module 2</b> Clinical issues of neurosurgery	the ability of determining the patient's basic pathological conditions, symptoms, syndromes, diseases in accordance with the International Statistical Classification of Diseases and problems related to health, the 10th review.	Knows	EO-1 Interview	Questions of final control A semester - 36-110
			Is able to	PW-1 Test	PW-1 Test
			Possesses	EO-3 Report	EO2 Colloquium

		(PC – 6)			
<b>Module I.</b> Problems <b>Module 1</b> Fundamentals of neurosurgery <b>Module 2</b> Clinical issues of neurosurgery	the ability to determining the tactics of patient surveillance with different nosological entities. (PC – 8)	Knows	EO-1 Interview	Questions of final control A semester - 1-38	
		Is able to	PW-1 Test	PW-1 Test	
		Possesses	EO-3 Report	EO2 Colloquium	

### Scale of assessment of the level of competence formation

Competence and its code	Stages of competence formation		criteria	indicators	points
GPC8 Readiness for medical use of medicinal substances and their combinations when solving professional задач	Knows (threshold level)	Principles of etiological, pathogenetic, symptomatic treatment of major diseases of the Central and peripheral nervous system.	Knowledge of principles of etiological, pathogenetic, symptomatic treatment of major diseases of the central nervous system and peripheral nervous system.	Formed and structured knowledge of principles of etiological, pathogenetic, symptomatic treatment of major diseases of the central nervous system and peripheral nervous system.	65-71
	Able to (advanced)	Assign pathogenetic therapy, taking into account the etiology of the disease with the use of drugs, therapy in patients in need of medical rehabilitation.	Ability to mean Pathogenetic therapy, taking into account the etiology of the disease with the use of medicinal, therapy in patients in need of medical rehabilitation	Ready and able to plan, analyze appointment of pathogenetic therapy, taking into account the etiology of the disease with the use of drugs, therapy in patients in need of medical rehabilitation.	71-84
	Masters (high)	Methods of medical care	The skill of proper medical care	He is able to solve problems on the choice of methods of providing medical care	85-100
PC5 Readiness to collect and analyze the patient's complaints and medical history. Results of examination, laboratory, instrumental, pathoanatomic and other researches for the purpose of	Knows (threshold level)	1. Maintenance of standard accounting and reporting medical documentation in medical organizations 2. Fundamentals of preventive medicine, organization of preventive measures aimed at strengthening the	Knowledge 1. of the principles of the model of accounting and reporting medical documentation in medical organizations 2. of basics of preventive medicine, organization of	Formed and structured knowledge on management of standard accounting and reporting medical documentation in medical organizations. The basics of preventive	65-71

recognition of a condition or establishment of the fact of existence or absence of the disease		health of the population	preventive measures aimed at strengthening the health of the population	medicine, the organization of preventive measures aimed at improving the health of the population	
	Able to (advanced)	<p>1. to plan, analyze and evaluate the quality of medical care, the health status of the population and the impact of environmental and industrial factors on it</p> <p>2. to assess the social factors affecting the physical and psychological health of the patient: cultural, ethnic, religious, individual, family, social risk factors; to make a preliminary diagnosis-to synthesize information about the patient in order to determine the pathology and causes of its causes;</p> <p>3. to plan the scope of additional studies in accordance with the prognosis of the disease, to crown the diagnosis and obtain a reliable result</p>	<p>Ability to plan, analyze and evaluate the quality of medical care, the state of health of the population and the impact of environmental and industrial factors on it</p> <p>2. to assess the social factors affecting the physical and psychological health of the patient: cultural, ethnic, religious, individual, family, social risk factors; to make a preliminary diagnosis-to synthesize information about the patient in order to determine the pathology and causes of its causes;</p> <p>3. to outline the scope of additional studies in accordance with the prognosis of the disease, to clarify the diagnosis and obtain reliable results</p>	<p>Ready and able to plan, analyze and evaluate the quality of medical care, the health status of the population and the impact of environmental and industrial factors on it</p> <p>2. to assess the social factors affecting the physical and psychological health of the patient: cultural, ethnic, religious, individual, family, social risk factors; to make a preliminary diagnosis-to synthesize information about the patient in order to determine the pathology and causes of its causes;</p> <p>3. to outline the scope of additional studies in accordance with the prognosis of the disease, to clarify the diagnosis and obtain reliable results</p>	71-84
	Masters (high)	<p>1. Proper maintenance of medical records</p> <p>2. Methods of General clinical examination</p>	<p>Skill of</p> <p>1. proper management of medical records</p> <p>2. conducting general clinical examination</p>	<p>able to solve problems on the choice of methods of General clinical examination</p>	85-100
<p>PC6</p> <p>Ability to determine the patient's basic pathological conditions, symptoms, disease syndromes, nosological forms in accordance with the International statistical classification of</p>	Knows (threshold level)	<p>Principles of etiological, pathogenetic, symptomatic treatment of the main diseases of the CNS and peripheral nervous system. The provision of emergency and emergency care, indications and</p>	<p>Knowledge of the principles of etiological, pathogenetic, surgical and symptomatic treatment of major diseases of the CNS and peripheral nervous system. Principles of emergency and</p>	<p>Formed and structured knowledge of the principles of etiological, pathogenetic, surgical and symptomatic treatment of major diseases of the Central and peripheral nervous</p>	65-71

diseases and health-related problems, X revision.		contraindications for the appointment of therapeutic measures, evaluation of the results of treatment	emergency care, indications and contraindications for the appointment of therapeutic measures, evaluation of treatment results	system, emergency and emergency care, indications and contraindications for the appointment of therapeutic measures, evaluation of treatment results	
	Able to (advanced)	Assign pathogenetic therapy based on the etiology of the disease	The ability to administer etiopathogenetic therapy	Ready and able to prescribe pathogenetic therapy, taking into account the etiology of the disease	71-84
	Masters (high)	Methods of treatment (neurosurgery)	Skill of providing medical (neurosurgical) care	Able to solve the problem of choice of methods of treatment (neurosurgery)	85-100
PC8 Ability to determine the tactics of patient management with different nosological forms	Knows (threshold level)	Principles of etiological, pathogenetic, symptomatic treatment of major diseases of the central and peripheral nervous system. Principles on the use of natural healing factors, medical, non-drug therapies and other methods for patients who need medical rehabilitation and Sana-corniculata treatment	Knowledge of the principles of etiological, pathogenetic, symptomatic treatment of major diseases of the central nervous system and peripheral nervous system. Principles of application of natural therapeutic factors, drug, non-drug therapy and other methods in patients in need of medical rehabilitation and Spa treatment	Formed and structured knowledge of the principles of etiological, pathogenetic, symptomatic treatment of major diseases of the Central nervous system and peripheral nervous system. Principles of application of natural therapeutic factors, drug, non-drug therapy and other methods in patients in need of medical rehabilitation and Spa treatment	65-71
	Able to (advanced)	Assign pathogenetic therapy, taking into account the etiology of the disease with the use of natural therapeutic factors, drug, non-drug therapy and other methods in patients in need of medical rehabilitation and SPA-resort treatment	The ability to prescribe pathogenetic therapy, taking into account the etiology of the disease with the use of natural therapeutic factors, drug, non-drug therapy and other methods in patients in need of medical rehabilitation and SPA-resort treatment	Ready and able to prescribe pathogenetic therapy, taking into account the etiology of the disease with the use of natural therapeutic factors, drug, non-drug therapy and other methods in patients in need of medical rehabilitation and SPA-resort treatment	71-84
	Masters (high)	Methods of medical care	Skill selection methods of medical care	able to solve problems on the choice of methods of medical care	85-100



## **Guidelines that define procedures for assessment of learning outcomes of the discipline**

Interim certification on discipline "NEUROSURGERY" is held in the form of credit. The credit includes 3 stages:

Stage 1-written testing (held at the last lesson of the discipline course);

Stage 2 - verification of level of practical skills' mastering (conducted in the framework of the boundary control);

Stage 3 - final oral interview (includes three theoretical questions).

### **The evaluation criteria of the test task:**

The "excellent" grade is given to the student if the number of correct answers is 100%;

The grade "good" is given to the student if the number of correct answers is from 81 to 99%;

The grade "satisfactory" is given to the student if the number of correct answers is from 65-70% to 80%;

The "unsatisfactory" grade is given to the student if the number of correct answers is less than 65%.

### **Criteria for evaluating an oral interview:**

Grade "**excellent**" is given to a student, if the answer to the question is complete, detailed character, the student uses the basic educational literature and lecture material, the student's oral speech is built logically true, reasoned and clear;

The "**good**" grade is given to the student, if the answer to the question is not complete enough, the student uses the basic educational literature;

Grade "**satisfactory**" is given to a student, if the answer to the question is fragmentary, the main educational literature is used poorly;

The "**unsatisfactory**" grade is given to the student if the answer to the question

is not received.

Integral assessment of the discipline is the arithmetic mean of all stages of the exam.

Grade "**excellent**" deserves a student who has discovered a systematic and deep knowledge of anatomy, physiology of the nervous system, topical diagnosis issues, which can independently properly use the acquired practical skills in the examination of a neurological patient, possession of full knowledge of the clinic, diagnosis and treatment of nervous diseases and emergency conditions with them, certain curriculum.

Grade "**good**" goes to a student who have shown the systematic nature of knowledge in the discipline, with minor gaps that do not affect the correct nature of the answer and capable of self-completion of the justification in the course of further study and professional activity.

Grade "**satisfactorily**" is given to students who committed errors on matters of general neurology, but with the knowledge he/she needs to resolve these errors

Grade "**unsatisfactory**" is given to students who made gross errors in the answers and have significant gaps in knowledge

### **Evaluation tools for interim certification**

#### **Full list of questions to prepare for the credit test.**

1. The brain shells. Meningeal syndrome. Research methods.
2. CSF. Liquorodynamic system. The composition of the cerebrospinal fluid in normal and pathological liquore syndromes.
3. Blood supply of the brain. Carotid system. The syndrome of occlusion of the internal carotid artery.<sup>[1]</sup><sub>[SEP]</sub>
4. Blood supply of the brain. The system of vertebral arteries. Clinical syndromes of vertebral artery occlusion.
5. Cerebral symptoms. Pathogenesis. Clinical implications.
6. Hemorrhagic stroke. Clinical form. Etiology. Treatment. Subarachnoid hemorrhage. Etiology. Symptoms. Treatment.

8. Secondary purulent meningitis. Etiology. Symptoms. Diagnostics. Treatment.
9. Classification of traumatic brain injury. The main clinical syndromes. Brain concussion. Pathogenesis. Symptoms Treatment.
10. Brain contusion. Pathogenesis. Symptoms. Diagnostics. Treatment.
11. Epi- and subdural traumatic intracranial hematomas. Symptoms. Diagnostics. Treatment.
12. Fractures of the skull base. Symptoms. Diagnostics. Treatment.
13. Spinal injury with spinal cord injury. Classification. Symptoms. Diagnostics. Treatment.
14. Brain tumor. The main clinical symptoms. Diagnostics. Principle of treatment.
15. Classification of brain tumors.
15. Supratentorial tumors of the brain. Symptoms. Diagnostics. Treatment.
16. Subtentorial tumors of the brain. Symptoms. Diagnostics Treatment
17. Tubero tumors sellar (optical chiasm). Symptoms. Diagnostics. Treatment.
18. Tumors of the cerebellopontine angle. Symptoms. Diagnosticsstics. Treatment.
19. Pituitary adenoma. Symptoms. Diagnostics. Treatment.
20. Brain abscess. Etiology. Symptoms. Diagnostics. Treatment.
21. The syndrome of temporo-tentorial herniation.
22. Occipital wedge syndrome.
23. Spinal cord tumors. Classification. Symptoms. Diagnostics. Treatment.
24. Extramedullary tumors of the spinal cord.
25. Epilepsy. Etiology. Principles of surgical treatment.
26. Syringomyelia and syringomyelbulbia. Symptoms. Diagnostics. Treatment.
27. Neurological complications of spinal osteochondrosis. Principles and indications for surgical treatment.

### **Evaluation tools for current certification**

**Examples of tests tasks: "Organization of arbitrary movements. The pyramid system and the symptoms of its damage»**

Choose one correct answer:

The structural unit of the nervous system is:

- A. Axon and dendrite
- B. The Axon
- C. Neuron
- D. Dendrite<sup>[SEP]</sup>
- E. Neuroglial cell

There are cells in the posterior horns of the spinal cord of:

- A. Pain and temperature sensitivity
- B. Propulsion<sup>[SEP]</sup>
- C. Deep sensitivity
- D. all types of sensitivity
- E. Sympathetic

The signs of central paralysis do not include:

- A. Hypotension
- B. Muscle hypertonia
- C. Enhanced proprioceptive reflexes
- D. Reduced exteroceptive reflexes
- E. Clonus.

**The evaluation criteria of the test task:**<sup>[SEP]</sup>

The "**excellent**" grade is given to the student if the number of correct answers is 100%;

The grade "**good**" is given to the student if the number of correct answers is from 81 to 99%;

The grade "**satisfactory**" is given to the student if the number of correct answers is from 65-70% to 80%;

The "**unsatisfactory**" grade is given to the student if the number of correct answers is less than 65%.

**Examples of questions for an oral questioning on the theme "Epilepsy and**

### **paroxysmal conditions»**

1. List the types of simple focal epileptic seizures.
2. What are the classification criteria of the forms of epilepsy.
3. What are the main characteristics of an epileptic seizure.

### **Criteria for evaluating an oral interview:**

Grade "**excellent**" is given to a student, if the answer to the question is complete, detailed character, the student uses the basic educational literature and lecture material, the student's oral speech is built logically true, reasoned and clear;

The "**good**" grade is given to the student, if the answer to the question is not complete enough, the student uses the basic educational literature;

Grade "**satisfactory**" is given to a student, if the answer to the question is fragmentary, the main educational literature is used poorly;

The "**unsatisfactory**" grade is given to the student if the answer to the question is not received.

### **Examples of the case study tasks on the theme "Brain tumors and abscesses»**

A child of 10 years for 2 months is concerned about headaches occurring mainly in the morning after sleep. Today, the child had an attack with loss of consciousness and generalized tonic-clonic convulsions, which started with the tonic tension of the left hand. The examination revealed a decrease in strength in the left hand to 4 points, increased tendon reflexes in the left limbs, Babinski's symptom on the left.

1. Highlight pathological syndromes.
2. Make a topical and hypothetical clinical diagnosis.
3. Make an examination plan.

**Answer:** 1. Left-sided central hemiparesis, cerebral syndrome, somato-motor, secondary-generalized epileptic seizure.

2. The right frontal lobe in the middle parts of the precentral gyrus is affected. Brain tumor.

3. CT or MRI of the brain.

***Criteria for assessing the case study task:***

Grade "**excellent**" is given to the students, if the answer is complete, detailed character, the student clearly answered all the points of the problem questions, the answer is built logically correctly, clearly reasoned;

The "**good**" grade is given to the student, if the answer to the question is not complete enough, the student answered only part of the problem questions.

Grade "**satisfactory**" is given to the student, if the answer to the question is fragmentary, the main educational literature is used poorly;

The "**unsatisfactory**" grade is given to the student if the answer to the question is not received;