INTERNATIONAL HIGHER SCHOOL OF MEDICINE

Department of Specialized Clinical Disciplines

SYLLABUS
Fundamentals of Child Neurology

2026 -2027 academic year
for students of medical faculty
6th Course Xth Semester
groups of the Central Campus

2 credits (60 hours, including classroom – 32 hours, independent work – 28 hours)

Practical lessons: **Asel Kadyrova**
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The Syllabus is considered
at the meeting of the department
at the department meeting of SCD
Protocol No. 1 from August 28, 2026

Head of department Maktybaeva D.A.

Course Objective: mastery of basic professional knowledge and skills in the field of pediatric neurology, principles of evidence-based medicine in the field of child development neurology, ability to identify and differentiate between typical and atypical infant development, and skills in the treatment and prevention of neurologic diseases in children.
After studying the discipline, the student must:

Knowledge:

- Algorithms of diagnosis and treatment of the most common neurological disorders in children, based on the principles of evidence-based medicine;
- techniques and methods of first aid in emergency neurological conditions in children.

Skill:

- Apply standard algorithms of treatment of the most common diseases in typical clinical situations with children;
- select techniques and methods of first aid in emergency neurological conditions with the peculiarities of childhood.

Attitude:

- Skills of correction of treatment of the most common diseases in children within the framework of standard algorithms in accordance with the principles of evidence-based medicine;
- skills of applying basic first aid techniques in pediatric neurological emergencies.

Prerequisites:

- obstetrics and neonatology
- childhood diseases,
- propaedeutics of childhood diseases,
- short-term module "Nervous system".

Post-requisites:

- outpatient pediatrics,
- family medicine.

THEMATIC PLAN OF LECTURES

№	Theme of lecture	Hours	Date
1	Principles of examination of child neurology. Terms, definitions, concepts	2	Accordingly to the schedule
2	Neurological assessment of infants according to Hammersmith	2	Accordingly to the schedule
3	Floppy baby syndrome. Promoting child development	2	Accordingly to the schedule
4	Encephalopathies in children. Vaccination for neurological diseases	2	Accordingly to the schedule
5	Hydrocephalus in children. Types of surgical treatment of hydrocephalus in children	2	Accordingly to the schedule
6	Non-epileptic and epileptic paroxysmal conditions in children	2	Accordingly to the schedule

THEMATIC PLAN OF PRACTICAL LESSONS

№	Theme of practical lesson	Hours	Date
1	Neurological examination of the neonatal period. Neurological examination after the neonatal period	2	Accordingly to the schedule
2	Prevention, vaccination, screening. Stages of neuropsychic and speech development of a child	2	Accordingly to the schedule
3	Neuroimaging and neurophysiological studies. Biochemical and hematological studies	2	Accordingly to the schedule
4	Drug and non-drug therapy. Habilitation and rehabilitation measures for children.	2	Accordingly to the schedule
5	Unit 1	2	Accordingly to the schedule
6	Birth asphyxia and other acute encephalopathies in the newborn. Hereditary metabolic encephalopathies of infancy. Neonatal seizures	2	Accordingly to the schedule
7	Acute encephalopathy without fever. Traumatic brain injury. Stroke.	2	Accordingly to the schedule
8	Acute diseases of the central nervous system with fever: meningitis, encephalitis, infectious space-occupying lesions	2	Accordingly to the schedule

9	Postneonatal epileptic seizures. Movement disorders of the central nervous system (except cerebral palsy)	2	Accordingly to the schedule
10	Unit 2	2	Accordingly to the schedule

THEMATIC PLAN OF INDEPENDENT WORK OF STUDENTS

№	Theme of independent work	Hours	Date
1	Examination of the infant's neurological status.	4	Accordingly to the schedule
2	Consulting parents/guardians to promote child development .	4	Accordingly to the schedule
3	Habilitation and rehabilitation of neurological disorders in children. Studying sources on Evidence-based medicine.	2	Accordingly to the schedule
4	Work with neuroimaging and neurophysiological studies in pediatrics (NSH, CT, MRI, tractography, spectrogram, epiprogram , contrast, EEG, ENMG). Neuroophthalmological examination. Biochemical and hematological studies. Genetic research	4	Accordingly to the schedule
5	Meningeal syndrome in infants and signs of increased intracranial pressure.	2	Accordingly to the schedule
6	Assessment of the level of consciousness in infants and young children using the pediatric Glasgow Coma Scale (p GCS) and AGBO	2	Accordingly to the schedule
7	Travel-related conditions in children	4	Accordingly to the schedule
8	Cerebral palsy	4	Accordingly to the schedule
9	Progressive loss of skills. Lethargic baby	2	Accordingly to the schedule

Recommended literature on the discipline:

1. Base:

- Adams RD, Victor M. Principles of Neurology 5nd Edition, 1993, Cambridge University Press
- Ronald B. David. Clinical pediatric neurology. 2018, Demosmedical NY
- Colin Kennedy. Principles and Practice of Child Neurology in Infancy, 2nd Edition.
- Miina Hudders Alga, Uta Tacke, Joachim Pietz , Heike Filippi . SINDA: Standardized Infant Neurodevelopmental Assessment. 2022, Mac Keith Press

2. Additional:

- Dianne J. Russell, Marilyn Wright, Peter L. Rosenbaum, Lisa M. Avery. Gross Motor Function Measurement (GMFM-66 and GMFM-88) User's Manual, 3rd Edition. 2021.
- Randy J. Hagerman, Paul J. Hagerman. Fragile X syndrome and premutation disorders. 2022, Mac Keith Press
- Olaf Kraus de Camargo, Liana Simon, Gabriel Ronen, Peter Rosenbaum, ICF: a practical approach for clinicians and families. 2019, Mac Keith Press

Internet resources

Open Access Resources

1. Electronic medical library
2. International Classification of Diseases ICD-10 (Electronic version) https://mkb-10.com/index.php?pid=5001
3. Univadis - the leading online resource for healthcare professionals
4. State Register of Medicines of the Kyrgyz Republic http://www.pharm.kg/ru/publications/
5. https://www.aan.com/policy-and-guidelines/guidelines
6. https://www.epns.info
7. https://www.ejpn-journal.com
8. https://www.who.int/classifications/classification-of-diseases
9. http://www.childrenshospital.org
10. http://emedicine.medscape.com
11. http://en.wikipedia.org
12. Pediatricsinfo - Website for pediatricians and medical students. Literature on pediatrics, images, videos on medicine, forum.
13. http:// www . merckmanuals . com
14. http://emedicine.medscape.com

15. http://en.wikipedia.org
16. http :// www . childrenhospital . org , etc.

Grading policies and procedures for all types of work
During the period of studying the discipline, the student gains points according to the relevant parameters (per unit):
Current performance - 40 points
independent work - 20 points
midterm control (final assessment of knowledge for a unit) - 40 points
Maximum score - 100 (40+20+40)

System for assessing student educational achievements

Criteria for grading the discipline				
Maximum score	Intervals			
	«unsatisfactory»	«satisfactory»	«good»	«excellent»
Current control - 40	0-23	24-30	31-35	36-40
Interval description	Does not know a significant part of the program material, makes significant mistakes, and cannot cope with practical tasks.	Knowledge of only basic material, significant difficulties in completing practical tasks.	High level of knowledge, skills, abilities, without significant inaccuracies.	High, advanced level of knowledge, skills, abilities, without inaccuracies.
Independent work -20	0-11	12-15	16-17	18-20
Interval description	The independent student work is not completed in accordance with the topic; the student makes critical errors during the presentation.	The independent student work was partially completed; the student made some mistakes during the presentation.	The independent student work are completed in accordance with the topics and instructions, and there are no significant inaccuracies in the presentation.	independent student work are completed in accordance with the topics and instructions at a high level; during the presentation, the student confirms knowledge of the material.
Control work (module) –– 40	0-23	24-30	31-35	36-40
Interval description	The student answered correctly only 0-23 test items out of 40	The student answered correctly for 24-30 test tasks out of 40	The student answered correctly for 31-35 test tasks out of 40	The student correctly answered 36-40 test items out of 40

Behavior policy: (lateness, absence, behavior in the classroom, late submission of work).
- Punctuality and completion of assigned tasks.
- Compulsory attendance at classes.
- Attend classes in clean medical uniform.
- Avoid talking on a cell phone in class.
- Active participation in the educational process.
- Completing homework on time.
- Academic detention for the time specified by the teacher.
For violations of the Conduct Policy, the total number of points for discipline may be reduced to 1-10 points.

Academic Ethics Policy.
- Be tolerant, respect the opinions of others.
- Formulate objections in the correct form.
- Provide constructive feedback during all lessons.
- Plagiarism and other forms of dishonest work are unacceptable. Plagiarism includes: lack of references when using printed and electronic materials, quotes, thoughts and works of other authors or students.

- Hints and cheating during tests, exams, classes, as well as passing an exam for another student, and unauthorized copying of materials are unacceptable.
For violations of the Academic Ethics Policy, the sum of points in the discipline may be reduced to 1-10 points.

Guidelines for discipline lessons

Key questions covered in lesson 1.
"Neurological examination of the neonatal period. Neurological examination after the neonatal period."

1. Relevance. Problems. Danger signs.
2. Taking anamnesis (communication with the baby, parent/caregiver, social interaction with others and siblings).
3. Signs of maternal postnatal depression and its impact on child development (Edinburgh Postnatal Depression Scale).
4. Neurological assessment of the infant using the scales "Neurological assessment of newborns according to Hammersmith, HNNE / Neurological assessment of infants according to Hammersmith, HINE". Collection of complaints, medical history and life history.
5. Lesion syndromes I and II motor neuron of the corticospinal tract.
6. Syndromes of central nervous system damage: general cerebral (consciousness, convulsive, meningeal) and focal (motor disorders, pathological postures).

Recommended reading:

- Adams RD, Victor M. Principles of Neurology 5nd Edition, 1993, Cambridge University Press
- Ronald B. David. Clinical pediatric neurology. 2018, Demosmedical NY
- Colin Kennedy. Principles and Practice of Child Neurology in Infancy, 2nd Edition.
- Miina Hudders Algra , Uta Tacke , Joachim Pietz , Heike Filippi . SINDA: Standardized Infant Neurodevelopmental Assessment. 2022, Mac Keith Press

Key questions covered in lesson 2.
"Prevention, vaccination, screening. Stages of neuropsychic and speech development of a child."

1. Relevance. Problems. Danger signs.
2. Epidemiology of vaccine -preventable infections. Vaccination. Vaccination calendar.
3. False and true contraindications, medical indications for vaccination.
4. Medical terminology in pediatric neurological practice.
5. The concept of physiological, progressive and residual states of the nervous system in children.
6. International Guide to Child Development, assessment of the stages of motor and psycho-speech development of a child.

Recommended reading:

- Adams RD, Victor M. Principles of Neurology 5nd Edition, 1993, Cambridge University Press
- Ronald B. David. Clinical pediatric neurology. 2018, Demosmedical NY
- Colin Kennedy. Principles and Practice of Child Neurology in Infancy, 2nd Edition.
- Miina Hudders Algra , Uta Tacke , Joachim Pietz , Heike Filippi . SINDA: Standardized Infant Neurodevelopmental Assessment. 2022, Mac Keith Press

Key questions covered in lesson 3.
"Neuroimaging and neurophysiological studies. Biochemical and hematological studies."

1. Relevance. Problems. Danger signs.
2. Cranial visualization (neurosonography , transcranial dopplerography , radiography, computed tomography, magnetic resonance imaging (epileptic mode, tractography , spectrography , vascular mode, DWI , contrast). Main indications and contraindications.
3. Electroencephalography, features of children's EEG, basic EEG rhythms. Video EEG monitoring. EEG for epilepsy. Indications and contraindications for EEG examination.
4. Electroneuromyography. Indications and contraindications for ENMG examination.
Abnormal movements of babies.
5. Karyotyping. Hematological tests. Spectrogram of urine. Indications for the study.

Recommended reading:

- Adams RD, Victor M. Principles of Neurology 5nd Edition, 1993, Cambridge University Press
- Ronald B. David. Clinical pediatric neurology. 2018, Demosmedical NY
- Colin Kennedy. Principles and Practice of Child Neurology in Infancy, 2nd Edition.
- Miina Hudders Algra , Uta Tacke , Joachim Pietz , Heike Filippi . SINDA: Standardized Infant Neurodevelopmental Assessment. 2022, Mac Keith Press

Key questions covered in lesson 4.
"Drug and non-drug therapy. Habilitation and rehabilitation activities for children."

1. Relevance. Problems. Danger signs.

2. Evidence-based medicine.
3. Metabolism and toxicity of drugs.
4. Methods of administering medications and errors when calculating the dosage of medications for children.
5. Lists of essential medications: antiepileptic drugs, antibiotics, painkillers and antipyretics, antispasmodics and diuretics).
6. Vitamins and minerals.

Recommended reading:

- Adams RD, Victor M. Principles of Neurology 5nd Edition, 1993, Cambridge University Press
- Ronald B. David. Clinical pediatric neurology. 2018, Demosmedical NY
- Colin Kennedy. Principles and Practice of Child Neurology in Infancy, 2nd Edition.
- Miina Hudders Algra , Uta Tacke , Joachim Pietz , Heike Filippi . SINDA: Standardized Infant Neurodevelopmental Assessment. 2022, Mac Keith Press

Key questions covered in lesson 5. Unit 1.

Carry out independent work on the first block.
Review all topics, including lectures.
Consider the following topics at www.ismexams.com.
Module includes MCQs and clinical cases. Module is taken only once, missing module reduces your total unit mark for 40 points (your control score)

Key questions covered in lesson 6.

"Birth asphyxia and other acute encephalopathies in the newborn. Hereditary metabolic encephalopathies of infancy. Neonatal seizures."

1. Relevance. Problems. Danger signs.
2. Terminology (neonatal encephalopathy, hypoxic -ischemic encephalopathy, ischemia, asphyxia, hypoxemia, neonatal depression, neonatal convulsions).
3. Epidemiology, morbidity.
4. International criteria for HIE.
5. Diagnosis and differential diagnosis of HIE.
6. Follow-up and prognosis of HIE.
7. Prevention and treatment of HIE.

Recommended reading:

- Adams RD, Victor M. Principles of Neurology 5nd Edition, 1993, Cambridge University Press
- Ronald B. David. Clinical pediatric neurology. 2018, Demosmedical NY
- Colin Kennedy. Principles and Practice of Child Neurology in Infancy, 2nd Edition.
- Miina Hudders Algra , Uta Tacke , Joachim Pietz , Heike Filippi . SINDA: Standardized Infant Neurodevelopmental Assessment. 2022, Mac Keith Press

Key questions covered in lesson 7.

"Acute encephalopathy without fever. Traumatic brain injury. Stroke. Acute diseases of the central nervous system with fever: meningitis, encephalitis, infectious space-occupying lesions."

1. Relevance. Problems. Danger signs.
2. Terminology.
3. Causes and algorithm for diagnosing encephalopathy without fever.
4. Clinical and neurological assessment of an infant with acute encephalopathy.
5. Intentional and unintentional TBI. Child abuse syndrome.
6. Classification of childhood stroke.
7. Diagnosis and differential diagnosis of acute encephalopathy.

Recommended reading:

- Adams RD, Victor M. Principles of Neurology 5nd Edition, 1993, Cambridge University Press
- Ronald B. David. Clinical pediatric neurology. 2018, Demosmedical NY
- Colin Kennedy. Principles and Practice of Child Neurology in Infancy, 2nd Edition.
- Miina Hudders Algra , Uta Tacke , Joachim Pietz , Heike Filippi . SINDA: Standardized Infant Neurodevelopmental Assessment. 2022, Mac Keith Press

Key questions covered in lesson 8.

- "Postneonatal epileptic seizures. Movement disorders of the central nervous system (except cerebral palsy) »

1. Relevance. Problems. Danger signs.
2. Terminology (ataxia, chorea, athetosis, ballism, dystonia, myoclonus, tics, tremor).
3. ICF classification.

4. Clinical approach to paroxysmal movement disorders.

Recommended reading:

- Adams RD, Victor M. Principles of Neurology 5nd Edition, 1993, Cambridge University Press
- Ronald B. David. Clinical pediatric neurology. 2018, Demosmedical NY
- Colin Kennedy. Principles and Practice of Child Neurology in Infancy, 2nd Edition.
- Miina Hudders Algra , Uta Tacke , Joachim Pietz , Heike Filippi . SINDA: Standardized Infant Neurodevelopmental Assessment. 2022, Mac Keith Press

Key questions covered in lesson 9. Unit 2.

Present second unit independent work

Repeat all topics of the second unit,

including lectures Review following topics on www.ismexams.com

Module includes MCQs and clinical cases. Module is taken only once, missing module reduces your total unit mark for 40 points (your control score)

Methodological instructions for the implementation of independent work on the discipline.

No.	Theme of independent work	Name of works
1	Examination of the infant's neurological status.	1. Conduct an examination of innate/unconditioned/transient reflexes in infants. 2. Conduct a child development survey according to the international guidelines for monitoring child development. 3. Measure head circumference, compare with the graph of head circumference growth according to the WHO table - task to complete.
2	Consulting parents/guardians to promote child development .	1. Collect complaints, medical history and life history of the child. 2. Give the necessary recommendations in matters of child development. 3. Offer parents the Edinburgh Depression Scale test - a task to complete.
3	Habilitation and rehabilitation of neurological disorders in children. Studying sources on Evidence-based medicine.	1. Find key evidence sources for pediatric neurology: NICE, UpToDate . 2. Work with the volume of information and highlight the necessary information. – work with literature
4	Work with neuroimaging and neurophysiological studies in pediatrics (MRI, CT, EEG, ENMG). Biochemical and hematological studies. Genetic research	1. Highlight indications and contraindications for neuroimaging methods . 2. Decipher an MRI or CT scan and highlight the main structures of the brain. Compare with clinical data. 3. Highlight indications and contraindications for EEG. 4. Conduct an EEG study. 5. Conduct EEG analysis, identify physiological pathological patterns - task to complete 6. Highlight indications and contraindications for ENMG. 7. Analyze and interpret biochemical, hematological, genetic studies
5	Meningeal syndrome in infants and signs of increased intracranial pressure.	1. Investigate meningeal symptoms in infants. 2. Perform a lumbar puncture on infants - task to complete
6	Assessment of the level of consciousness in infants and young children using the pediatric Glasgow Coma Scale (pGCS) and AGBO.	3. Provide first aid to a child with a head injury. 4. Determine the infant's level of consciousness using pGCS and AGBO. – task to complete
7	Convulsive conditions in children	1. Provide first aid to a patient with seizures: assessment according to ABCDE. 2. Carry out sanitation of the upper respiratory tract and oxygen therapy. 3. Calculate the dose of diazepam 0.5% and administer the medication per rectum . 4. Carrying out glucometry . – task to complete
8	Cerebral palsy	1. Working with tables GMFSC , MAX . Determination of the level of movement disorders in children with cerebral palsy. – task to complete

9	Progressive loss of skills. Lethargic baby	1. Studying video cases. 2. Be able to prescribe a plan for the examination, management and treatment of children with developmental problems.