MINISTRY OF HEALTH OF UKRAINE
BOGOMOLETS NATIONAL MEDICAL UNIVERSITY

Vice-rector for scientific and pedagogical educational work

PhD in Medicine, prof. Vlasenko O.V.

_____

_____2024

SYLLABUS OF ELECTIVE DISCIPLINE "FUNDAMENTALS OF NEONATOLOGY"

Level of higher education – second (master's)

Educational program -
educational and professional program of the second level of higher education on the preparation of masters in the specialty 222 "Medicine"

Discussed and approved by the Cyclical Methodical Commission for Pediatric Disciplines of the O.O. Bogomolets National Medical University.

Protocol No. _1_ "_29_" ____08_____ 2024
Head and professor of the department
of Pediatrics No. 1 T.V. Pochynok

Discussed and approved on the meeting of the pediatric department №2

Protocol №1 from August «26», 2024
The Head of the pediatric department №2,
Corresponding member of NAMS of Ukraine,

PhD, professor _____ O.P.Volosovets

Discussed and approved on Cyclic methodical meeting on pediatric disciplines of the Bogomolets National Medical University

Protocol № 1 from August «29», 2024

The Head, professor of the pediatric department №1,

PhD T.V.Pochinok

Discussed and approved on the meeting of the pediatric department №2

Protocol №1 from August «26», 2024

The Head of the pediatric department №2,
Corresponding member of NAMS of Ukraine,

PhD, professor O.P.Volosovets

1. Abstract of the course:

The discipline "Fundamentals of Neonatology" is an optional component of the educational and vocational training program (VB 5.1., VB 5.2.), studied by students of the 5th year of medical faculties #1, #2, #3, #4, FLZSU, FPIG.

Scope of elective discipline:

The total number of hours is 90, of which:

- practical - 30 hours;
- independent work - 60 hours

The number of ECTS credits is 3.

Goal:

The student's acquisition of knowledge and mastery of professional competences in neonatology based on the competences acquired during the study of disciplines - prerequisites.

The results of studying the discipline

The student should KNOW:

- The subject area: prevention, diagnosis and treatment of the most common symptoms and syndromes in newborns (GC4).

The student should BE ABLE to:

- distinguish and identify leading clinical symptoms and syndromes in newborns (anemia, hypoglycemia, hyperglycemia, hepatomegaly, hepatolienal syndrome, vomiting, shortness of breath, asphyxia, jaundice, edematous syndrome, coma, polyuria, dehydration syndrome); according to standard methods, using

preliminary data of obstetric history, patient examination data, knowledge about the human organs and systems, establish a preliminary clinical diagnosis of the disease (anemia, hemolytic disease, retinopathy, asphyxia, bronchopulmonary dysplasia, respiratory distress syndrome, hepatitis, pyloric stenosis). PLO 4

- collect patient complaints, obstetric anamnesis, evaluate the physical development of the newborn child, the state of organs and systems of the body, based on the results of laboratory and instrumental studies, evaluate information regarding the diagnosis (blood proteins and their fractions, C-reactive protein, blood glucose, blood lipids and lipoproteins and their fractions, ferritin, iron and copper of blood serum, creatinine, blood and urine urea, blood electrolytes, blood aminotransferases, total blood bilirubin and its fractions, coagulogram, general blood analysis, general urinalysis, serological reactions in infectious diseases, amplification methods in infectious diseases (PCR, LLR), microbiological examination of biological fluids and secretions, methods of instrumental visualization of abdominal organs, methods of instrumental visualization of thoracic cavity organs, methods of instrumental visualization of the genitourinary system). PLO 5
- To establish the final clinical diagnosis of a newborn child by making a reasoned decision and analyzing the received subjective and objective data of clinical, additional examination, carrying out differential diagnosis, observing the relevant ethical and legal norms, under the supervision of the teacher (anemia, hemolytic disease, retinopathy, asphyxia, bronchopulmonary dysplasia, respiratory distress syndrome, hepatitis, pylorus stenosis). PLO 6
- Prescribe and analyze additional examination methods for a newborn child (laboratory, functional and/or instrumental): blood proteins and their fractions, C-reactive protein, blood glucose, blood lipids and lipoproteins and their fractions, ferritin, serum iron and copper, creatinine, blood and urine urea, blood electrolytes, blood aminotransferases, total blood bilirubin and its fractions, coagulogram, general blood analysis, general urinalysis, serological reactions in infectious diseases, amplification methods in infectious diseases (PCR, LLR), microbiological examination of biological fluids and secretions, instrumental visualization of the organs of the abdominal cavity, organs of the chest cavity, genitourinary system for differential diagnosis of diseases (anemia, hemolytic disease, retinopathy, asphyxia, bronchopulmonary dysplasia, respiratory distress syndrome, hepatitis, pyloric stenosis). PLO 7
- To assess the general condition of a newborn child by making a reasoned decision according to existing algorithms and standard schemes, observing the relevant ethical and legal norms. PLO 12
- Provide recommendations on feeding and nutritional features depending on the condition of the newborn child, carrying out preventive vaccinations according to the calendar. PLO 13
- Determine tactics and provide emergency medical care to a newborn child in emergency situations (asphyxia, hypoglycemia, acute respiratory failure, convulsive syndrome) in accordance with existing clinical protocols and treatment standards. PLO 14

- Perform medical manipulations (perform indirect heart massage, artificial respiration, install a nasogastric and orogastric tube, measure blood pressure, restore the patency of the respiratory tract, perform the technique of "skin-to-skin" contact of a newborn and early application to the chest, determine blood groups, Rhesus affiliation, transfuse blood components and blood substitutes, take smears for bacterioscopic, bacteriological, cytological examination) on the basis of a previous clinical diagnosis and/or indicators of the patient's condition by making a reasoned decision, observing the relevant ethical and legal norms. PLO 17
- clearly and unambiguously, convey own knowledge, conclusions and arguments on health care problems and related issues. PLO 25

The student must be ABLE to:

- Collect medical information about the patient and analyze clinical data. FK1
- Determine the necessary list of laboratory and instrumental studies and evaluate their results. FK2
- To establish the preliminar and clinical diagnosis of the disease. FK3
- Determine the role of nutrition in the treatment and prevention of diseases. PC5
- To determine the principles of treatment and prevention of diseases. PC6
- Diagnose emergency conditions. PC7
- Determine the tactics and provision of emergency medical assistance. PC8
- Perform medical manipulations. PC10
- Keep medical records. PC16
- Clearly and unambiguously convey own knowledge, conclusions and arguments. PC21
- Adhere to ethical principles. PC24

The student must DEMONSTRATE:

- Determination and persistence in relation to assigned tasks and assumed responsibilities (GC12).

The student must HAVE THE SKILLS:

- Use of information and communication technologies (GC10).
- Survey and clinical examination of the patient (PC1).
- Provision of emergency medical care (PC8).
- Performing medical manipulations (PC10).

Note:

GC - general competences
PC - professional competences of the specialty
PLO - program learning outcomes

Required educational components

***Prerequisites*:**

- medical terminology with the basics of the Latin language;
- medical biology;
- medical biochemistry;
- human anatomy;
- physiology;
- histology, cytology and embryology;
- microbiology, virology (with the basics of immunology);
- pathomorphology;
- pathophysiology;
- pharmacology;
- patient care (practice) in the therapeutic department, surgical department, children's department;
- propaedeutics of pediatrics, including nursing practice, basic medical skills in the pediatric department;
- pediatrics with children's infectious diseases, including industrial practice (professional training).

Necessities:

- internal medicine, including endocrinology, infectious diseases with HIV infection, phthisiology, neurology, industrial practice (professional training);
- surgery, including: pediatric surgery, neurosurgery, oncology, industrial practice (professional training);
- obstetrics and gynecology, including practice (professional training);
- social medicine, public health.

Post-requisites:

- pediatrics with children's infectious diseases, including industrial practice (professional training);
- general practice (family medicine), including industrial medical practice in a general practice outpatient clinic.

Content of the discipline

Topic 1. Modern perinatal technologies. Medical care for a premature baby with very low and extremely low body weight.

Principles of perinatal care. The main stages of providing medical care to prematurely born children. Pathological conditions inherent in premature children: prevention and intensive therapy. Enteral and parenteral nutrition. Consultative and catamnestic observation of a prematurely born child.

Topic 2. Modern concept of perinatal infections. Tactics of managing children born to HIV-infected mothers.

Definitions: intrauterine infection, perinatal infection, vertical infection. Etiopathogenesis, clinic, diagnosis, principles of prevention and treatment. Medical care for children born to HIV-infected mothers: prescription of antiretroviral drugs and artificial feeding. Selection of ARV therapy scheme. Forecast. Medical observation.

Topic 3. Neonatal problems related to the respiratory system.

Tachypnea, cyanosis, retraction, expiratory moaning, blowing the wings of the nose, apnea in newborns: causes, management tactics, emergency care.

Topic 4. Neonatal problems related to the central nervous system.

Neurological examination of a newborn. Causes of perinatal lesions of the central nervous system. Hypoxic-ischemic encephalopathy, stages according to the scale of HB Sarnat, MS Sarnat. Intracranial hemorrhages. Cerebral leukomalacia. Factors in the development of convulsive syndrome in the neonatal period. Dependence of the period of seizure occurrence on the cause. Emergency aid.

Topic 5. Neonatal problems related to the cardiovascular system.

Cyanosis, arterial hypo- and hypertension, bradycardia, tachycardia: causes, management tactics, emergency care.

Topic 6. Hematological problems of the newborn period.

Anemia and polycythemia: diagnostic criteria, causes, clinical manifestations, management tactics, emergency care.

Topic 7. Jaundice of the neonatal period.

Peculiarities of bilirubin metabolism in newborns. Conjugation and non-conjugation hyperbilirubinemia. Tactics of management of newborns with jaundice.

Topic 8. Neonatal problems related to the digestive system.

Regurgitation, vomiting, abdominal distention, delayed defecation in newborns: management tactics depending on the cause. Congenital malformations of the gastrointestinal tract (esophageal atresia, intestinal obstruction, pylorostenosis, Hirschsprung's disease, meconial ileus). Necrotizing enterocolitis: pathogenesis, stages, diagnostic methods, prevention and treatment. Congenital disorders of metabolism

Topic 9. Neonatal problems of the urinary system.

Oliguria, proteinuria, leukocyturia, hematuria: causes, management tactics. Acute kidney injury: risk factors, diagnostic criteria, treatment.

Topic 10. Neonatal metabolic problems.

Features of glucose metabolism in newborns. Hypo- and hyperglycemia: causes, manifestations, emergency therapy. The main functions of potassium and sodium in the body of a newborn child. Hypo- and hypernatremia, hypo- and hyperkalemia: causes, diagnostic criteria, treatment.

Type of educational activities: practical lesson.

Form of education: daytime

Teaching methods: verbal, explanatory and demonstrative, problem-based teaching method, reproductive, research.

Control methods: oral, written, practical, test.

Final control form: differential calculation.

Means of diagnosis of learning progress: questions for current control, tests, tasks.

Language of education: Ukrainian, English.

2. Evaluation:

Distribution of points received by students when studying the discipline

<table>
<tr><th>Type of assessment</th><th colspan="5">Distribution of points</th><th>Total points</th></tr>
<tr><td rowspan="4">Oral answer
Test control
Working with a patient.
Solving a clinical problem
Individual work</td><td>T1</td><td>T2</td><td>T3</td><td>T4</td><td>T5</td><td rowspan="4">200</td></tr>
<tr><td>20</td><td>20</td><td>20</td><td>20</td><td>20</td></tr>
<tr><td>T6</td><td>T7</td><td>T8</td><td>T9</td><td>T10</td></tr>
<tr><td>20</td><td>20</td><td>20</td><td>20</td><td>20</td></tr>
<tr><td colspan="6">Total for discipline</td><td>200</td></tr>
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Correspondence of assessment scales of learning material quality

Evaluation on a national scale	***Score in points***	***Evaluation according to the ECTS scale***	***Explanation***
Excellent	170-200	A	**Perfectly**(excellent performance with only minor errors)
Good	155-169	B	**Very good**(above average with a few errors)
	140-154	C	**Fine**(generally correct performance with a certain number of significant errors)
Satisfactorily	125-139	D	**Satisfactorily**(with a significant number of disadvantages)
	111-124	E	**Enough**(execution meets minimum criteria)
Unsatisfactorily	60-110	FX	**Unsatisfactorily**(with the possibility of reassembly)
	1-59	F	**Unsatisfactorily**(with mandatory repeated study of the discipline)

3. **Course policy:** compulsory observance of academic integrity by students, namely:

- independent performance of all types of jobs, tasks, forms of control provided for by the work program of this educational discipline;
- references to sources of information in case of use of ideas, developments, statements, information;
- compliance with the legislation on copyright and international rights;
- provision of reliable information about the results of one's own educational (scientific) activity, used research methods and sources of information.

Discussed and approved at the meeting of the Department of Pediatrics No. 2

Protocol No. ____ since "____" _____ 2022

Chief of the Department of Pediatrics No. 2,
Corresponding member
of the National Academy of Sciences of Ukraine,
professor O.P. Volosovets