



**PA 7.5.1
PROGRAMA ANALITICĂ**

RED:	02
DATA:	20.2.2014
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**STATE UNIVERSITY OF MEDICINE AND PHARMACY
„NICOLAE TESTEMITANU" FROM REPUBLIC OF MOLDOVA**

Approved

at the meeting of the Council of

Faculty of Medicine No.2

Minutes No. 3 of 25.02.2014

Dean of Faculty of Medicine No.2

Ph.D., associate professor


M. Betiu

Approved

at the meeting of the Department of Pediatrics

Minutes No. 6 of 12.02.2014

Director of the Department,

MD,PhD, professor


N. Revenco

SYLLABUS

of the discipline Neonatology

Name of course: Neonatology

Code of course:

Type of course: Compulsory

Total hours – 49:

Lectures - 14, practical classes - 35

Number of credits – 2

Names of teachers: Stratulat P.

Crivceanschi L.

Soitu M.

Stratulat M.

Sisoev V.

Chisinau 2014



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I. Aim of discipline: learning the particularities of adaptation of healthy and sick term and preterm neonates, the aspects of prophylaxis, modern methods of care and resuscitation, treatment and nutrition of term and preterm neonates.

II. Training objectives of the discipline:

Level of knowledge and understanding

1. Theoretical basis of neonatology.
2. The anatomical-physiological, functional and morphological peculiarities of caring of term and preterm babies according gestational age.
3. Principles of nutrition of healthy and sick term and preterm babies.
4. Diagnostic methods and management in neonatal resuscitation and simulation of emergency states.
5. Methods of management in respiratory distress syndrome (RDS) in neonates.
6. Methods of management of neonatal sepsis.
7. Methods of management of neonatal jaundices.
8. Methods of evaluation of level of prematurity and management according gestational age.

Level of the application

1. Anthropometric measurements in assessing physical development of neonates according gestational age.
2. Techniques and methodologies of evaluation of Apgar score, Silverman, Ballard, risk score for sepsis, hemolytic disease of neonates.
3. Performing a general physical examination of neonates with classification of neonatal states.
4. Neonatal caring methods according gestational age.
5. Feeding techniques of healthy and sick neonates (physiologic, after cesarean section, premature).
6. Prophylactic methods in pain of neonates.
7. Management and treatment methods of neonatal asphyxia.
8. Management and treatment methods of neonatal RDS.
9. Management and treatment methods of neonatal sepsis.
10. Management and treatment methods of neonatal asphyxia.
11. Management and treatment methods of neonatal hemolytic disease.

The level of integration

1. To appreciate the importance of Neonatology as part of Pediatrics in context of General Medicine and integration with related medical disciplines;



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2. To develop knowledge about integral approach of healthy and sick new-born, caring methods, including nutrition as an important precondition for the child and adult health;
3. To promote the implementation of new knowledge and practices of nutrition and nursing in the activity of future clinical work in relation to parents or carer of children;
4. To assess new techniques of neonatal management and treatment to prevent neonatal mortality and morbidity.
5. To integrate the knowledge about nursing practices for the proper development of new-born baby according the recommendations / normative acts of the Ministry of Health of the Republic of Moldova in later clinical work.

III. Conditioning and preliminary requirements:

A huge development of neonatology determined a vanguard role of perinatal factors in the etiology and pathology of a number of diseases, if not even of majority of chronic disease of adult. Of course the primary prophylaxis should start in perinatal period. Despite of enormous reparative possibilities in the early postnatal ontogenesis period, a lot of pathologic processes of premature baby can have a direct action on whole life of person, also can be the beginning of forming of numerous processes of chronic failure: immunologic, neurologic, endocrine and other pathologies.

IV. The content of the discipline

A. Lectures

No. of order	Theme	No. of hours
1	Examination of a new born. Essential care of a healthy baby (child), congenital defects, thermal control of a new-born. Adaptation of a new-born. Care of a healthy new-born or the one with various pathologies.	2
2	Hemolytic disease of new-borns.	2
3	Premature new-borns. Measurement criteria of gestational age.	3
4	Sepsis in new-borns.	2



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5	Respiratory distress syndrome.	2
6	Neonatal resuscitation.	3
	Total	14 hours

*Plan of practical classes in „ Neonatology” for the
students of General Medicine*

No. of order	Theme	No. of hours
1	Examination of a new-born. Essential care of a healthy baby (child), congenital defects, thermal control of a new-born. Adaptation of a new-born. Care of a healthy new-born or the one with various pathologies.	6
2	Hemolytic disease of new-borns.	6
3	Premature new-borns. Measurement criteria of gestational age.	6
4	Sepsis in new-borns.	6
5	Respiratory distress syndrome.	5
6	Neonatal resuscitation.	6
	Total	35 hours

SYLLABUS

1. The examination of the new-born. Essential care of a healthy child, congenital defects, thermal control of a new-born. Adaptation of a new-born. Care of a healthy new-born, or of one with pathologies. Primary care of the new-born, skin care and that of the umbilical



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cord. Processing of the umbilical cord and umbilical wound. Sectioning of the umbilical cord. Prophylaxis of ophthalmia neonatorum. Contact between a new-born, mother and family. The handing over of a child to a mother. Development of the airways. Care of the umbilical cord. First feeding. Natural feeding of new-borns. Basic ways of making changes in natural feeding. Food volume. Early feeding. Ways of feeding. Feeding through gavage. Breastfeeding. Behavior of a healthy new-born during breastfeeding. Process of sucking. Step- by-step positioning of a baby. Satisfaction of the needs of a child. Human milk. Controversy regarding human milk. Advantages of natural feeding. Expression of breast milk and giving it to a child. Feeding with a cup. Prophylaxis and treatment of inflammatory processes in the breast. Ways of making changes in natural feeding. Ten steps towards successful feeding. Ten steps towards receiving the title "Hospital is the friend of the child"

2. Hemolytic disease of new-borns. Definition, etiopathogenesis, diagnostics, treatment. Rh incompatibility. Definition, etiopathogenesis, diagnostics, treatment. ABO incompatibility. Definition, etiopathogenesis, diagnostics, treatment. differential diagnosis of neonatal jaundice. Modern methods of treatment of hemolytic diseases in new-borns. Immune hemolytic jaundice. Definition, etiopathogenesis, diagnostics, treatment. Neonatal hyperbilirubinaemia. Diagnostics and treatment algorithm of neonatal jaundice

3. Premature new-borns. Assessment criteria of gestational age. Prematurity. Causes, influence of external factors on a premature new-born (thermal, sound, visual environment), care in the maternity ward. Thermal control in new-borns. Ensuring thermal protection. Skin-skin contact. Hypothermia - definition, symptoms, consequences, causes, risk factors, distribution and incidence, prophylaxis. Premature new-born feeding, retinopathy of premature new-borns. Dismaturity and immaturity. Macrosomia. Classification. Etiopathogenesis, diagnostics, treatment. Gemellology.

4. Sepsis in new-borns. Classification, definition, etiopathogenesis, diagnostics, treatment. Prophylaxis of neonatal infections in a maternity ward. Diagnostics and treatment algorithm of neonatal infections.

5. Respiratory distress syndrome. RDS. Etiopathogenesis, diagnostics, clinics, evolution, RDS type I and type II. DD. RDS I. Hyaline membrane disease.



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6. Neonatal resuscitation. Resuscitation steps. Viability signs in a new-born. Equipment used in neonatal resuscitation. Notion of evaluation - decision - action. Respiratory rehabilitation with the use of ventilation balloon and mask. Physiological consequences of prolonged resuscitation. Neonatal resuscitation algorithm.

B. List of practical skills in the discipline

1. Students who work in a neonatology department must follow basic hygiene.
2. Cleaning and disinfection of rooms that house new-born babies. Preparation of disinfectant solutions. Irradiation of housing rooms with ultraviolet rays.
3. Hygienic care of a healthy new-born and the one with pathology of umbilical cord and umbilical wound. Primary care of new-borns. Prophylaxis of ophthalmiae neonatorum. Bathing and swaddling of new-borns. Care of the skin (hygienic bath), eyes, nose, ears. Anthropometry of a new-born. (m, h, l, PH, PT). Measurement of the body temperature.
4. Methods and techniques of feeding of a new-born with a normal weight.
5. Methods and techniques of feeding a premature new-borns.
6. Training of mothers in breastfeeding techniques, problems with milk drainage, application of milk drainage pump and use of appliances in case of difficulties with breastfeeding.
7. Step care of traumatized children in incubators.
8. Processing of incubator (disinfectant solutions and frequency of processing).
9. Terms of transportation of new-borns from a maternity ward to departments for new-born care (high-risk new-borns, premature new-borns who weigh between 1500 g - 2000 g, new-born with birth traumas, neonatal asphyxia, respiratory distress). Transpiration of new-borns.
10. Thermal control, incubator temperature, oxygen concentration, relative air humidity in incubators.
11. Execution of RSPPE technique. (Spontaneous breathing under positive pressure) through the Gregory method and basal catheters.
12. Determination and assessment of stool in new-borns, sampling of stool for analysis in new-borns.
13. Technique of sampling smear from nasal cavity, oral cavity and the pharyngeal vestibule.
14. State assessment of a new-born using the APGAR score.



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15. Detection of respiratory insufficiency in premature new-borns using Silverman, Downes score.
16. Evaluation of maturity degree of a new-born using Dubovici scale.
17. Technique of reanimation of a new-born in case of asphyxia depending on its severity.
18. Technique of TB vaccination in new-borns. Conditions of vaccine storage. Methods of using, dosing and determination of the volume of saline solution for dilution.
19. Technique of hepatitis B vaccination. Dosage and administration method. Contraindications, side-effects.
20. Evaluation of indices of general blood analysis, hematocrit, reticulocytes in new-borns in early and late neonatal period.
21. Evaluation of indices of blood biochemical analysis (bilirubin and its fractions, albumin, general protein, serum transaminases. C-reactive protein, intrauterine infection index. Evaluation of ionogram and acid-base balance in new-borns. Correction methods of electrolyte disorders and blood gases.
22. Methods and principles of parenteral feeding in new-borns.
23. Assessment of transitory states in new-borns.
24. Method of exchange transfusion (volume, indications, basic drugs, catheterization of the umbilical vein, blood requirements, ET complications).
25. Phototherapy technique.
26. VAP (with mask, RSPPSE).
27. Technique of tracheal intubation. Complications.

V. Bibliography

1. PROGRAMUL S.T.A.B.L.E KRISTINE A. KARLSEN
2. Stratulat P. Neonatology Guide. Chisinau. 1998
3. Sumner J. Neonatal and pediatric Pharmacology Baltimor 2005
4. Nelison V., Neonatology. 2010
5. Stratulat P. Neonatal emergencies manual. 2009
6. Stratulat P. Neonatal algorithms. 2010
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VI. Teaching and learning methods:

Neonatology discipline is taught in classical manner: lectures and practical classes. The theoretical lectures will be hold by the course holders. Practical classes take place in the university clinics and students will study and apply procedures for anthropometric, clinical, morphological and functional evaluation of neonates, will learn age-specific care techniques according neonatal pathology, including treatment and diagnostic methods and clinical medical follow-up, proper nutrition according to the age. It will be used modern teaching methods, including discussion and analysis of clinical cases, practical work at the patient, working with medical records of patients from hospital, simulation methods on manikins, concourses.

VII. Suggestions for individual work:

For learning clinical discipline of neonatology is required a proper training in the fundamental science and in semiology of internal diseases, systematic learning of theoretical material taught in lectures, and active involvement in practical classes. Within these you will apply theoretical knowledge to bedside and will develop practical skills for assessing the physical and neuropsychological development parameters, will assess the level of development, you'll practice in recommendations on nutrition, nursing and immune prophylaxis. Discipline can be taught successfully only through knowledge of the theoretical material, active participation in discussions of appropriate practical exercise, including the writing of diploma thesis. For this purpose we recommend the following:

1. Attend all lectures and practical classes provided not only for the presence, try to use your time more effectively (listen carefully to the teacher, note the most important topics, clarify questions or uncertainties you may have on the topic);
2. Come to practical classes with "homework done", study theoretical material, note in the workbook the most important information for practical application (formulas, evaluation criteria, classifications and rules), formulate questions on topics less understood;
3. Participate actively in discussions of clinical case: try to make your own opinion on each patient presented by your colleagues;
4. Do not hesitate to ask teacher questions, it will help you to get a clear picture on the discussed subject and will prove that you have learned the material;
5. Take part to the clinical round in the unites. Pay more time to the individual work: neonatology, as medicine in generally is not learned "on the fly".

VIII Assessment methods:



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Current: Daily checking of theoretical knowledge, practical skills, perfecting medical documentation, multiple choice test, pediatric clinical observation sheet, case presentation, totalisation (formative assessment), as follows:

Assessment of practical skills acquired during the course is made in the last day of the practical lessons. Colloquy at the neonatology is combined, from practical skills with simulation probes on manikin and oral probe. The oral probe includes the answering according to the subjects from the tickets. Each ticket has 4 subjects.

Topics for exam (tests and the list of subjects for the oral test) are presented to the students at least one month before the session.

The final grade consists of the following components: annual average mark (coefficient 0.3), practical skills (coefficient 0.2) multiple-choice test (coefficient 0.2) oral test (coefficient 0.3).

Knowledge is assessed with marks from 10 to 1 without decimals as follows:

- Grade 10 or 'excellent' (equivalent ECTS - A) will be given for acquiring 91-100% of the material;
- Grade 9 or 'very good' (equivalent ECTS - B) will be given for acquiring 81-90% of the material;
- Grade 8 or 'good' (equivalent ECTS - C) will be given for acquiring 71-80% of the material;
- Grade 6 and 7 or 'satisfactory' (equivalent ECTS - D) will be given for acquiring 61-65 and 66-70% respectively of the material;
- Grade 5 or 'weak' (equivalent ECTS - E) will be given for acquiring 51-60% of the material;
- Grade 3 and 4 (equivalent ECTS - FX) will be given for acquiring 31-40% and 41-50% of the material;
- Grade 1 and 2, or 'unsatisfactory' (equivalent ECTS - F) will be given for acquiring 0-30% of the material;

Method of the grades rounding

The sum of notes from current assessments and final examination	Final grade
5	5
5,1-5,5	5,5
5,6-6,0	6
6,1-6,5	6,5
6,6-7,0	7
7,1-7,5	7,5
7,6-8,0	8
8,1-8,5	8,5



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8,6-9,0	9
9,1-9,5	9,5
9,6-10	10

The absence from the examination without good reason is recorded as 'absent' and is equivalent to the grade 0 (zero).

The student is entitled to two repeated attempts of the failed exam.

IX. Language of instruction:

Romanian, Russian, English, French.

The program was discussed and approved at the teaching medical session of Pediatrics Department on 24.01.2013, verbal process number 5.