

**MINISTRY OF SCIENCE AND HIGHER EDUCATION
RUSSIAN FEDERATION**

**FEDERAL STATE AUTONOMOUS EDUCATIONAL INSTITUTION OF
HIGHER EDUCATION
NORTH-CAUCASUS FEDERAL UNIVERSITY**

Methodological Guidelines
for Students on arranging and performing independent work
in the Discipline of "Current Issues of Neonatology"
for Students majoring (Specialty) in 31.05.01 General Medicine

introduction

The aim of mastering the discipline is to provide students with fundamental knowledge of the pathology of the child's body in the newborn period, to teach them to possess the necessary practical skills in the diagnosis, treatment, and prevention of diseases of children in the first month of life. Neonatology is a section of pediatrics, the science of nursing newborns, the essence of which is: the search for optimal methods of diagnosis and treatment of diseases in children of the first month of life, the rehabilitation of sick newborns, and the creation in the neonatal period of the conditions necessary for the formation of a state of health throughout the rest of a person's life.

Objectives:

- to study the methods of diagnosis, treatment, and prevention of the most common diseases in newborns;
- to consolidate the skills of obtaining objective data during the physical examination of a child, and interpreting the obtained facts considering age norms;
- to master the principles of determining the nature of the course, outcomes, and complications of the studied diseases in the newborn period, taking into account basic and auxiliary laboratory and instrumental investigations;
- to examine the main diseases in the course of differential diagnosis of the main diseases in the newborn period;
- to study the main emergency measures in the delivery room and treatment in the perinatal center;
- to study the most effective methods of rehabilitation and ways of preventing diseases.

Methodological Recommendations for Studying Theoretical Material

When performing the independent study of theoretical material, the student must follow the rules as set below. The working curriculum of the respective academic discipline shall be recommended to be used as the basis for such activity. According to the schedule of classroom lessons and independent work, a different number of hours is to be allocated for studying individual topics. A significant portion of the student's independent work should be allocated to mastering the material on the covered topic, writing a summary (notes) on the specified theoretical blocks, and searching for additional literature based on the NCFU library and via the Internet system. The lecture material shall not cover all theoretical material; the greater part of it must be mastered through independent work. Given the above, working with the recommended literature is mandatory. Special attention must be paid to the content of the main provisions and conclusions, the explanation of phenomena and facts, and the understanding of the practical application of the theoretical issues under consideration. In the process of this work, the student should strive to understand and memorize the main provisions of the material being considered, the examples illustrating it, as well as to understand the illustrative material. Preparation should be completed by drawing up a plan (summary/notes) on the material (issue) being studied. This allows for the creation of a concentrated, concise representation of the issues being studied. First, studying the recommended literature is to be done. Special attention must be paid to the content of the main provisions and conclusions, the explanation of phenomena and facts, and the understanding of the practical application of the theoretical issues under consideration.

During this work, the student should strive to understand and memorize the main provisions of the material being considered, the examples illustrating it, as well as to understand the illustrative material. Preparation should be completed by drawing up a plan (summary/notes) on the material (issue) being studied. This allows for the creation of a concentrated, concise representation of the issues being studied. If necessary, one should seek (advice) consultation from the instructor. When going to a consultation, it is necessary to thoroughly think through the questions that require clarification. Keeping records contributes to turning reading into an active process, mobilizing motor memory along with visual memory. The following should be born in mind: a student who systematically keeps records creates their own individual stock of auxiliary

materials for a quick review of what has been read and for the mobilization of accumulated knowledge. Records are especially important and useful when they reflect the thoughts that arose during independent work.

It is important to develop the students' capacity to compare sources and to think through the material being studied.

Improving note-taking skills among students is of great importance.

The instructor may recommend the following main forms of recording to students: a plan (simple and detailed), excerpts, and theses (abstracts).

The results of note-taking can be presented in various forms.

1. A plan is an outline of the read material, a brief (or detailed) list of questions reflecting the structure and sequence of the material.
2. A detailed plan fully replaces a summary.
3. A summary (notes) is a systematized, logical presentation of the source material. Four types of summaries are distinguished:
4. Outline-summary (Plan-notes) – this is an expanded, detailed plan in which sufficiently detailed records are provided for those points of the plan that need explanation.
5. Textual summary – this is the reproduction of the most important provisions and facts of the source.
6. Free summary – these are clearly and briefly formulated (stated) main provisions resulting from a deep understanding of the material. It may contain excerpts, quotations, and theses; part of the material may be represented by a plan.
7. Theme-based summary – this is compiled on the basis of studying a number of sources and gives a more or less exhaustive answer according to a certain scheme (issue).

Methodological Guidelines for the Preparation for Practical Activities

When preparing for practical activities, the recommendation implies studying the control questions for the given lesson and the theoretical material from one's own notes.

The main form of work during the lessons is an interview (discussion). Each student must be ready to speak on all issues raised in the plan and demonstrate maximum activity during their consideration.

The speech must be constructed freely, convincingly, and with arguments. The instructor ensures that the speech is not reduced to a reproductive level (simple reproduction of the text); simple reading of the summary is also not allowed.

It is necessary for the speaker to show their own attitude towards what they are talking about, express their personal opinion and understanding, substantiate it, and be able to draw the correct conclusions from what has been said. In doing so, the student may refer to the entries in the summary, directly to the primary sources, use knowledge of previously studied disciplines, etc. In addition, to obtain a grade at an advanced level, students solve situational tasks based on the results of the mastered topics.

During the execution of practical works, a defense of practical skills is provided, the full list of which is specified in the fund of assessment tools.

Methodological Recommendations for the Preparation of Presentations and Reports

The report must contain elements of novelty; along with the fundamental aspect, an analysis of the current state of the problem under study must be carried out, as well as inclusion in regional issues. The report must include an introduction, a theoretical part, a conclusion, a list of literature, and a presentation that reveals the essence of the topic in graphs, pictures, diagrams, and formulas.

The report is recommended to be submitted on 1 printed sheet. The text of the work must be printed with 1.5 line spacing on one side of a standard sheet (A4) of white paper.

The text and other printed elements of the work must be black, and the contours of letters and signs must be clear, without halos and shading. The font must be Times New Roman, size 14.

The titles of chapters and paragraphs are highlighted in bold. The sheet with text must have margins: left – 30 mm, right – 10 mm, top – 20 mm, bottom – 20 mm.

Page numbering of the text is done in the lower right corner of the sheet. It is necessary to number pages starting from the page where the Introduction is printed, on which the number 3 is placed. After that, all pages, including appendices, are numbered.

A space equal to two intervals is placed between the title of the chapter and the title of the paragraph of this chapter, and the title of the paragraph must not be separated from the text of this paragraph by a space. The titles of paragraphs shall be separated from the text of the previous paragraph by a space equal to two intervals. Each chapter, as well as the introduction, conclusions, appendices, and the list of used literature, begin on a new page. The word Chapter is not to be written. Chapters have ordinal numbers within the entire work, designated by Arabic numerals (for example: 1, 2, 3), followed by a period.

The word **PARAGRAPH** or the paragraph symbol (§) is not placed in the title. Paragraphs have ordinal numbers within the chapters, designated by Arabic numerals (for example: 1.1. and 1.2.).

Headings of chapters and paragraphs in the text must be centered; a period shall not be placed at the end of the title of the chapter and paragraph. It is not allowed to hyphenate (transfer) a part of a word in a heading. 4.5. The numbering of tables and figures can be running (continuous) or relate to the number of the chapter and paragraph. For example, if a table or a figure is included in the text of the first paragraph of the second chapter, the numbering is as follows: Table 2.1.1., Fig. 2.1.1.

The last digit means the ordinal number of the table (or figure) in this paragraph.

The table is to be placed as the next page after the first mention of it in the text.

Recommended literature.

Main literature:

1. Allen, M. K., Alpan, G., Anderson, E. L. et al. (2020). Neonatology: in 2 volumes. Vol. 1. T. L. Gomella, M. D. Cunningham, & F. G. Eyal (Eds.). Transl. by A. E. Lyubov. 2nd ed. Moscow: Laboratoriya Znaniy. 711 p. ISBN 978-5-00101-739-4 (Vol. 1), 978-5-00101-738-7.
2. Allen, M. K., Alpan, G., Anderson, E. L. et al. (2020). Neonatology: in 2 volumes. Vol. 2. T. L. Gomella, M. D. Cunningham, & F. G. Eyal (Eds.). Transl. by A. E. Lyubov. 2nd ed. Moscow: Laboratoriya Znaniy. 867 p. ISBN 978-5-00101-740-0 (Vol. 2), 978-5-00101-738-7.
3. Tkachenko, A. K., Ustinovich, A. A., Sukalo, A. V. et al. (2021). Neonatology [Electronic resource]: textbook. A. K. Tkachenko & A. A. Ustinovich (Eds.). Minsk: Vysheyshaya Shkola. 576 p. ISBN 978-985-06-3307-1. Available at: <https://www.iprbookshop.ru/120128.html>

Additional literature:

1. Artymuk N. V., Marochko T. Yu., Sutulina I. M. Osnovnye ponyatiya v akusherstve, perinatologii i neonatologii [Basic Concepts in Obstetrics, Perinatology and Neonatology] [Electronic resource]: uchebnoe posobie. Kemerovo: Kemerovskaya gosudarstvennaya meditsinskaya akademiya, 2007. 112 p. Available at: <https://www.iprbookshop.ru/6180.html> (in Russian).
2. Gorlanov I. A., Leina L. M., Milyavskaya I. R., Zaslavskiy D. V. Bolezni kozhi novorozhdennykh i grudnykh detey [Skin Diseases of Newborns and Infants] [Electronic resource]: kratkoe rukovodstvo dlya vrachey. Saint Petersburg: Foliant, 2016. 208 p. ISBN 978-5-93929-263-4. Available at: <https://www.iprbookshop.ru/90207.html> (in Russian).

3. Bachilo E. V., Kabanova A. S., Krasnova S. A. et al. Zdorov'e novorozhden'nogo. Polnyy spravochnik [Health of the Newborn. Complete Handbook] [Electronic resource]. Saratov: Nauchnaya kniga, 2019. 734 p. ISBN 978-5-9758-1829-4. Available at: <https://www.iprbookshop.ru/80200.html> (in Russian).
4. Kat'ko V. A. Bolezni novorozhden'nykh v khirurgicheskoy praktike [Diseases of Newborns in Surgical Practice] [Electronic resource]. Minsk: Vysheyshaya shkola, 2012. 303 p. ISBN 978-985-06-2002-6. Available at: <https://www.iprbookshop.ru/20201.html> (in Russian).
5. Popova N. G., Kocherova V. V., Gevondyan S. V. Printsipy infuzionnoy terapii u novorozhden'nykh detey [Principles of Infusion Therapy in Newborns] [Electronic resource]: uchebnoe posobie. Chita: Chitinskaya gosudarstvennaya meditsinskaya akademiya, 2011. 120 p. Available at: <https://www.iprbookshop.ru/55329.html> (in Russian).
6. Ratner A. Yu. Nevrologiya novorozhden'nykh [Neurology of Newborns]. 8th ed. Moscow: Laboratoriya znaniy, 2020. 369 p. ISBN 978-5-00101-737-0 (in Russian).
7. Chembartseva N. Ya., Klimenko G. Ya., Choporov O. N. Modelirovaniye i prognozirovaniye sostoyaniya zdorov'ya novorozhden'nykh po mediko-sotsial'nym faktoram riska [Modeling and Forecasting the Health Status of Newborns Based on Medical and Social Risk Factors] [Electronic resource]: monografiya. Voronezh: Voronezhskiy institut vysokikh tekhnologiy, Voronezhskiy gosudarstvennyy tekhnicheskyy universitet, 2014. 124 p. Available at: <https://www.iprbookshop.ru/23352.html> (in Russian).

Online resources:

1. <http://rudocctor.net> - Medical Portal
2. <http://www.e-reading.club> / - Great Online Library
3. <https://dic.academic.ru> / - Dictionaries and Encyclopedias
4. <https://roszdravnadzor.gov.ru> / - Federal Service for Supervision of Healthcare
5. <https://www.rmj.ru> / - Russian Medical Journal

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- to examine the main diseases in the course of differential diagnosis of the main diseases in the newborn period;
- to study the main emergency measures in the delivery room and treatment in the perinatal center;
- to study the most effective methods of rehabilitation and ways of preventing diseases.

Control questions:

1. The concept of acute and chronic hypoxia of the fetus and newborn. Chronic intrauterine hypoxia. Causes. Pathogenesis. Methods of prenatal diagnosis and correction.
2. Acute intrauterine hypoxia. Causes. Pathogenesis. Clinic and diagnosis of the acute and recovery periods of hypoxia. The role of neurosonography (NSG), EEG, biochemical and other methods of investigation in the diagnosis and rehabilitation of children who have suffered intrauterine hypoxia. Course. Complications. Outcomes.
3. Resuscitation of newborns in the maternity hospital. Resuscitation and intensive care in the acute period. Treatment and features of observation in the recovery period.
4. Etiology. Pathogenesis. Clinical forms of birth trauma.
5. Intracranial birth trauma. Clinic. Diagnosis. The role of NSG, CT, NMR in the diagnosis of brain damage. Differential diagnosis. Complications. Treatment. Indications for surgical correction. Outcomes. Prognosis.
6. Birth trauma of the spinal cord. Features of the clinic. Diagnosis. The significance of X-ray methods of diagnosis. Differential diagnosis. Treatment.
7. Birth trauma of the peripheral nervous system. Clinic. Diagnosis. Differential diagnosis. Treatment.
8. Resuscitation and intensive care in the acute period. Treatment in the recovery period. Rehabilitation.
9. Definition. Causes. Pathogenesis. Classification. Clinic. Methods of prenatal and postnatal diagnosis of IUGR of the fetus. Treatment in the prenatal and postnatal periods. Features of postnatal development of children with IUGR.
10. Prenatal (intrauterine) hypotrophy as the most common form of IUGR. Clinic. Degrees of hypotrophy. Diagnosis. Treatment. Prevention.
11. Etiology. Classification.
12. HDN due to Rh-conflict. Pathogenesis. Clinical forms. Pre- and postnatal diagnosis. Differential diagnosis. Prenatal and postnatal methods of treatment. Exchange blood transfusion (EBT). Intrauterine EBT. Indications. Complications. Postnatal EBT.

- Indications. Complications. Conservative methods of therapy (phototherapy, medication). Outcomes. Specific prevention.
13. HDN due to conflict with other erythrocyte antigens (ABO). Pathogenesis. Clinical forms. Diagnosis. Differential diagnosis. Features of treatment. Complications. Outcomes. Prevention.
 14. Etiology of RDS. The role of the surfactant system and the alveolar macrophage system in the pathogenesis of RDS. Clinic of edematous-hemorrhagic syndrome, disseminated atelectasis, hyaline membrane disease. Use of the Silverman scale. Diagnosis. Radiographic signs of RDS. Differential diagnosis. Course. Complications. Treatment. Natural and synthetic surfactants. Features of artificial lung ventilation (ALV). Complications of RDS therapy. Outcomes. Prognosis. Prenatal diagnosis.
 15. Massive aspiration of the lungs. Etiology. Pathogenesis. Clinic. Diagnosis. Differential diagnosis. Treatment. The role of bronchial tree drainage, ALV. Indications for prescribing antibiotics. Prognosis.
 16. Etiology. Pathogenesis. Classification. Clinic. Features of congenital and postnatal pneumonias. ALV-associated postnatal pneumonias. Diagnosis. Differential diagnosis. Treatment. Prevention.
 17. The concept of prematurity. Causes of miscarriage. Criteria of prematurity. Anatomical and physiological features of a premature infant depending on gestational age. Factors contributing to increased morbidity and mortality of premature infants. Physical and neuropsychic development of premature infants.

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1. Allen, M. K., Alpan, G., Anderson, E. L. et al. (2020). Neonatology: in 2 volumes. Vol. 1. T. L. Gomella, M. D. Cunningham, & F. G. Eyal (Eds.). Transl. by A. E. Lyubov. 2nd ed. Moscow: Laboratoriya Znaniy. 711 p. ISBN 978-5-00101-739-4 (Vol. 1), 978-5-00101-738-7.
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2. Gorlanov, I. A., Leina, L. M., Milyavskaya, I. R., & Zaslavsky, D. V. (2016). Skin Diseases of Newborns and Infants [Electronic resource]: a short guide for physicians. Saint Petersburg: Foliant. 208 p. ISBN 978-5-93929-263-4. Available at: <https://www.iprbookshop.ru/90207.html>
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4. <https://roszdravnadzor.gov.ru> / - Federal Service for Supervision of Healthcare
5. <https://www.rmj.ru> / - Russian Medical Journal