

Ministry of Health of Ukraine
O.O. Bogomolets National Medical University

GUIDELINES
to practical classes for students

Elective discipline: 5.1. Basics of neonatology

Field of knowledge: 22 "Health care"

Specialty: 222 "Medicine", 228 "Pediatrics"

Department of Pediatrics No. 2

Approved at the meeting of the department
from protocol № 1 dated 27.08.2026

Reviewed and approved by: Center for Pediatric Disciplines
from protocol № 1 dated 28.08.2026

Lesson topic : Neonatal jaundice.

Competencies :

- carry out an assessment of 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;
- distinguish and identify leading clinical symptoms and syndromes (anemic syndrome, jaundice, edematous syndrome);
- according to standard methods, using the previous data of the patient's history, the data of the patient's examination, knowledge about the person, his organs and systems, establish a preliminary clinical diagnosis of the disease (hemolytic disease of newborns, congenital hepatitis, congenital abnormality of development - biliary atresia);
- collect obstetric anamnesis, evaluate the physical development of a premature baby, the state of organs and systems of the body, based on the results of laboratory and instrumental studies, evaluate information about the diagnosis (general analysis of blood, urine, blood proteins, blood glucose, bilirubin and its fractions, electrolytes, radiography thoracic and abdominal organs, neurosonography);
- establish a final clinical diagnosis by making a reasoned decision and analyzing the obtained objective data of clinical, additional examination, carrying out differential diagnosis, observing the relevant ethical and legal norms;
- assess and monitor the child's development, provide recommendations on feeding and nutritional features;
- to determine the tactics and provide emergency medical assistance in case of emergency conditions (anemia, hyperbilirubinemia) in accordance with existing clinical protocols and treatment standards;
- perform medical manipulations (perform indirect heart massage, artificial respiration, install nasogastric and orogastric tubes, restore airway patency).

Goal:

Formation of professional competences; achievement of program learning outcomes in the process of discussing the topic and performing independent work on the topic; mastering practical skills and methods of providing emergency care.

Equipment: newborn baby manikin, ventilator and oxygen therapy kit, resuscitation bag and face mask size "1", equipment for airway sanitation (rubber pears), umbilical vein catheterization kit (scalpel, ligature, tweezers, umbilical catheter, syringe for injections), neonatal stethoscope, pulse oximeter, diapers, disposable gloves, antiseptic for hand treatment.

Lesson plan and organizational structure

The name of the stage	Description of the stage	Levels of assimilation	Time
Preparatory	<i>Organizational issues</i> <i>Learning motivation:</i> Neonatal jaundice is the most common medical problem in the first two weeks of life and a frequent cause of re-hospitalization after birth. Approximately 60% of full-term and 80% of premature newborns develop clinical jaundice in the first week after birth. In most cases, this is a physiological condition that disappears without treatment. However, it must be distinguished from a more severe form called "pathological jaundice". Untimely diagnosis and, accordingly, ineffective treatment can lead to the development of bilirubin encephalopathy and related irreversible neurological complications. <i>Control of the initial level of knowledge (test control and oral survey):</i> 1. What is the criterion of physiological jaundice? A. Appears on the second day of life B. It reaches its peak at the end of the first week of life A. Disappears after four weeks in full-term infants D. The level of bilirubin increases due to conjugated D. The level of umbilical cord bilirubin can reach 200 $\mu\text{mol/l}$ 2. An increase in the level of which indicator is characteristic of hemolytic jaundice? A. Conjugated bilirubin B. Gamma glutamine transferase B. Alkaline phosphatase G. Cholesterin D. Reticulocytes 3. What syndrome is characterized by an increase in unconjugated bilirubin? A. Agenes B. Alazhilya V. Gilbert G. Dubin-Johnson D. Bailer	Introductory Reproductive	20 min

	4. What symptom is characteristic of the first phase of acute bilirubin encephalopathy? A. Opisthotonus B. Convulsions V. A monotonous shrill cry G. Deep stupor D. Muscular hypotonia 5. What erythrocyte mass is used for blood replacement surgery for a newborn with HDN, if the mother has blood group A(II) Rhesus (-), and the child has blood group O(I) Rhesus (+)? A. O(I) rhesus (+). B. A(II) rhesus (-). V. O(I) rhesus (-). G. A(II) rhesus (+). D. AB(IV) rhesus (+).		
Basic	<i>Performance of practical tasks :</i> - demonstration of a thematic patient in the neonatal intensive care unit; - study of obstetric anamnesis; - evaluation of the results of laboratory and instrumental examination methods; - on the basis of obstetric anamnesis, examination data and results of laboratory and instrumental studies , establishment of a preliminary clinical diagnosis; - determination of factors and pathogenetic mechanisms of disease development; - appointment of treatment (emergency measures, medical treatment, particularities of care, feeding); - determination of disease prevention measures; - familiarization with the operation of the equipment - incubators, resuscitation table, phototherapy lamp, radiant heat lamp, ventilators; - practicing medical manipulations using a dummy of a newborn child.	Introductory Introductory Creative Reproductive Reconstructive	80 minutes
Final	<i>Control of the final level of training (situational problems):</i> 1. A full-term newborn weight 2900 g from the first pregnancy, the first physiological birth, a mother has 0 (I) blood group Rh-positive. The child's blood group is A(II), Rh-negative, the level of bilirubin in the umbilical cord blood is 45 $\mu\text{mol/l}$ due to the indirect fraction. At the end of the first day of life, jaundice was appeared, indirect bilirubin	Creative	35 min

	was increased dynamically during the next 12 hours from 100 $\mu\text{mol/l}$ to 200 $\mu\text{mol/l}$, the hemoglobin level is 150 g/l. Previous diagnosis? Driving tactics? Answer standard: 1) Hemolytic disease of the newborn, AB0-conflict, jaundice form. 2) Phototherapy. Control of hemoglobin, erythrocytes, reticulocytes. 2. In a full-term newborn child, multiple malformations were detected at birth: craniofacial dysmorphism, which includes a wide forehead, deep-set eyes, a sharp chin, an elongated bulbous nose, clouding of the peripheral parts of the cornea, shortening of the radial and ulnar bones, phalanx of the fingers, as well as congenital heart defect (pulmonary artery stenosis). In the second week of life, jaundice appeared, which gradually progressed and acquired a greenish tint, hepatosplenomegaly. Laboratory indicators: direct bilirubin – 65 mmol/l, alkaline phosphatase – 650 units/l, ALT – 138 units/l, AST – 120 units/l, GGT – 320 units/l. Ultrasound did not reveal any pathology. For which syndrome are these signs characteristic? Assign an additional examination. Answer standard: 1) Alaghil syndrome. 2) Liver biopsy is indicated (proliferation of bile ducts, in an older age – insufficient number). Genetic consultation. <i>General evaluation of the student's educational activity</i>		
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Recommended reading :

Basic:

1. Pediatrics (neonatology, hematology, endocrinology): Teaching and methodical manual / Edited by O.P. Volosovets. – Kyiv: MEDPRINT, 2023. – 410 p.
2. Neonatology: textbook: in 3 volumes / [T. K. Znamenska, Yu. G. Antipkin, M. L. Aryaev and others]; edited by T. K. Znamenska. – Lviv: Publisher Marchenko T. V., 2020. – T. 1. – 408 p., T2- 456 p., T3- 380 p.
3. Fundamentals of pediatrics according to Nelson: in 2 volumes. Volume 1 / Karen J. Markdante, Robert M. Kligman; translation of the 8th English edition. Scientific

editors of the translation V.S. Berezenko, T.V. Rest Kyiv: VSV "Medicine", (2020). T1-378p.

4. Nelson Textbook of Pediatrics, 2-Volume set, 22-nd edition. By Robert M. Kliegman, Bonita M.D. Stanton, Joseph St. Geme and Nina F Schor. – Philadelphia, PA : Elsevier Inc., 2024 - 4472 p. (Ch. 629, pp. 3515-3549) ISBN-10 : 032352950X ISBN-13 : 978-0323529501

5. Unified clinical protocol of specialized medical care "Jaundice of newborns", approved by Order of the Ministry of Health of Ukraine dated 04/27/2023 No. 783

Information resources:

<https://www.ncbi.nlm.nih.gov/books/NBK532930/>

Questions for student self-preparation for practical training:

1. Metabolism of bilirubin.
2. Types of neonatal hyperbilirubinemia.
3. Causes of physiological hyperbilirubinemia in newborn children.
4. Criteria of physiological hyperbilirubinemia in newborn children.
5. Causes of unconjugated and conjugated hyperbilirubinemia.
6. Criteria of unconjugated and conjugated hyperbilirubinemia.
7. Recommended examination of a child with unconjugated and conjugated hyperbilirubinemia.
8. Principles of treatment of unconjugated and conjugated hyperbilirubinemia.
9. Mechanism of action, method of carrying out and complications of phototherapy.
10. Manifestations of acute on chronic bilirubin encephalopathy.

Methodical development is completed

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