

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 problems related to the digestive system.

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;
- highlight and identify leading clinical symptoms and syndromes (retching, vomiting);
- according to standard methods, using the previous data of the patient's history, data of the patient's examination, knowledge about the person, his organs and systems, establish a preliminary clinical diagnosis of the disease (intestinal obstruction, esophageal atresia, necrotizing enterocolitis, meconial ileus, congenital hyperplasia of the adrenal cortex);
- 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;
- determine tactics and provide emergency medical care in emergency situations 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> The propensity of newborn children to regurgitation is related to the anatomical and physiological features of the digestive tract, the general morpho-functional immaturity of its neuromuscular apparatus, which leads to insufficient functional activity of the esophageal sphincters and the discoordination of the sequence of their interaction. In the case of vomiting, the doctor must first rule out the presence of a child with a congenital malformation of the gastrointestinal tract, which requires immediate surgical intervention in order to prevent the development of irreversible complications. <i>Control of the initial level of knowledge (test control and oral survey):</i> 1. What sign is characteristic of high intestinal obstruction? A. Flatulence B. Absence of meconium B. Visible peristalsis D. Stagnant contents during probing of the stomach D. On the survey X-ray of the abdominal cavity, there are multiple levels in the expanded parts of the alimentary canal. 2. NEC risk factor: A. Intracranial hemorrhage B. Open ductus arteriosus B. Portability G. Broncho-pulmonary dysplasia D. Congenital hypothyroidism 3. What diagnostic method is prescribed in case of suspicion of pylorostenosis? A. Radiography of abdominal organs B. CT B. MRI G. Fibrogastroduodenoscopy D. Ultrasound 4. What disease is characterized by the appearance of "fountain" vomiting without bile impurities at the age of 2-3 weeks? A. Pylorostenosis B. Hirschsprung's disease	Introductory Reproductive	20 min

	B. Meconial ileus D. Congenital hyperplasia of the adrenal cortex D. NEC 5. For which disease is dietary therapy prescribed using specialized mixtures? A. Cystic fibrosis B. Congenital hyperplasia of the adrenal cortex B. Pylorostenosis G. Galactosemia D. NEC		
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 Reconstructive Creative Reconstructive	80 minutes
Final	<i>Control of the final level of training (situational problems):</i> 1. A boy from the first pregnancy, during which polyhydramnios and the absence of visualization of the stomach were detected by ultrasound, the first physiological delivery at 38 weeks of gestation, body weight 3450 g, a height 51 cm. During the examination of the child, there are a large number of foamy secretions from the nose and mouth, which reappears after suctioning. What pathology can be the cause of this clinical picture? What	Creative	35 min

	methods confirm the diagnosis? What should be the driving tactics? Answer standard: Esophageal atresia. Diagnosis: Probing the esophagus (delay at a distance of 10-12 cm from the edge of the gums). Elephant's test (injection of air through a catheter inserted into the esophagus to a depth of up to 10 cm). Tactics: 1) incubation mode; 2) elevated position; 3) suction of mucus every 10-15 minutes; 4) prescription of antibiotics, vitamin K1; 5) transportation to the surgical department. 2. A girl from the second pregnancy of the second premature birth, complicated by premature rupture of the fetal membranes, a long dry period, was born at the 32nd week of gestation with a body weight 1450 g, a height 40 cm. Apgar score 3-5 points. Silverman scale is 3 points. At birth, the diagnosis was RDS, mild degree. Prematurity (GV 32 weeks). Low birth weight. Treatment was carried out: respiratory support (CPAP), administration of exogenous surfactant, infusion therapy, partial parenteral nutrition, enteral nutrition (tube). On the eighth day of the child's life, vomiting appeared, during the examination, a murky shade of the skin is noted, the abdomen is distended, the child reacts to palpation with restlessness, arrhythmic peristaltic sounds are heard, the stool is frequent, with mucus, but without visible blood impurities. Previous diagnosis? Driving tactics? Answer standard: NEC I degree. Prematurity (GV 32 weeks). Low birth weight. X-ray of the abdominal cavity. Stop enteral feeding, and decompress the intestines using a nasogastric tube. Prescribe parenteral nutrition, antibiotic therapy. <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
8. Treatment protocol for children with necrotizing enterocolitis. Addendum to the order of the Ministry of Health No. 88-ADM dated 30.03.2004
<http://medstandart.net/browse/1243>

Information resources:

1.
<https://torontocentreforneonatalhealth.com/education-opportunities/elearning/chronology-of-gastrointestinal-development/>
- 2.<https://www.intechopen.com/chapters/74014>
- 3.<https://dl.com.ua/ua/archive/2017/1%2852%29/pages-15-36/osoblivosti-diagnostiki-ta-pidhodi-do-likuvalno-profilaktichnogo-harchuvannya-ditey-rannogo-viku-z-funktionalnimi-rozladami-travnoyi-sistemi>
4.
<https://www.msdmanuals.com/professional/pediatrics/gastrointestinal-disorders-in-neonates-and-infants/necrotizing-enterocolitis>
5. <http://www.mif-ua.com/archive/article/39563>

Questions for student self-preparation for practical training:

1. Gastroesophageal reflux in newborns (regurgitation).
2. Causes of neonatal vomiting requiring immediate diagnosis and surgical intervention.
3. Tactics in case of suspected congenital intestinal obstruction.

4. Necrotizing enterolitis: risk factors, pathogenesis, clinic, diagnosis, treatment.
5. Pylorostenosis - signs, diagnosis, tactics.
6. Hirschsprung's disease - symptoms, diagnosis, tactics.
7. Meconium ileus - signs, diagnosis, tactics.
8. Congenital hyperplasia of the adrenal cortex - signs, diagnosis, tactics.
9. Congenital metabolic disorders - signs, diagnosis, tactics.

Methodical development is completed

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