MINISTRY OF HEALTH OF UKRAINE

ODESSA NATIONAL MEDICAL UNIVERSITY

Department of Pediatrics №1

APPROVE
Acting pro-rector for scientific and educational work
Prof. _____Svitlana KOTIUZHYNSKA
"_01_"_____09_____ 2022

WORKING PROGRAM OF ELECTIVE DISCIPLINE

"Critical conditions in neonatology. Practicing practical skills on simulation equipment."

Higher education level: second (master's)

Knowledge Area: 22 "Health Care"

Specialty: 222 "Medicine"

Educational and professional program: Medicine

2022

The working program is compiled on the basis of the educational and professional program "Medicine", the training of specialists of the second (master's) level of higher education in the specialty 222 "Medicine" of the field of knowledge 22 "Health care", approved by the Academic Council of ONMedU, dated Jun 23, 2022, protocol No. 9.

Developers: head of the department, Corresponding Member of NAMS of Ukraine, DSc, Prof. Aryaev M.L., head teacher of the department, PhD, assoc. of professor Kaplina L. E., PhD, assoc. of professor Senkivska L.I, assistant of the department, Byshley N.A.

The working program was approved at the meeting of the Department of Pediatrics No. 1

Protocol No._21__ dated Jun 29, 2022

Head of the department, Corresponding Member of NAMS of Ukraine,

DSc, Prof. Mykola ARYAYEV

Agreed with the guarantor of the EPP _____(Valeria MARICHEREDA)

(signatute) *(Name SURNAME)*

The program was approved at the meeting of the subject cycle commission for pediatric disciplines of ONMedU

Protocol No. _6_____ dated "__30___" _____06_____ 2022____ y.

Head of the subject cycle methodical commission for pediatric disciplines, professor

_____ (Natalia KOTOVA)

Reviewed and approved at the meeting of the Department of Pediatrics No. 1 _____

Protocol No. ___ dated "___" _____ 20__ y.

Head of the department _____(Mykola ARYAYEV)

(signatute) *(Name SURNAME)*

Reviewed and approved at the meeting of the Department of Pediatrics No. 1 _____

Protocol No. ___ dated "_____" _____ 20____ y.

Head of the department _____(Mykola ARYAYEV)

(*signatute*) (*Name SURNAME*)

1. Description of the optional educational discipline:

2. Naming of indicators	**Field of knowledge, specialty, specialization, level of higher education**	**Characteristics of the academic discipline**
The total number of: Credits: 1.5 Hours: 45 Content modules: 1	Branch of knowledge 22 "Health care" Specialty 222 "Medicine" _____ Specialization doctor _____ Level of higher education second (master's) _____	*Full-time education* *Elective discipline*
		Year of training: 5
		Semester IX - X
		Lectures (0 hours)
		Seminars (16 hours)
		Practical (0 hours)
		Laboratory (0 hours)
		Independent work (29) hours)
		including individual tasks (0)hours)
		Final control form(according to the curriculum) - credit.

3. The purpose and tasks of the optional educational discipline

Purpose: The application's acquisition of the higher education of knowledge and mastery of professional competencies and skills of observation by a family doctor of a healthy and sick newborn child, based on the competencies obtained during the study of previous disciplines.

Tasks:

1. Formation of skills and communication skills with parents of a healthy and sick newborn child.
2. Improving the skills of substantiating a clinical diagnosis, drawing up a plan for laboratory and instrumental research in a newborn child,
3. Mastering the ability to determine the tactics of management, emergency care and prevention of common neonatal diseases in children.

The process of studying the discipline is aimed at forming elements of the following competencies:

General (GC):

- GC1 – Ability to abstract thinking, analysis and synthesis.
- GC2 – Ability to learn and master modern knowledge.
- GC3 – Ability to apply knowledge in practical situations.
- GC4 – Knowledge and understanding of the subject area and understanding of professional activity.
- GC5 – Ability to adapt and act in a new situation.
- GC6 – Ability to make reasonable decisions.
- GC7 – Ability to work in a team.
- GC8 – Ability to interpersonal interaction.

- GC10 – Ability to use information and communication technologies.
- GC11 – Ability to search, process and analyze information from various sources.
- GC12 – Determination and perseverance regarding the assigned tasks and assumed responsibilities.
- GC13 – Awareness of equal opportunities and gender issues.
- GC14 – Ability to realize one's rights and responsibilities as a member of society, to realize the values of public (free democratic) society and the need for its sustainable development, the rule of law, the rights and freedoms of a person and a citizen in Ukraine.
- GC15 – Ability to preserve and multiply moral, cultural, scientific values and achievements of society based on understanding the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, techniques and technologies, use different types and forms motor activity for active recreation and leading a healthy lifestyle.
- GC17 – Desire to preserve the environment.

Special (SC):

- SC1 – Ability to collect medical information about the patient and analyze clinical data.
- SC2 – Ability to determine the necessary list of laboratory and instrumental studies and evaluate their results.
- SC3 – Ability to establish a preliminary and clinical diagnosis of the disease.
- SC4 – Ability to determine the necessary regime of work and rest in the treatment and prevention of diseases.
- SC5 – Ability to determine the nature of nutrition in the treatment and prevention of diseases.
- SC6 – Ability to determine the principles and nature of treatment and prevention of diseases.
- SC7 – Ability to diagnose emergency conditions.
- SC8 – Ability to determine tactics and provide emergency medical care.
- SC11 – Ability to solve medical problems in new or unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethical responsibility.
- SC13 – Ability to carry out sanitary and hygienic and preventive measures.
- SC16 – Ability to fill medical documentation, including electronic forms.
- SC17 – Ability to assess the impact of the environment, socio-economic and biological determinants on the state of health of an individual, family, population.
- SC21 – Ability to clearly and unambiguously convey one's own knowledge, conclusions and arguments on health care problems and related issues to specialists and non-specialists, in particular to people who are studying.
- SC24 – Adherence to ethical principles when working with patients and laboratory animals.
- SC25 – Adherence to professional and academic integrity, being responsible for the reliability of the obtained scientific results.
- SC26 – Ability to determine the management tactics of persons subject to dispensary supervision.

Expected learning outcomes. As a result of studying, the application's acquisition of the higher education must:

Have:

- PLO1 – Having a thorough knowledge of the structure of professional activity. Being able to carry out professional activities that require updating and integration of knowledge. To be responsible for professional development, the ability for further professional training with a high level of autonomy.
- PLO2 – Understanding and knowledge of basic and clinical biomedical sciences, at a level sufficient for solving professional tasks in the field of health care.
- PLO3 – . Specialized conceptual knowledge that includes scientific achievements in the field of health care and is the basis for conducting research, critical understanding of problems in the field of medicine and related interdisciplinary problems.
- PLO4 – Identifying leading clinical symptoms and syndromes (according to list 1); according to standard methods, using preliminary 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 (according to list 2)..

- PLO5 – Collecting complaints, history of life and diseases, assessing the psychomotor and physical development of the patient, the state of organs and systems of the body, based on the results of laboratory and instrumental studies, evaluation of the information regarding the diagnosis (according to list 4), taking into account the age of the patient..
- PLO6 – Establishing the final clinical diagnosis 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 control of the managing physician in the conditions of the health care institution (according to the list 2).
- PLO7 – . Assigning and analyzing additional (mandatory and optional) examination methods (laboratory, functional and/or instrumental) (according to list 4) of patients with diseases of organs and body systems for differential diagnosis of diseases (according to list 2).
- PLO8 – Determination of the main clinical syndrome or symptom that determines the severity of the victim's/victim's condition (according to list 3) by making a reasoned decision about the person's condition under any circumstances (in the conditions of a health care facility, outside its borders), including in conditions of emergency and hostilities, in field conditions, in conditions of lack of information and limited time.
- PLO9 – Determination of the nature and principles of treatment (conservative, operative) of patients with diseases (according to list 2), taking into account the patient's age, in the conditions of a health care institution, outside its borders and at the stages of medical evacuation, including in field conditions, based on a preliminary clinical diagnosis, observing the relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes, in case of the need to expand the standard scheme, be able to justify personalized recommendations under the control of the head physician in the conditions of a medical institution.
- PLO10 – Determination of the necessary mode of work, rest and nutrition based on the final clinical diagnosis, observing the relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes.
- PLO12 – 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.
- PLO13 – Assessment and monitoring of the child's physical and psychomotor development, provision of recommendations on feeding and nutritional features depending on age, and organization of preventive vaccinations according to the calendar.
- PLO14 – Determination of tactics and providing emergency medical care in emergencies (according to list 3) in limited time conditions according to existing clinical protocols and standards of treatment.
- PLO17 – Performing medical manipulations (according to list 5) in the conditions of a medical institution, at home or work based on a previous clinical diagnosis and/or indicators of the patient's condition by making a reasoned decision, observing the relevant ethical and legal norms.
- PLO21 – Searching for the necessary information in the professional literature and databases of other sources, analysing, evaluating and application of this information.
- PLO25 – Conveying one’s knowledge, conclusions and arguments on health care problems and related issues to specialists and non-specialists clearly and unambiguously.
- PLO27 – Communication freely in the state language and English, both orally and in writing to discuss professional activities, research and projects.
- PLO30 – Determination of the management tactics of persons subject to dispensary supervision (children, pregnant women, workers whose professions require mandatory dispensary examination)/

Expected learning outcomes. As a result of studying the academic discipline, the application’s acquisition of the higher education must:

Know: Algorithms for providing respiratory support to newborns, Algorithm for providing emergency care for respiratory failure. Algorithm for the replacement blood transfusion operation for newborns.

Be able:

- To determine the nature and principles of treatment of sick newborn children based on a preliminary clinical diagnosis, observing relevant ethical and legal norms, by making a reasoned decision according to existing algorithms and standard schemes.
- Perform medical manipulations (according to list 5) for common diseases in newborn children.
- Keep medical documentation for common diseases in children.

3. Content of the optional academic discipline
Critical conditions in neonatology. Practicing practical skills on simulation equipment

Topic 1. Hemolytic disease of newborns (HDN).
Etiology, pathogenesis, classification, clinic, diagnosis, differential diagnosis, justification of clinical diagnosis. Treatment. Prevention of hemolytic disease of newborns (HDN).

Topic 2. Hemolytic disease of newborns. Treatment.
Treatment. Phototherapy. Indications for blood replacement surgery. Performing a replacement blood transfusion operation on simulation equipment.

Topic 3. Respiratory distress syndrome (RDS) in premature newborns.
Surfactant system of lungs in newborns. Pathophysiological mechanisms of impaired lung function. Clinic. Determining the severity of gas exchange disorders. Assessment according to the Dovnes, Silverman-Anderson scale. Examination methods and their interpretation (radiological, laboratory). Treatment, methods of respiratory support (artificial lung ventilation, spontaneous breathing under constant positive pressure).

Topic 4. Meconium aspiration syndrome.
Etiology, pathogenesis, clinic, diagnosis. Treatment. Emergency care of a newborn baby born inactive with meconial waters on simulation equipment.

Topic 5. Pneumonia of newborns.
Etiology, pathogenesis, classification, clinic, diagnosis (radiological and laboratory), differential diagnosis, justification of clinical diagnosis. Prevention.

Topic 6. Pneumonia of newborns. Treatment.
Treatment. Methods of respiratory support (artificial lung ventilation, spontaneous breathing under constant positive pressure.

Topic 7. Bronchopulmonary dysplasia.
Etiology, pathogenesis, classification, clinic, diagnosis (radiological and laboratory), differential diagnosis, justification of clinical diagnosis. Treatment. Methods of respiratory support (artificial lung ventilation, spontaneous breathing under constant positive pressure. Planning the child's discharge from the hospital. Specific prevention of rhino-syncytial infection.

Topic 8. Respiratory disorders in newborns.
Definition. Causes of respiratory disorders in newborn children. Assessment according to the Dovnes, Silverman-Anderson scale and the WHO scale. Methods of examination of newborns and their interpretation (radiological, laboratory).

1. The structure of the academic discipline

Names of topics	Number of hours					
	That's all	including				
		lectures	seminars	practical	laboratory	SRS
Content module 1. Critical conditions in neonatology.Practicing practical skills on simulation equipment."						
Topic 1. Hemolytic disease of newborns (HDN). Etiology, pathogenesis, classification, clinic, diagnosis, differential diagnosis, justification of clinical diagnosis. Treatment. Prevention of chronic obstructive pulmonary disease.	6	0	2	0	0	4
Topic 2. Hemolytic disease of newborns. Treatment. Treatment. Phototherapy. Indications for blood replacement surgery. Performance of blood replacement surgery on simulation equipment.	6	0	2	0	0	4
Topic 3. Respiratory distress syndrome (RDS) in premature newborns. Surfactant system of lungs in newborns. Pathophysiological mechanisms of impaired lung function. Clinic. Determining the severity of gas exchange disorders. Examination methods and their interpretation (radiological, laboratory). Treatment, methods of respiratory support (artificial lung ventilation, spontaneous breathing under constant positive pressure).	6	0	2	0	0	4
Topic 4. Meconium aspiration syndrome. Etiology, pathogenesis, clinic, diagnosis. Treatment. Emergency care of a newborn baby born inactive with meconium waters on simulation equipment.	6	0	2	0	0	4
Topic 5. Pneumonia of newborns. Etiology, pathogenesis, classification, clinic, diagnosis (radiological	6	0	2	0	0	4

and laboratory), differential diagnosis, justification of clinical diagnosis. Prevention,						
Topic 6. Pneumonia of newborns. Treatment. Treatment. Methods of respiratory support (artificial lung ventilation, spontaneous breathing under constant positive pressure.	6	0	2	0	0	4
Topic 7. Bronchopulmonary dysplasia. Etiology, pathogenesis, classification, clinic, diagnosis (radiological and laboratory), differential diagnosis, justification of clinical diagnosis. Treatment. Methods of respiratory support (artificial lung ventilation, spontaneous breathing under constant positive pressure. Planning the child's discharge from the hospital. Specific prevention of rhino-syncytial infection.	5	0	2	0	0	3
Topic 8. Respiratory disorders in newborns. Definition. Causes of respiratory disorders in newborn children. Assessment according to the Dovnes, Silverman-Anderson scale and the WHO scale. Methods of examination of newborns and their interpretation (radiological, laboratory).	4	0	2	0	0	2
T	45	0	16	0	0	29
Individual tasks	0	0	0	0	0	0
General hours	45	0	16	0	0	29

5.1. Topics of lectures- not provided for

5.2. Topics of seminar classes

№	Topic	How many hours
1.	**Hemolytic disease of newborns.** Etiology, pathogenesis, classification, clinic, diagnosis, differential diagnosis, justification of clinical diagnosis. Treatment. Indications for blood replacement surgery. Carrying out the replacement blood transfusion operation on simulation equipment R	2

2.	**Hemolytic disease of newborns. Treatment** Treatment. Phototherapy. Indications for blood replacement surgery. Carrying out the replacement blood transfusion operation on simulation equipment.	2
3.	**Respiratory distress syndrome (RDS) in premature newborns.** Surfactant system of lungs in newborns. Pathophysiological mechanisms of impaired lung function. Clinic. Determining the severity of gas exchange disorders. Examination methods and their interpretation (radiological, laboratory). Treatment, methods of respiratory support (artificial lung ventilation, spontaneous breathing under constant positive pressure).	2
4.	**Meconium aspiration syndrome.** Etiology, pathogenesis, clinic, diagnosis. Treatment. Emergency care of a newborn baby born inactive with meconial waters on simulation equipment.	2
5.	**Pneumonia of newborns.** Etiology, pathogenesis, classification, clinic, diagnosis (radiological and laboratory), differential diagnosis, justification of clinical diagnosis. Treatment. Methods of respiratory support (artificial lung ventilation, spontaneous breathing under constant positive pressure. Prevention.	2
6.	**Pneumonia of newborns. Treatment.** Treatment. Phototherapy. Methods of respiratory support (artificial lung ventilation, spontaneous breathing under constant positive pressure. Prevention.	2
7.	**Bronchopulmonary dysplasia.** Etiology, pathogenesis, classification, clinic, diagnosis (radiological and laboratory), differential diagnosis, justification of clinical diagnosis. Treatment. Methods of respiratory support (artificial ventilation of the lungs, spontaneous breathing under constant positive pressure. Planning the child's discharge from the hospital. Specific prevention of rhino-syncytial infection.	2
8.	**Respiratory disorders in newborns.** Definition. Causes of respiratory disorders in newborn children. Determining the severity of gas exchange disorders. Evaluation according to the Dovnes, Silverman-Anderson scale and the WHO scale. Methods of examining newborns and their interpretation (radiological, laboratory).	2
	In total	16

5.3 Topics of practical classes-are not provided

6. Independent work of a applicant of higher education

№	Types of SRS	Number of hours
1	Preparation for the seminar class:Hemolytic disease of newborns. Etiology, pathogenesis, classification, clinic, diagnosis, differential diagnosis, justification of clinical diagnosis.	4
2	Preparation for the seminar class:Hemolytic disease of newborns. Treatment. Phototherapy. Indications for blood replacement surgery. Performing a replacement blood transfusion operation on simulation equipment.	4
3	Preparation for the seminar class: Respiratory distress syndrome (RDS) in premature newborns. Surfactant system of lungs in newborns. Pathophysiological mechanisms of impaired lung function. Clinic. Determining the severity of gas exchange disorders. Examination methods and their interpretation (radiological, laboratory). Treatment, methods of respiratory support (artificial lung ventilation, spontaneous breathing under constant positive pressure).	4

4	Preparation for the seminar class:Meconium aspiration syndrome. Etiology, pathogenesis, clinic, diagnosis. Treatment. Emergency care of a newborn baby born inactive with meconial waters on simulation equipment. Role games. Treatment. Methods of respiratory support (artificial lung ventilation, spontaneous breathing under constant positive pressure. Prevention.	4
5	Preparation for the seminar class:Pneumonia of newborns Etiology, pathogenesis, classification, clinic, diagnosis (radiological and laboratory), differential diagnosis, justification of clinical diagnosis. Treatment. Methods of respiratory support (artificial lung ventilation, spontaneous breathing under constant positive pressure. Prevention. Role playing.	4
6	Preparation for the seminar class:Pneumonia of newborns. Treatment. Treatment. Methods of respiratory support (artificial lung ventilation, spontaneous breathing under constant positive pressure. Prevention.	4
7	Preparation for the seminar class:Bronchopulmonary dysplasia. Etiology, pathogenesis, classification, clinic, diagnosis (radiological and laboratory), differential diagnosis, justification of clinical diagnosis. Treatment. Methods of respiratory support (artificial ventilation of the lungs, spontaneous breathing under constant positive pressure. Planning the child's discharge from the hospital. Specific prevention of rhino-syncytial infection.	4
8	Preparation for the seminar class: Respiratory disorders in newborns. Definition. Causes of respiratory disorders in newborn children. Determining the severity of gas exchange disorders. Evaluation according to the Dovnes, Silverman-Anderson scale and the WHO scale. Methods of examining newborns and their interpretation (radiological, laboratory).	2
	In total	29

7. Teaching methods

Seminar classes: discussion of theoretical issues,frontal survey on basic terminology, testing, role-playing games for mastering the skills of justifying a clinical diagnosis in a newborn child (team work).

Individual work:study of algorithms for providing emergency care to a newborn child with respiratory failure, algorithms for respiratory support and replacement blood transfusion.

8. Forms of control and evaluation methods
(including criteria for evaluating learning outcomes)

Current control: assessment of mastery of practical skills of respiratory support and blood replacement surgery during the role play.

Final control: balance.

- ***The structure of the current assessment at the seminar session***
- Assessment of the justification of the preliminary or clinical diagnosis and determination of patient management tactics.
- maximum score – 5, minimum score – 3, unsatisfactory score – 2;
- Assessment of the purpose of additional examination methods and their interpretation
- maximum score – 5, minimum score – 3, unsatisfactory score – 2;
- Assessment of compliance with the algorithm of blood replacement surgery and the choice of respiratory support during a role-play;
- the maximum score is 5, the minimum score is 3, the unsatisfactory score is 2.

The grade for the lesson is the arithmetic average of all components and can only have an integer value, namely 5, 4, 3, 2.

Current assessment criteria for the seminar session:

Excellent "5"	The application's acquisition of the higher education is fluent in the material, takes an active part in the role play, discussing and solving the situational clinical problem, confidently demonstrates practical skills during the examination of a sick child and the interpretation of clinical, laboratory and instrumental research data, expresses his opinion on the topic of the lesson, demonstrates clinical thinking.
Good "4"	The application's acquisition of the higher education has a good command of the material, participates in a role-play, discussion and solution of a situational clinical problem, demonstrates practical skills during the examination of a sick child and the interpretation of clinical, laboratory and instrumental research data with some errors, expresses his opinion on the subject of the lesson, demonstrates clinical thinking.
Satisfactorily "3"	The application's acquisition of the higher education does not have enough knowledge of the material, is unsure of participating in a role play, discussing and solving a situational clinical problem, demonstrates practical skills during the examination of a sick child and the interpretation of clinical, laboratory and instrumental research data with significant errors.
Unsatisfactorily "2"	The application's acquisition of the higher education does not master the material, does not take part in a role-play, discussion and solution of a situational clinical problem, does not demonstrate practical skills during the examination of a sick child and the interpretation of clinical, laboratory and instrumental research data.

9. Distribution of points received by students of higher education

The applicant for higher education is credited with an optional discipline, provided that there is no academicdebt and an average current grade of at least 3.0.

10. Methodological support:

- The working program of a selective academic discipline
- Syllabus of selective educational discipline
- Textbooks:
  Nelson textbook of pediatrics, 2 volume set. **Edition**: **21**st, 2019. PDF format. http://pediacalls.com/e-books/nelson-textbook-of-pediatrics-21st-edition/
- Multimedia presentations
- Test tasks
- Methodical development of seminar classes
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Recommended literature

Basic:

1. **Nelson textbook** of pediatrics, 2 volume set. **Edition**: **21**st, 2019. PDF format. http://pediacalls.com/e-books/nelson-textbook-of-pediatrics-21st-edition/
2. Pediatrics. Differential diagnosis. Urgent conditions edited by Aryaeva ML, Kotova NV, electronic edition on CD.

3. Pediatrics. Differential diagnosis. Emergencies. ML Aryaev, NV Kotova, OO Zelinsky [etc.]; edited by Aryaeva ML, Kotova NV Odessa: ONMedU. - 2017. - 280 p.
4. Pediatrics Textbook in two volumes, ed. ML Aryaeva, NV Kotova. - Vol.1. Neonatology. Hematology. Endocrinology. - Odessa .: ONMedU. - 2014. - 155 p.

Additional:

1. Avery's Diseases of the Newborn Book Tenth Edition •2018.Copyright © 2018 Elsevier Inc.
All rights reserved/ No of pages 1656.
https://www.sciencedirect.com/book/9781437701340/averys-diseases-of-the- newborn

Electronic information resources

1. https://www.pediatrics.od.ua/
2. http://moz.gov.ua – Ministry of Health of Ukraine
3. www.ama-assn.org - American Medical Association / American Medical Association
4. www.oapn.od.ua - NGO "Odesa Association of Pediatricians and Neonatologists"
5. www.who.int - World Health Organization
6. www.dec.gov.ua/mtd/home/ - State Expert Center of the Ministry of Health of Ukraine
7. http://bma.org.uk - British Medical Association
8. www.gmc-uk.org - *General Medical Council* (*GMC*)
9. www.bundesaerztekammer.de – German Medical Association
10. https://www.who.int/workforcealliance/members_partners/member_list/ipa/en/ - International Pediatric Association (IPA)
11. http://pediacalls.com/e-books/nelson-textbook-of-pediatrics-21st-edition/