

DANYLO HALYTSKY LVIV NATIONAL MEDICAL UNIVERSITY

Department of **Pediatrics No 1, Pediatrics No 2**



"APPROVED"

First Vice-Rector on Scientific and Pedagogical work
Danylo Halitsky Lviv National Medical University
Associate Professor Iryna SOLONYNKO

Iryna Solonyenko

10 2023

DISCIPLINE PROGRAM

"Paediatrics and Neonatology"

OK-26.1

Training of specialists of the second (master's) level of higher education

field of knowledge 22 «Health Care»

specialty 222 "Medicine"

Discussed and approved
at the methodological meeting of the Department of
Pediatrics No 1
Protocol No 16
of "20" April 2023
Head of Department
Professor Sergiy NYANKOVSKYY

Sergiy Nyankovskyy

Approved by the profile Methodical Commission
of Pediatric disciplines
Protocol No 2
of "27" April 2023
Head of profile methodical
commission
Professor Lesya BESH

Lesya Besh

Discussed and approved
at the methodological meeting of the Department of
Pediatrics No 1
Protocol No 12
of "21" April 2023
Head of Department
Professor Lesya BESH

Lesya Besh

1/7

PROGRAM DEVELOPERS:

Besh L.V. - Professor, Head of the Department of Pediatrics #2, Danylo Halytskyi Lviv National Medical University doctor of science in medicine

Borysiuk O.P. - Associated Professor of the department of pediatrics #2 Danylo Halytskyi Lviv National Medical University, Ph.D

Nyankovskyy S.L. - Professor, Head of Department of Pediatrics No 1, Danylo Halytskyi Lviv National Medical University, doctor of science in medicine,

Voznyak A.V. - Associate Professor of the Department of Pediatrics No 1, Danylo Halytskyi Lviv National Medical University, Ph.D

REVIEWERS:

Kulachkovska I.Y. - Associate Professor of the Department of propaedeutic pediatrics and medical genetics Danylo Halytskyi Lviv National Medical University

Gromnatska N.M., Professor of Department of Family Medicine, Danylo Halytskyi Lviv National Medical University, doctor of science in medicine.

Introduction

Program of discipline "Pediatrics and Neonatology"

has been developed according to the *Educational and professional program "Medicine"* of the second (master's) level of higher education
fields of knowledge 22 "Health care"
specialty 222 "Medicine"

Description of academic discipline (abstract)

Studying the discipline «Pediatrics and Neonatology» the 4th year-students consolidate knowledge gained in the classroom at the department of Propaedeutic Pediatrics and the Department of Pediatrics during the production practice at the children's hospital. They are mastering basic skills of collecting anamnesis, conducting the examination, systemizing the symptoms in syndromes, planning examination of a sick child, interpretation of laboratory and instrumental examinations, carrying out a differential diagnosis most common diseases of the neonatal period, the main pathological conditions of the endocrine and hematopoietic system in children, determination of the preliminary clinical diagnosis, determination of therapeutic tactics, treatment with drug dosages administration, emergency medical care, clinical cases solving, working off practical skills on mannequins and near the bed of a sick child, feeling in the medical records.

Structure of discipline	Quantity of credits, hours of which:				Academic Year	Types of Control
	Total hours/credit	Classroom		Individual work		
		Lecture	Practice			
Pediatrics and Neonatology Content sections 3	3.5 credits ECTS / 105 hrs.	10	43	52	5	Exam

The subject of the study of the discipline is:

Health care of children aged 0 to 18 years, prevention, diagnostics and treatment of diseases, taking into account the children's age-specific psychophysiological features

Interdisciplinary integration: In accordance with the academic curriculum of the discipline «Pediatrics and Neonatology» a student must acquire knowledge of basic disciplines:

- Latin language and Medical terminology
- Medical Biology
- Medical informatics
- Normal and Pathological Anatomy
- Normal and Pathological Physiology
- Histology, Cytology and Embryology
- Biological and bioorganic chemistry
- Microbiology, virology and immunology
- Pharmacology
- Hygiene and Ecology
- Propaedeutic Pediatrics
- Nursing practice
- Radiology
- Pediatrics for 4th-year medical students
- Practice in a children's hospital

With these disciplines the curriculum of discipline is integrated. As the continuation of the Propaedeutic Pediatrics, the discipline Pediatrics in parallel with other clinical disciplines provides integration of teaching with these disciplines and forming skills of future physicians to use the acquired knowledge in their professional activity.

1. Purpose and tasks of academic discipline

1.1. The purpose of teaching the educational discipline Paediatrics and Neonatology is as follows: formation of the ability to use knowledge, skills to solve typical problems of the doctor in the children's health field, the use of which is foreseen by defined list of syndromes and symptoms of diseases,

emergency conditions, physiological conditions, and diseases requiring special tactics of patient management; laboratory and instrumental examinations, medical manipulations.

1.2. The main **task** of studying the discipline Paediatrics and Neonatology is that the student should know and be able to do while study the discipline.

As a result of studying the discipline Paediatrics and Neonatology student **should know:**

- Etiologic factors of the most common childhood diseases;
- Pathogenesis of the most common somatic diseases of childhood;
- Classification of the most common somatic diseases of childhood;
- The main clinical symptoms of the most common somatic diseases of childhood;
- Principles of treatment of the most common childhood diseases.

As a result of studying the discipline Paediatrics and Neonatology student **should be able to:**

- Take anamnesis;
- Examine the sick child;
- Put a preliminary clinical diagnosis;
- Plan an investigation of a sick child;
- Interpret laboratory and instrumental data;
- Make a differential diagnosis of the most common childhood diseases in their typical course;
- prescribe treatment;

1.3. **Competency and learning outcomes**, the formation of which is facilitated by discipline (the relationship with the normative content of the training of higher education graduates, formulated in terms of the results of training in the higher education standard).

According to the standard of higher education, discipline provides students with **competences:**

Integral competence:

The ability to solve complex problems, including those of a research and innovation nature in the field of medicine Ability to continue learning with a high degree of autonomy.

General competences:

GC1	The 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 subject area and understanding of professional activity
GC5	The ability to adapt and act in a new situation
GC6	Ability to make a justified decision
GC7	Ability to work in a team
GC8	Interpersonal skills interaction
GC9	Ability to communicate in foreign language
GC10	Skills in using information and communication technologies
GC11	Ability to search, process and analyze information from various sources
GC12	Awareness and perseverance concerning taken tasks and duties
GC14	The ability to exercise their rights and responsibilities as a member of society, to realize the values of civil (free democratic) society and the need for its sustainable development, the rule of law, human and civil rights

Professional (Special) competences:

PC1	Ability to collect medical information about the patient and analyze clinical data
PC2	Ability to determine the required list of laboratory and instrumental studies and assess their results
PC3	The ability to establish preliminary and clinical diagnoses
PC4	Ability to determine the necessary regime, training, work and recreation for healthy children and for those who are being treated for illnesses
PC5	Ability to prescribe an appropriate diet in treatment and prevention of diseases
SC6	Ability to determine the principles and type of treatment and prevention of diseases
PC7	Ability to diagnose emergency conditions

PC8	Ability to determine the tactics of emergency medical care
PC10	The skills of performing medical manipulations
PC11	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
PC13	Ability to carry out sanitary and preventive measures
PC16	Ability to keep medical records, including electronic forms
PC17	The ability to assess the impact of environmental, socio-economic and biological determinants on individual, family and population health
PC21	Clearly and unambiguously communicate one's own knowledge, conclusions, and arguments about health problems and related issues to professionals and non-specialists, particularly to trainees.
PC24	Adherence to ethical principles when working with patients
PC25	Adherence to professional and academic integrity, to be responsible for the reliability of the obtained Pientific results

Detailed competences are present in accordance with the descriptors of the NRK in the form of "Competences Matrix".

Competences Matrix

	Competence	Knowledge	Skills	Communication	Autonomy and responsibility
Integral competence					
The ability to solve complex problems, including those of a research and innovation nature in the field of medicine Ability to continue learning with a high degree of autonomy.					
General competence					
1.	Abstract-thinking, analysis and synthesis capability (GC1)	Know the ways of analyzing, synthesis and further modern learning	Be able to analyze information, make informed decisions, be able to master modern knowledge	Establish the appropriate links for achieving the goals.	To be responsible for the timely acquiring of modern knowledge.
2.	Ability to learn and master modern knowledge (GC2)	To know the current trends of medicine development and analyze them	Be able to analyze professional information, make informed decisions, acquire modern knowledge	Establish the appropriate links for achieving the goals.	To be responsible for the timely acquisition of modern knowledge.
3.	Ability to apply the knowledge in practical situations (GC3)	Have specialized conceptual knowledge, acquired in the process of studying.	To be able to solve difficult tasks and problems that arise in professional activity.	Understandable and unequivocal explanation of own conclusions and knowledge to specialists and non-specialists.	To be responsible for decisions, made in difficult conditions
4.	Knowledge and understanding of subject area and professional activity (GC4)	Have profound knowledge in the structure of professional activity.	Be able to carry out professional activities that need updating and integrating knowledge.	Ability to effectively form communications strategy in professional activities	To be responsible for professional development, the ability to further professional

					training with a high level of autonomy
5.	The ability to adapt and act in a new situation (GC5)	To know types and ways of adaptation, principles of action in a new situation	To be able to use means of self-regulation, to be able to adapt to new situations (circumstances) of life and activity.	Establish appropriate links to achieve the result.	To be responsible for, timely use of methods of self-regulation.
6.	The ability to make a justified decision (GC6)	To know the tactics and strategies of communication, laws and methods of communicative behavior	To be able to make justified decisions, choose the ways and strategies of communication to ensure effective teamwork	Use strategies to communicate and interact with interpersonal skills	To be responsible for choice and tactics of communication method
7.	Ability to work in a team (GC7)	To know the tactics and strategies of communication, laws and methods of communicative behavior.	To choose the ways and strategies of communication to ensure effective teamwork	Use communication strategies	To be responsible for choice and tactics of communication method
8.	Skills of Interpersonal interaction (GC8)	Know the laws and ways of interpersonal interaction	To choose the ways and strategies of communication for interpersonal interaction	Use the skills of interpersonal interaction	To be responsible for choice and tactics of communication method
9.	Ability to communicate in foreign language (GC9)	Have basic knowledge of a foreign language	Able to communicate a foreign language.	Use a foreign language in professional activities	To be responsible for the development of professional knowledge with the use of foreign language.
10.	Skills of using of informative and communicative technologies (GC10)	To possess profound knowledge in the field of informative and communicative technologies applied in professional activities	To be able to use informative and communicative technologies in the professional field, that need updating and integrating the knowledge.	Using of informative and inter-communicative technology in professional activities	To be responsible for the development of professional knowledge and skills.
11.	Ability to search, process and analyze information	Have knowledge about searching and analysis of	Be able to search, process and analyze information	Obtain information from a particular source and draw conclusions from	Be responsible for the completeness and quality of

	from various sources (GC11)	information from various sources		its analysis	information analysis and conclusions
12.	Awareness and perseverance concerning taken tasks and duties (GC12)	Know the responsibilities and ways of fulfilling the tasks	To be able to identify goals and objectives to be persistent and conscientious in the performance of responsibilities	To establish interpersonal-net connections for effective execution of tasks and responsibilities	To be responsible for the quality of fulfillment of the tasks
13.	The ability to exercise their rights and responsibilities as a member of society, to realize the values of civil (free democratic) society and the need for its sustainable development, the rule of law, human and civil rights (GC14)	Know your social and civil rights and responsibilities	To form your civil consciousness, to be able to act in accordance with it	Ability to convey own public and social position	To be responsible for the own citizenship position and activity

Special (Professional, subject) competence

1.	Ability to collect medical information about the patient and analyze clinical data (PC1)	To have specialized knowledge about the child, her organs and systems, the anatomical and physiological peculiarities of the children of different age, to know the standard methods of inquiry, taking genealogical information, preparation of pedigree, physical examination of patient of different ages. To know the methodology for assessment of prenatal	To be able to talk to a child-and/or her parents (guardians), on the basis of algorithms and standards. Use the principles of communication with the parents of children with incurable diseases. Using standard techniques To carry out examination of the patient. Be able to examine psychomotor and physical development of the child. Able to assess the quality of care,	To effectively form a communication strategy when communicating with the patient and/or his parents (guardians). Transfer information about the health of the child or intrauterine development of the fetus to the relevant medical documentation.	Be responsible for qualitative gathering of information received on the basis of interviews, surveys, review, and palpation, percussion of organs and systems and for timely assessment of the condition: child's health, psychomotor and physical development of the child and Intrauterine development of fetus and for taking appropriate
----	--	--	--	---	--

		development of the fetus. Know the stages and methods of examination of psychomotor and physical development of the child.	infant feeding and nutrition of children. Be able to conduct a comprehensive assessment of child health.		measures.
2.	Ability to determine the required list of laboratory and instrumental studies and assess their results (PC2)	To have specialized knowledge about the child, her organs and systems, standard methods of laboratory and instrumental examinations	To be able to analyze the results of laboratory and instrumental examinations and to make preliminary diagnosis	To form and convey to the patient and/or his/her parents (guardians), experts conclusions on the necessary List of laboratory and instrumental studies	Be responsible for deciding on the results evaluation of laboratory and instrumental examinations
3.	Ability to establish preliminary and clinical diagnosis (PC3)	To have specialized knowledge about the child, its organs and systems; Standard methods of examination; algorithms for diagnosing diseases; Algorithms for selection of leading symptoms or syndromes; preliminary and final clinical diagnoses; methods of laboratory and instrumental examination; Assessment of the child's condition.	Be able to conduct physical examination of the patient; Be able to make informed decisions about allocation of leading clinical symptom or syndrome; Be able to make the preliminary and final clinical diagnosis; to recommend laboratory and instrumental examination of the patient by applying standard methods	On the basis of normative documents fill in medical documents- (ambulatory and hospital cards, etc.).	On the basis of ethical and legal norms, be responsible for making reasonable decisions and actions on the correct preliminary and final clinical diagnosis
4.	Ability to determine the necessary regime, training, work and recreation for healthy children and for those who are being treated for	To have specialized knowledge about the child, her organs and systems, the anatomical physiological and age peculiarities; ethical and legal norms;	To be able to determine the necessary regime of training, work and rest of healthy children and in the treatment of the disease	To form and convey to the patient and/or his parents (guardians) and experts conclusions on the necessary regime, mode of study, work and rest of healthy children and in the	Be responsible for the validity of the recommended regime of study, work and rest of healthy children and in the treatment of the disease

	illnesses (PC4)	Algorithms and standard schemes for determining the regime of training, work and rest of healthy children and at treatment of the disease, on the basis of preliminary and clinical diagnosis		treatment of the disease	
5.	Ability to prescribe an appropriate diet in treatment and prevention of diseases (PC5)	Have specialized knowledge about algorithms and standard schemes of nutrition for healthy children and during the treatment of diseases	Be able to determine the type of nutrition of healthy children and on the basis of preliminary and final diagnoses, the type of nutrition in the treatment of diseases	Formulate and communicate to the patient and/or their parents (guardians), specialists conclusions on the nutrition of healthy children and in the treatment of diseases	Be responsible for the reasonableness of nutritional determinations for healthy children and in the treatment of illness
6.	Ability to determine the principles and type of treatment and prevention of diseases (PC6)	Have specialized knowledge of algorithms and standard methods for disease treatment	Able to determine the principles and methods of treatment of disease	To form and convey to the patient and/or his/her parents (guardians), experts own conclusions about the principles and methods of the treatment	Be responsible for deciding on the principles and methods of treatment of disease
7.	Ability to diagnose emergency conditions (PC7)	To have specialized knowledge about the person, its organs and systems, standard methods of human examination (at home, on the street, in the health care institution) in terms of lack of information.	To be able, in terms of lack of information, using standard methods, to make a reasonable decision, to assess the condition of the person and determine the main clinical syndrome (or what is due to the severity of the victim/injured)	Under any circumstances, on the basis of appropriate ethical and legal norms, make a reasonable decision concerning assessment of the severity of the human condition, diagnosis and organization of necessary medical measures, depending on the human condition; fill in relevant medical documents.	Be responsible for the timely and effective medical measures for the diagnosis of emergency conditions.
8.	Ability to determine the	Know legislative base for	To be able to determine	Substantiate and explain to the	Be responsible for correct

	tactics of emergency medical care (PC8)	emergency medical care, including the law of Ukraine "on emergency medical care". To have specialized knowledge about human emergency conditions; principles of emergency medical care, algorithms for providing emergency medical care for emergency states.	emergency conditions; The principles and tactics of emergency medical care; To carry out organizational and diagnostic measures aimed at rescue and save the human life. To be able to provide emergency medical care in the emergency state of a person	patient or his legal representative the need for emergency assistance and get consent for medical intervention. Explain the need and procedure for therapeutic measures of emergency medical care.	determination of urgent state, degree of its severity and tactics of emergency medical care. Responsible for timeliness of and quality of emergency medical care.
9.	The skills of performing medical manipulations (PC10)	To have specialized knowledge about the child, its organs and systems, the anatomical physiological and age peculiarities; Knowledge of algorithms of medical manipulations	Be able to carry out medical manipulations	Reasonably formulate and communicate to the patient, and/or their parents (guardians), specialists the conclusions about the need for medical manipulation	To be responsible for the quality of medical manipulations
10.	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 (PC11)	Have specialist knowledge of standard child assessment techniques (at home, outdoors, in a health care setting) new or unfamiliar environments and in information-poor settings	Be able to assess the child's condition and identify the main clinical syndrome (or the severity of the victim's condition) in an information-poor environment, using standard techniques	In all circumstances, respecting appropriate ethical and legal standards, make an informed decision on the assessment of the severity of the child's condition, the diagnosis and the organisation of the necessary medical measures according to the child's condition; complete the relevant medical documents	Be responsible for solving medical problems in new or unfamiliar environments in the presence of incomplete or limited information
11.	Ability to provide sanitary and preventive	To know the system of hygienic and prophylactic	Be able to form groups of children for their clinical examination.	Based on the results of clinical examination and analysis of	Be responsible for timely and qualitative activities on

	measures (PC13)	<p>events among the population observed.</p> <p>To know the principles of organization of follow-up of different groups of population, who are subject to supervision (newborns, children, teenagers) and a group of patients;</p> <p>To know the assessment indicators of the organization and efficiency of follow-up. To know the methodical approaches to assess the condition of the surrounding environment and the presence of factors which affect the health of the population in these conditions. Know principles of rational nutrition, water supply, mode of activity and rest, forming a favorable work environment, primary prevention of diseases and injuries;</p> <p>Principles and methods of promoting healthy lifestyles</p>	<p>Be able to make a plan for clinical groups.</p> <p>Have skills in organizing the follow-up contingents.</p> <p>Have the skills to analyze the health of population groups based on the results of clinical and medical and preventive measures.</p> <p>Have skills in drafting analytical certificate about the health of children depending on factors of industrial and environmental conditions.</p> <p>Able to organize the propaganda of healthy lifestyles, primary prevention of diseases and injuries of the population.</p>	<p>children's health, state of production and environment know the principles of submitting analytical information to the local management and health authorities; to heads of industrial enterprises about method of elimination the harmful effects on children's health. Use the local press to publications on health improvement activities and environmental improvements, use radio, television, lectures and interviews.</p>	<p>assessment of the health of children, health improvement and improvement of the health of certain contingents, improving the environment, promoting healthy lifestyles, primary prevention of diseases and injuries.</p>
12.	Ability to keep medical records, including electronic	Know the system of official document circulation in the doctor's work,	Be able to determine the source and location of the required	To receive the necessary information from the defined sources and form the	Be responsible for the completeness and quality of the analysis of

	forms (PC16)	including modern computer information technology	information depending on its type; To be able to process information and analyze received information	relevant conclusions based on its analysis	information and conclusions based on its analysis.
13.	Ability to assess the environmental impact of the environment, socio-economic and biological determinants on the health of the individual, family, population (PC17)	To know the methods of assessment the health of the child population; environmental factors that negatively affect the health of the children's population; methods of statistical analysis and laboratory research, health assessment of certain contingents, factors; measures to prevent the negative impact of environmental factors on the health of the child population. To know socio-economic and biological determinants that influence on health of children's population; Types and methods of prophylaxis to prevent the negative impact of socio-economic factors on the health of the child population and its individual groups Know the principles of forming risk	Be able to assess the health of the children's population, environmental conditions and negative factors of health impact. Possess the methods of statistical and laboratory analysis of health of different populations. Be able to form preventive measures based on data on the relationship between the state of the environment and the health status of certain contingents of the population. Be able to calculate indicators of public health. Be able to assess the relationship and influence of socio-economic and biological factors on the health of the individual, family, and population. Be able to plan preventive measures to prevent the negative impact	To formulate conclusions on the health status of the children's population, based on data on the relationship with environmental factors, socio-economic and biological determinants, and make proposals to the relevant authorities and institutions on the implementation of preventive measures. Interact with specialists in the sanitary-hygienic profile and managers of enterprises, institutions and the relevant departments on nature protection, surrounding environment	To be responsible for timely conclusions regarding the health status of the children's population on the basis of data on the negative impact of environmental factors, socio-economic and biological determinants, and on the timely introduction of proposals for the implementation of appropriate preventive measures.

		groups, risk areas, time and risk factors.	of socio-economic factors on the health of children's population and its individual groups.		
14.	Clearly and unambiguously communicate one's own knowledge, conclusions, and arguments about health problems and related issues to professionals and nonspecialists, particularly to trainees (PC21)	To think critically about problems in the field and on the border of the fields of knowledge	Ability to solve problems in new and unfamiliar environments in the presence of incomplete or limited information, taking into account aspects of social and ethnic responsibility	Use foreign languages in professional activities	Be responsible for contributing to professional knowledge and practice and/or evaluating results
15.	Adherence to ethical principles when working with patients (PC24)	Know ethical principles of Helsinki declaration of human rights as medical subjects, and other law of harmonization in medical practice	Be able to follow ethical principles when working with patients	Communicate ethical principles when working with patients	To be responsible implementation of ethical principles into practice
16.	Adherence to professional and academic integrity, to be responsible for the reliability of the obtained scientific results (PC 25)	Know the basic principles of academic and professional integrity		Adhere to the principles of academic and professional integrity	Be responsible for observing the principles of academic and professional integrity

**Normative content of higher education training,
formulated in terms of Program learning outcomes (PLO)**

1. Have a thorough knowledge of the structure of professional activity. Be able to carry out professional activities that require updating and integration of knowledge. To be responsible for professional development, ability to further professional training with a high level of autonomy **PLO 1**.
2. Understanding and knowledge of basic and clinical biomedical sciences, at a level sufficient to solve professional problems in the field of health care **PLO 2**.
3. Identify and identify the leading clinical symptoms and syndromes; according to standard methods, using preliminary data of the patient's anamnesis, data of the patient's examination, knowledge about the person, his organs and systems, to establish a preliminary clinical diagnosis of the disease **PLO 4**.

4. Collect complaints, life history and disease, assess 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 to assess information about the diagnosis, taking into account the patient's age **PLO 5**.
5. Establish a final clinical diagnosis by making an informed decision and analysis of the obtained subjective and objective data of clinical, additional examination, differential diagnosis, adhering to the relevant ethical and legal norms, under the supervision of a physician-manager in a health care institution **PLO 6**.
6. Order and analyze additional (mandatory and optional) examination methods (laboratory, functional and / or instrumental) for differential diagnosis of diseases **PLO 7**.
7. To determine the main clinical syndrome or what causes the severity of patient condition by making an informed decision under various circumstances (at healthcare facility, or outside it), including in conditions of emergency, in the battlefield, in conditions of lack of information and limited time **PLO 8**.
8. To determine the nature and principles of treatment of patients (conservative, operative), taking into account the age of the patient, in a health care facility, outside it and at the stages of medical evacuation, including in the field, on the basis of a preliminary clinical diagnosis, adhering to the relevant ethical and legal norms, by making an informed decision on existing algorithms and standard schemes. If necessary to expand the standard scheme and justify personalized recommendations under the supervision of a physician **PLO 9**.
9. To determine the necessary mode of work, rest and nutrition based on the final clinical diagnosis, adhering to the relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes **PLO 10**.
11. Assess the general condition of the newborn child by making an informed decision according to existing algorithms and standard schemes, adhering to the relevant ethical and legal standards **PLO 12**.
12. Assess and monitor the child's development, provide recommendations for breastfeeding and nutrition depending on age, organize preventive vaccinations on the calendar **PLO 13**.
13. Define tactics and provide emergency medical care in emergencies for a limited time in accordance with existing clinical protocols and treatment standards **PLO 14**.
14. Perform medical manipulations in a medical institution, at home or at work based on a previous clinical diagnosis and / or indicators of the patient's condition by making an informed decision, adhering to the relevant ethical and legal norms **PLO 17**.
15. Plan and implement a system of anti-epidemic and prophylactic measures for the emergence and spread of diseases among the population **PLO 19**.
16. Search for the necessary information in the professional literature and databases of other sources, analyze, evaluate and apply this information **PLO 21**.
17. Assess the impact of the environment on human health in order to assess the state of morbidity in the population **PLO 23**.
18. Organize the necessary level of personal safety (own and those being cared for) in the event of typical hazardous situations in the individual's field of work **PLO 24**.
19. Clearly and unambiguously communicate knowledge, conclusions and arguments on health issues and related issues to professionals and non-specialists **PLO 25**.

Learning outcomes for Discipline:

- To assess information on the diagnosis at the conditions of health care, its unit, using knowledge of the laws of development and the occurrence of diseases in children, based on the results of examination of the patient and results of laboratory and instrumental investigations.
- To make differential diagnosis of disease.
- Prescribe treatment.
- To determine the prognosis of the disease.

2. Information volume of academic discipline

3,5 Credits ECTS 105 hours are allocated for studying a discipline.

Thematic chapter 1. NEONATOLOGY

Topic 1. Medical care for healthy newborns. Anatomical and physiological peculiarities of preterm newborns. Features of preterm postnatal transition. Danger of COVID-19 for newborns: management and feeding.

Organization of neonatal medical care in Ukraine. Medical care for a healthy newborn. Bioethical issues in modern neonatology. A full-term newborn baby. Care in the maternity hospital. The infant feeding. Hospital discharge criteria. The transitional conditions. Doctor's tactics.

Topic 2. Main clinical problems of preterm and small newborns. Nutrition for preterm and small newborns.

Criteria in determining prematurity. Adaptation features of preterm infants. Etiological factors of prematurity. Anatomical and physiological peculiarities. Classification of the premature infants according to the birth weight and correlation of physical development and gestational age (Ballard score). Principles of preterm infant's nursing. Emergency care for major emergencies in premature infants: hypothermia, respiratory failure, hypoglycemia. Intrauterine growth retardation (IUGR): causes, postnatal diagnosis, features of early neonatal adaptation. Peculiarities of nutrition of the premature infants.

Topic 3. Asphyxia and neonatal resuscitation.

Etiology. Pathogenesis. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Treatment. Prevention. Prognosis. Neonatal primary resuscitation.

Topic 4. Preterm infants and low birth weight infants. Modern definition of prematurity; the main causes of miscarriage and delayed intrauterine development of the fetus; classification of infants by birth weight; methods of determining gestational age and assessment of intrauterine development of the fetus; basic anatomical and physiological features of preterm and low birth weight infants.

Topic 5. Birth traumas of newborns. Classification of birth traumas. Features of diagnosis, clinical course, treatment. Prevention.

Topic 6. Respiratory disorders in newborns: causes, diagnosis, principles of treatment. Lung diseases in newborns. Etiology. Pathogenesis. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Treatment. Prevention. Prognosis.

Topic 7. Radiographic syndromes of the lung damage in newborns. Features of radiological changes in lesions of the chest and abdominal cavity in children. Diagnostic signs.

Topic 8. Non-infectious pathology of newborns. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment of the most common diseases of newborns.

Topic 9. Bacterial infections of the newborn. Intrauterine and perinatal infections of the fetus and newborn. Purulent-inflammatory diseases of the skin and subcutaneous tissue, diseases of the umbilical cord, umbilical wound and umbilical vessels: classification, etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis, treatment, prevention, prognosis. Neonatal sepsis: classification, etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis, treatment, prevention, prognosis. "TORCH" infections in newborns: etiology, pathogenesis, clinical manifestations, diagnosis, differential diagnosis, treatment, prevention, prognosis.

Topic 10. Perinatal HIV infection. Features of prevention and diagnosis of HIV infection in newborns.

Topic 11. Infectious diseases of newborns. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment of the most common local and systemic infectious diseases in newborns.

Topic 12. Hemolytic and hemorrhagic diseases of newborns. Case report discussion. Etiology. Pathogenesis. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Treatment. Prevention. Prognosis.

Thematic chapter 2. DISEASES OF THE BLOOD SYSTEM IN CHILDREN.

Topic 13. Anemias and hemorrhagic diseases in children. Anemias (deficient, posthemorrhagic, hemolytic, due to impaired hematopoiesis). Definition. Etiology. Pathogenesis. Classification. Clinical manifestations. Diagnosis. Differential diagnosis. Treatment. Emergency Care for Bleeding. Prevention. Prognosis. Hemophilia, thrombocytopenia and thrombocytopathy children. Etiology. Pathogenesis. Classification. Diagnosis. Differential diagnosis of other childhood hemorrhagic disorders. Treatment. Emergency care for bleeding and hemorrhagic conditions that require treatment. Prognosis.

Topic 14. Leukemia in children. Lymphoma in children.

Etiology. Pathogenesis. Classification. Diagnosis. Differential diagnosis of other hematological diseases and diseases accompanied by hyperplastic syndrome. Treatment.

Topic 15. Leukemoid reactions in children. Lymphadenopathy in children. Etiology, pathogenesis, clinical features. principles of diagnosis, differential diagnosis and treatment.

Topic 16. Blood pathology in older children. Etiology, pathogenesis, clinic, diagnosis, prevention and treatment of the most common haematological diseases in children.

Thematic chapter 3. DISEASES OF THE ENDOCRINE SYSTEM IN CHILDREN.

Topic 17. Diabetes mellitus in children. Etiology, pathogenesis, classification, clinical manifestations, diagnosis, differential diagnosis, treatment, prevention, prognosis of diabetes in children. Insulin therapy. Diabetic ketoacidosis and hypoglycemic coma: etiology, pathogenesis, classification, clinical presentation, diagnosis, differential diagnosis, emergency care and prevention. Prognosis.

Topic 18: Chronic complications of diabetes mellitus in children. Clinical observation of children with diabetes mellitus. Diabetes insipidus. Morphological changes in various affected organs and systems in patients with diabetes mellitus. Pathogenesis, clinical features, principles of diagnosis, differential diagnosis and treatment.

Topic 19. Diseases of the hypothalamic-pituitary system in children. Hypopituitarism. Thyroid diseases in children. Classification of hypothalamic-pituitary and thyroid disorders in children. Classification of hypopituitarism. Etiology, pathogenesis, clinic, diagnosis, differential diagnosis, treatment, prevention of diffuse toxic goiter, congenital and acquired hypothyroidism, chronic autoimmune thyroiditis, endemic goiter in children. Stages of goiter. Thyrotoxic crisis in children - diagnosis and emergency care. Prognosis.

Topic 20. Obesity in children. Growth disorders in children. Etiology, pathogenesis, clinical features. principles of diagnosis, differential diagnosis and treatment

Topic 21. Gonadal disorders in children. Diseases of the adrenal glands. Acute and chronic adrenal insufficiency in children. Peculiarities of the clinic and diagnosis. Differential diagnosis of primary and secondary adrenal insufficiency. Emergency care in acute adrenal insufficiency. Congenital hyperplasia of the adrenal cortex.

Topic 22. Pathology of the endocrine system in children. Etiology, pathogenesis, clinical features. principles of diagnosis, differential diagnosis and treatment of the most common endocrine diseases in children.

3. Structure of the educational discipline

Topic	Lectures	Workshops	ISW	IT
Content of chapter 1. Neonatology				
1. Medical care for healthy newborns. Anatomical and physiological peculiarities of preterm newborns. Features of preterm postnatal transition. Danger of COVID-19 for newborns: management and feeding		3	1	
2. Main clinical problems of preterm and small newborns. Nutrition for preterm and small newborns		4	2	
3. Preterm and small for gestational age newborns	2			
4. Asphyxia of newborns. Neonatal resuscitation		4	2	
5. Neonatal birth traumas			2	
6. Respiratory disorders in newborns: causes, diagnosis, principles of treatment. Lung diseases in newborns		4	2	
7. Radiographic syndromes of the lung damage in newborns			2	
8. Non-infectious pathology of newborns	2			
9. Bacterial infections of the newborn. Intrauterine and perinatal infections of the fetus and newborn		4	2	
10. Perinatal HIV infection			2	

11. The infectious diseases in newborns	2			
12. Hemolytic and hemorrhagic diseases of newborns. Case report discussion		4 (2+2)	2	
Writing the case report				10
Total for chapter 1	6	23	17	10
Content of chapter 2. Diseases of the blood system in children				
13. Anemias and hemorrhagic diseases in children.		4	2	
14. Leukemia in children. Lymphoma in children		4	2	
15. Leukemoid reactions in children. Chronic leukemia. Lymphadenopathy in children.			2	
16. Blood pathology in older children	2			
Total for chapter 2	2	8	6	
Content of chapter 3. Diseases of the endocrine system in children				
17. Diabetes mellitus in children		4	2	
18. Chronic complications of diabetes mellitus in children. Clinical observation of children with diabetes mellitus. Diabetes insipidus			2	
19. Diseases of the hypothalamic-pituitary system in children. Hypopituitarism. Thyroid diseases in children.		4	2	
20. Obesity in children. Growth disorders in children			2	
21. Gonadal disorders in children. Diseases of the adrenal glands.		4	2	
22. The endocrinology disease in children	2			
Total for chapter 3	2	12	10	
Final control				Exam
Total: credits ECTS – 3,5 hours – 105:		10	43	52

IWS - independent work of students

IT - Individual task

4. Thematic plan of lectures in discipline “Pediatrics and Neonatology”

№	Topic	Hours
1	Preterm and small for gestational age newborns	2
2	Non-infectious pathology of newborns	2
3	The infectious diseases in newborns	2
4	Blood pathology in older children	2
5	The endocrinology disease in children	2
Total		10

5. Workshop thematic plan in discipline “Pediatrics and Neonatology”

№	Topic	Hours
1	Medical care for healthy newborns. Anatomical and physiological peculiarities of preterm newborns. Features of preterm postnatal transition. Danger of COVID-19 for newborns: management and feeding	3
2	Main clinical problems of preterm and small newborns. Nutrition for preterm and small newborns	4
3	Birth asphyxia and neonatal resuscitation	4
4	Respiratory disorders in newborns: causes, diagnosis, principles of treatment. Lung diseases in newborns	4

5	Bacterial infections of the newborn. Intrauterine and perinatal infections of the fetus and newborn	4
6	Hemolytic and hemorrhagic diseases of newborns. Case report discussion	4
7	Anemias and hemorrhagic diseases in children	4
8	Leukemia in children. Lymphoma in children	4
9	Diabetes mellitus in children	4
10	Diseases of the hypothalamic-pituitary system in children. Hypopituitarism. Thyroid diseases in children	4
11	Gonadal disorders in children. Diseases of the adrenal glands	4
Total hours		43

6. Thematic plan of independent work of students in discipline "Pediatrics and Neonatology"

№	Topic	Hours	Type of control
1	Preparation for practical classes	21	On-going control during workshops
2	Neonatal birth traumas	2	During final control
3	Radiographic syndromes of the lung damage in newborns	2	
4	Perinatal HIV infection	2	
5	Writing the case report	10	Work defense
6	Leukemoid reactions in children. Chronic leukemia. Lymphadenopathy in children	2	During final control
7	Chronic complications of diabetes mellitus in children. Clinical observation of children with diabetes mellitus. Diabetes insipidus	2	
8	Obesity in children. Growth disorders in children.	2	
9	Exam preparation	9	
Total hours of IWS		52	

7. Individual task (medical case report) is a form of organization of education in order to deepen, generalize and consolidate the knowledge that students receive in the process of learning, as well as the application of this knowledge in practice, that is an individual educational and research tasks. Students' independent work is assessed during the on-going control of the topic throughout workshops.

8. Teaching methods

The practical trainings on the methodology of the organization are clinical. An aim is to control the theoretical material mastering and developing practical skills, as well as the ability to analyze and apply the obtained knowledge to solve practical problems. Practical trainings are mainly held in children's departments of clinical bases of the department.

Each lesson starts with a test control to assess the initial level of knowledge and to determine a degree of student preparedness for a class. The teacher defines the purpose of the training and creates positive cognitive motivation; answers the student's questions which have arisen during the ISW on the topic of classes.

The main part of the lesson is the practical work of the student at the patient's bedside. The teacher with students are doing ward rounds and examine sick children, collect anamnesis, perform diagnostic procedures etc. The control of the main stage of the lesson is carried out due to the assessment of student's performance of practical skills and the ability to solve typical clinical cases. The teacher discusses and gives explanations, emphasizes the peculiarities of the disease in a particular child, aiming at implementation of the most rational method of examination, and so on.

At the final stage of the workshop, to evaluate the student's mastery of the topic, he is asked to answer a situational case. The teacher summarizes the lesson, gives students a task for independent work, indicates the key issues of the next topic and offers a recommended reading list for independent study.

Independent work of a student - one of organizational forms of learning, regulated by the working curriculum and performed by the student independently outside the classroom. Possible types of independent work (self-work): preparation for workshops and study topics listed in self-learning schedule and study of additional literature, algorithms, structure, logic, writing cases, synopses, literature reviews. Organization of independent work in pediatric hospital departments must be ensured by teachers.

During the mastering of discipline, the following educational technologies are used: methods of transmission and assimilation of knowledge, abilities and skills, lecture, imitation technologies, clinical practical lesson, role-playing educational games, case-based methods, multimedia presentations, educational videos.

Discipline mastering embeds the following educational technologies: methods of transmission and assimilation of knowledge, abilities and skills, a lecture, imitation technologies, a clinical practical lesson, role-playing educational games, case-based methods, multimedia presentations, educational videos.

9. Control methods

The methods, forms of control and the evaluation system are carried out in accordance with the requirements of the discipline program and instructions on the assessment system of students at the European Credit and Transfer system of the educational process which was approved by Ministry of Health of Ukraine (Ministry of Health of Ukraine letter No 08.01-47/10395 from 15.04.2014).

The assimilation of the topic is controlled during practical classes in accordance with specific objectives: the ability to determine the etiological and pathogenetic factors of the most important diseases in infants, the most important diseases of the blood and endocrine system in children, to classify and analyze a typical clinical presentation of disease, to draw up an examination plan and analyze the data of laboratory and instrumental examinations, to establish a diagnosis and prescribe treatment; to determine the main emergency conditions and demonstrate mastery of the principles of emergency care, assess the disease prognosis, demonstrate knowledge of moral and deontological principles of a medical specialist and the principles of professional subordination in pediatrics.

To evaluate student's knowledge, the advantage is given to standardized methods of control: testing (written or computer-based), structured written work, standardized by the method of performing control of practice skills, work with standard medical documentation.

The means of control are multiple choice questions, situational clinical cases and interpretation of the data of the laboratory and instrumental examination, control of the implementation of practical skills.

- **Types of control:** current and final

- **Form of final control:** exam

Current control is carried out at each practical lesson and aims to check the assimilation of students of the educational material.

Final control (exam) is held in writing during the examination session in accordance with the schedule.

Control of execution of independent work, which is provided for in the topic along with classroom work, is carried out during the current control of the topic at the corresponding classroom session. Mastering of topics that are assigned only to independent work is controlled during by the final control.

Control of assimilation of practical skills on the relevant topic of the workshop is carried out both during the current control and the final control.

Control of individual work - defense of the case report. The case report should be written and submitted for verification on time (at least one week before the defense).

Evaluation Criteria

Excellent ("5") – the student correctly responds to 90-100% of the test of A format. Correctly, clearly, logically corresponds to all standardized questions of the current topic.

Closely binds theory with practice and demonstrates the correct implementation of practical skills. Analyzes the results of the lab/instrumental investigations without problems, and has proper methods of

examination of the patient. Makes differential diagnosis. Solves clinical case with higher level of difficulty and knows how to compile the material.

Good ("4") - the student responds correctly to 70-89% of the test of A format. Correctly and essentially responds to all standardized questions of the current topic. Demonstrates knowledge of practical skills. Correctly uses theoretical knowledge to solve practical problems.

Able to solve easy and medium complexity clinical cases. Has the necessary practical knowledge and techniques and their uses, more than the required minimum.

Satisfactory ("3") - the student responds correctly to 50-69% of the test of A format. Incomplete, with the help of additional questions answers all the standardized questions on the current topic. Cannot independently make a clear logical answer. While the student is answering and demonstrating practical knowledge he makes mistakes. Can solve only the easiest situational tasks. Has knowledge of only the minimum methods of investigations.

Unsatisfactory ("2") - the student responds correctly to 50% of the test of A format.

10. Current control

The current control is carried out on each practical class in accordance with specific objectives of each topic. Traditional grades are exhibited in the academic journal of student's achievement during practical classes. The practical classes in studying of the discipline Paediatrics and Neonatology are structured and provide a comprehensive assessment of all types of theoretical and practical training of students during practical classes.

Current control of *theoretical knowledge*:

- Written or computer-based testing;
- Individual questioning, interview
- Solving of typical clinical cases
- Evaluation of practical skills

10.1 Evaluation of current educational activities.

During the assessment of each subject's absorption for current educational activities, the student is exhibiting estimates for **4-th grade** (traditional) scale taking into account the approved criteria assessment for appropriate discipline. All kinds of works, based on the curriculum, are taken into account. The student should get an estimate from each topic and then it will be converted into points according to 200-point scale.

- The student responds to no fewer than 10 tests (MCQ's according to the topic of the class, format A).
- Answers standardized questions that require basic knowledge to understand the current topic.
- Demonstrates the knowledge and ability of practical skills in accordance with the topic of practical lesson.
- Solves situational clinical cases on the topic.

11. Form of the final control of learning performance

The exam is a form of final control of the student's mastering of theoretical and practical material in a particular academic discipline for a semester, which is held as a control event. The exam is held in written form during the examination session in accordance with the schedule. The form of the exam is standardized and includes the control of theoretical and practical training.

Students are admitted to semester final control:

- who have performed all types of work, tasks provided for in the curriculum for the semester in accordance with the discipline (in particular, wrote and handed in the case report
- attended all classes provided by the curriculum;
- worked out missed classes;
- scored the number of points for the current success, not less than the minimum (72 points).

Students who have missed workshops are allowed with the *Dean's permission* to work academic debts up to the specified term within the semester.

The maximum number of points that a student can gain when passing the exam is 80.

The minimum number of points when passing the exam - at least 50.

Semester exam lasts 2 academic hours and is carried out according to the following regulations:

Stage 1 - Test control - 40 MCQ's, it is held for 40 minutes. The maximum number of points is 40 (1.0 points per 1 correct answer). The minimum criterion for successful passing of the test control is the result of 60% of correct answers.

Stage 2 – A complex clinical cases solving, including interpretation of laboratory and instrumental studies data, determination of preliminary clinical diagnosis, determination of therapeutic tactics, treatment prescription. The task is carried out within 60 minutes. The maximum number of points is 20 for one task. At this stage, 2 typical clinical cases are supposed to be solved. One case from the topics of the 4th course, the second - on the topics of the 5th course.

In the case of distance learning, the exam is conducted online and involves solving MCQ's. The student is offered 40 tests of the first level, with one correct answer and 40 tests of the second level, the expanded choice of 50% of correct answers of the total number. A total amount is 80 MCQ's.

The student receives 1 point for a correct answer to one question of the first level MCQ's, and 0.25, 0.5, 0.75, or 1 point for one question of the second level MCQ's, if the number of correct answers are 4 or 0.33, 0,67 or 1 point if the number of correct answers are 3.

12. Scheme of accrual and distribution of points received by students:

For disciplines to which the form of the final control is the exam:

The maximum number of points that a student can score for current academic activity per semester for admission to the exam is 120 points.

The minimum number of points that a student must score for the current academic activity per semester for admission to the exam is 72 points.

The calculation *of points* is carried out based on the student's marks according to the traditional scale (4-th point) during the study of the discipline, by calculating the arithmetic mean (AM) rounded up to two decimal places. Resulting value is converted into points according to multipoint scale as follows:

$$x = \frac{CA \times 200}{5}$$

For convenience, *table 1* is given for recalculation on a 200-point scale:

Table 1

Recalculation of the average assessment for the current activity in a multi-level scale for the disciplines completed

4- бальна шкала	200- бальна шкала	4- бальна шкала	200- бальна шкала	4- бальна шкала	200- бальна шкала	4- бальна шкала	200- бальна шкала
5	120	4.45	107	3.91	94	3.37	81
4.95	119	4.41	106	3.87	93	3.33	80
4.91	118	4.37	105	3.83	92	3.29	79
4.87	117	4.33	104	3.79	91	3.25	78
4.83	116	4.29	103	3.74	90	3.2	77
4.79	115	4.25	102	3.7	89	3.16	76
4.75	114	4.2	101	3.66	88	3.12	75
4.7	113	4.16	100	3.62	87	3.08	74
4.66	112	4.12	99	3.58	86	3.04	73
4.62	111	4.08	98	3.54	85	3	72
4.58	110	4.04	97	3.49	84	Менше 3	Недос- тагньо
4.54	109	3.99	96	3.45	83		
4.5	108	3.95	95	3.41	82		

Scores for discipline are converted regardless of discipline both in scale ECTS, and 4-point scale. Score scale ECTS 4-point scale not converted and vice versa.

The scores of students studying in one specialty, taking into account the number of scores earned in the discipline are ranked on the ECTS scale as follows:

Score ECTS	Statistical range
A	The best 10% students
B	Next 25% students
C	Next 30% students
D	Next 25% students
E	Next 10% students

Ranking on the assignment of grades "A", "B", "C", "D", "E" is conducted for students of this course who are studying in one specialty and have successfully completed the discipline. Students who receive an FX, F ("2") grade are not included in the list of ranked students. Students with an FX grade automatically receive an "E" after resumption.

Discipline scores for students who have successfully completed the program are converted into a traditional 4-point scale according to the absolute criteria listed below:

Scores in 200 scale	Score according to the four-point scale
From 170 to 200	5
From 140 to 169	4
From 139 to minimum number of points, which the student should acquire in the discipline	3
Lower than the minimum number of points that the student should attain in the discipline	2

13. Methodological support

- Program of the discipline
- Plans of lectures, practical classes, and independent work of students
- Methodical guidelines of practical classes for the students
- Methodical guidelines for the teachers
- Methodical materials that provide independent work of the student
- MCQs and clinical cases for practical classes
- The list of questions submitted to the final control
- Methodological support for final control
- The list of standardized methods for performing practical skills.
- Recorded video of lectures

14. Reference

Main sources

1. *Cloherty and Stark's Manual of Neonatal Care*. Eighth Edition. AR. Hansen, EC. Eichenwald, CR. Martin, AR. Stark, (Editors). Philadelphia: Wolters Kluwer, 2017. P. 641-683; 720-737.
2. Nelson textbook of Pediatrics 21st Edition by Robert M. Kliegman, Joseph W. St Geme III, et al. Philadelphia: Elsevier, 2020.
3. Marcadante K., Kliegman R.M., Behrman R.E., Jenson H.B. Nelson Essentials of Pediatrics, 8 ed., Saunders, 2018.- 832 p.
4. Pediatric Secrets / 6th ed. by Polin R.A., Ditmar M.F. / Mosby, 2015.- 752 p.
- Frank G., Zaoutis L., Catalozzi M., Zaoutis L.B., Shah S.S. The Philadelphia guide: inpatient pediatrics / LWW, 2019.- 608 p.

Additional sources

1. British committee for standards in haematology (2016). Guidelines on red cell transfusion in sickle cell disease. Part I principles and laboratory aspects. British Journal of Haematology.
2. British committee for standards in haematology (2016). Guidelines on red cell transfusion in sickle cell disease. Part II indication for transfusion. British Journal of Haematology.
3. Queensland Pediatric Guidelines. Diabetic Ketoacidosis (DKA) and Hyperosmolar Hyperglycaemic State (HHS) - Emergency management in children. <https://www.childrens.health.qld.gov.au/guideline-dka-emergency-management-in-children/>
4. Sharma ST, Nieman LK, Feelders RA. Cushing's syndrome: epidemiology and developments in disease management. Clin Epidemiol. 2015;7:281–293.
5. Pediatric Adrenal Insufficiency: Diagnosis, Management, and New Therapies. International Journal of Pediatrics 2018(1):1-8.
6. Congenital Adrenal Hyperplasia Due to Steroid 21-Hydroxylase Deficiency: An Endocrine Society Clinical Practice Guideline . [2018]

15. Information resources

- https://emedicine.medscape.com/pediatrics_general
<https://pubmed.ncbi.nlm.nih.gov/>
<https://www.who.int/>
<https://www.aap.org/en-us/Pages/Default.aspx>
<http://www.generalpediatrics.com/>