

MINISTRY OF HEALTH OF UKRAINE
ODESA NATIONAL MEDICAL UNIVERSITY

Departments of Pediatrics №2

CONFIRMED by

Vice-rector for research and educational work

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**METHODOLOGICAL RECOMMENDATIONS
ON PRACTICAL CLASSES FOR STUDENTS**

International Medical Faculty, course 6

Educational discipline "**PEDIATRICS**"

Approved

at the meeting of the department of Pediatrics №2

Protocol No. 11 dated 28/08/2022

Head of the department of Pediatrics №2 _____

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Topic 6. Practical lessons No. 15 - 17

Topic 6. Practical lesson 15 - 17 . Cough in children. Differential diagnosis. Tactics of the doctor. Cough: a problem-oriented approach in pediatrics. The main types and causes of cough. Differential diagnosis. Differential diagnosis of diseases whose main symptom is cough. Differential diagnosis. Laboratory - instrumental examinations of children with cough. Differential use of medicines for cough in children.

Purpose: To determine the causes of acute and chronic cough in children, the tactics of managing a patient with acute and chronic cough. Demonstrate the ability to maintain medical records of sick children with acute and chronic cough. Plan the examination of a sick child and interpret the obtained results, carry out differential diagnosis and make a preliminary clinical diagnosis for acute and chronic cough. Evaluate the data of laboratory and instrumental studies in acute and chronic cough. Conduct differential diagnosis in patients with acute and chronic cough. Prescribe adequate therapy in patients with acute and chronic cough. Demonstrate mastery of the bioethical principles of a medical specialist and the principles of professional subordination in pediatrics.

Basic concepts:

Term	Definition
Dyspnea	Changing the frequency, depth, rhythm of breathing with the obligatory participation of auxiliary muscles.
Respiratory distress	Shortness of breath + cyanosis. Such a state of the body, in which the lungs do not provide support for the normal gas composition of the blood, or the latter is achieved due to a malfunction of the external breathing apparatus, which leads to a decrease in the functional capabilities of the body.
Inspirational dyspnea	Clinically, it is accompanied by involvement of the jugular cavity. Difficulty breathing.
Expiratory dyspnea	Clinically, it is accompanied by contraction of the intercostal spaces. Difficulty exhaling.
A mixed version shortness of breath	It is clinically accompanied by retractions of the jugular cavity and intercostal spaces + swelling of the wings of the nose and retractions of the supraclavicular area
Obstructive syndrome	A syndrome that accompanies many diseases of the respiratory system. Clinically manifested: • distant wheezing; • cough (dry paroxysmal , wet); • expiratory shortness of breath; • percussive changes in the form of a tympanic shade of a percussive tone or box tone; • auscultatory : hard breathing, scattered dry whistling rales; • obstructive syndrome always accompanies any variant of shortness of breath. Components of obstruction: spasm, swelling of the mucous membrane, accumulation of mucus.
Postural drainage	Drainage position. Rehabilitation of the tracheobronchial tree.
Bronchitis	Inflammatory disease of the bronchi of various etiology, the pathognomonic symptoms of which are cough and wheezing (dry and moist polyvesicular soundless) in the bronchial tree in the absence of infiltrative focal changes in lung tissue.

Pneumonia	An acute inflammatory disease of viral -bacterial etiology with predominant involvement in the pathological process of the respiratory departments and the presence of intra-alveolar inflammatory exudation and is characterized by infiltrative changes in lung tissue and respiratory failure.
Bronchial asthma	Chronic inflammation is combined with bronchial hyperreactivity , manifested by recurrent symptoms of wheezing, wheezing, tightness in the chest, cough, especially at night and early in the morning. These episodes are usually associated with widespread but variable (variable) broncho-obstruction, which is reversible spontaneously or under the influence of therapy.
Surfactant system	A complex of surface-active substances that line the alveoli from the inside and prevent their collapse.
Ciliary epithelium	Epithelium with a ciliated surface layer, the cilia of which move in an upward direction. Contributes to the self-cleaning of the bronchi.
Mucociliary clearance	A complex of anatomical and physiological formations, which carries out the process of self-cleaning of the bronchi in normal and pathological conditions. It is carried out by the joint activity of the mucous glands of the bronchi, the ciliated epithelium and the musculature of the bronchi.

Equipment: a laptop, an Infant auscultation simulator auscultation trainer and smartscope LF01201 W44743 (Inv . No. 101475072), multi-purpose pediatric care simulator (S157) W45178 (Inv . No. 101475075), multimedia presentation on the topic of practical training, educational videos

Plan:

1. Organizational activities (greetings, verification of those present, announcement of the topic, purpose of the lesson, motivation of higher education seekers to study the topic).
2. Control of the reference level of knowledge (written work, written test, frontal survey, etc.) is not foreseen.
3. Formation of professional skills and abilities (mastery of skills, curation , determination of treatment scheme, laboratory research, etc.):
 - a) Oral survey, conversation, collective discussion and discussion on the subject of the lesson;
 - b) List of educational practical tasks, which it is necessary to perform during practical classes: on the basis of the proposed clinical situations, perform the main steps to ensure the effective management of a sick child
 - c) Solving a clinical task, for example:

Task 1.

The girl is 4 years old, acutely ill, body temperature up to 38.5 °C, painful dry cough, one-time vomiting. On examination, the condition is severe, the skin is pale. ChD-80/min. Cyanosis of the nasolabial triangle. The right half of the chest lags behind in the act of breathing. Dullness of the percussion sound on the right below the angle of the scapula, auscultatively - breathing in this area is weakened, wheezing is not audible. Heart tones are weakened, tachycardia. The abdomen is moderately swollen, painful on palpation in the right hypochondrium. On the X-ray of the chest organs - on the right, homogeneous darkening in the projection of the 7th and 10th segments, the sinuses are free. Make a preliminary diagnosis.

1. <i>Acute obstructive bronchitis</i> 2. <i>Right-sided polysegmental pneumonia</i> 3. <i>Acute bronchiolitis</i> 4. <i>Acute stenosing laryngotracheitis</i>	Reply: Right-sided polysegmental pneumonia, as indicated by acute onset, fever, intoxication syndrome, signs of respiratory failure. Percussive
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5. <i>Focal pneumonia</i>	dulling of the percussive sound on the right below the angle of the scapula, by auscultation - breathing in this area is weakened. On the X-ray of the chest organs - on the right, homogeneous darkening in the projection of the 7th and 10th segments, the sinuses are free. Acute obstructive bronchitis is a disease of viral etiology. But this is a pathology of children of the first years of life, the clinical symptoms of which (noisy whistling exhalation, expiratory shortness of breath, involvement of accessory muscles, perioral cyanosis, box percussion tone, auscultatory dry crackles, mainly whistling and medium-bubble and fine-bubble voiceless rales, etc.) completely contradict this diagnosis.
1. <i>Pediatrics: textbook for students . of higher education IV level institutions Accreditation / under the editorship Prof. O.V. Heavy. - Ed. 5th amendment. and supplements .- Vinnytsia: Nova Kniga, 2018. -1152 p.: ill .</i> 2. <i>Nelson TEXTBOOK of PEDIATRICS. EDITION 20: 978-1-4557-7566-8. Robert M. Kliegman , Bonita F. Stanton , Joseph W. StGeme III, Nina F. Schor , Editor Emeritus Richard E. Behrman , 1600 John F. Kennedy Blvd. Ste . 1800.- Philadelphia , PA 19103-2899. - 2044-2050.</i> 3. <i>Dudnyk V.M. Differential diagnosis of the most common childhood diseases. Educational manual on pediatrics / Ed. V.M. Bagpiper - 1st edition. - Vinnytsia: LLC Nilan -LTD, 2017. – 560 p.</i>	

Recommendations (instructions) for the performance of tasks (professional algorithms, orientation maps for the formation of practical skills and abilities, etc.):

a) Questions for self-control:

1. Anatomical and physiological features of the respiratory system in children, which affect the course of bronchial asthma, acute obstructive bronchitis and bronchiolitis, pneumonia, laryngotracheitis.
2. The main clinical criteria for establishing a diagnosis of bronchial asthma depending on the degree of severity.
3. Basic clinical criteria for establishing a diagnosis of acute obstructive bronchitis.
4. Basic clinical criteria for establishing a diagnosis of bronchiolitis.
5. Basic clinical criteria for diagnosing pneumonia.
6. Basic clinical criteria for establishing a diagnosis of acute stenotic laryngotracheitis.
7. Criteria for differential diagnosis of bronchial asthma and acute obstructive bronchitis.
8. Criteria for differential diagnosis of bronchial asthma and bronchiolitis.
9. Criteria for differential diagnosis of pneumonia and bronchiolitis.
10. Criteria for differential diagnosis of acute obstructive bronchitis and acute stenotic laryngotracheitis.

b) Orientation map for independent work with literature

No	Main tasks	Instructions	Answers
1	2	3	4
1.	Familiarize yourself with the literature and the	Get acquainted with modern concepts of etiopathogenesis, classification, clinical course	Know the development factors, classification, clinical picture of disease manifestations,

	purpose of the lesson	and additional methods of diagnosis of diseases accompanied by cough in children	hematological , immunological , radiological and functional signs of diseases and conditions.
2.	Epidemiology	To know the prevalence of diseases accompanied by cough among children.	Know: the prevalence of the most frequent diseases and pathological conditions in the children's population .
3.	Etiopathogenesis	Know the causes and mechanism of diseases accompanied by cough in children	Know that these conditions can be caused by the action of medical factors, pathogens of infectious diseases
4.	Clinic	Describe the clinical picture of diseases accompanied by cough in children	Remember the leading clinical symptoms 'of the main conditions in children with cough
5.	Diagnostics	Know the schemes of diagnosis and treatment of diseases accompanied by cough in children	Use schemes for diagnosis and treatment of diseases accompanied by cough in children

c) Requirements for work results, including design: the written work must be written or printed, have a neat appearance, the date, topic, task number, name of the performer must be indicated at the beginning, the text must be legible, structured;

- Summing up: announcement of grades based on the results of the lesson. The grade for one practical lesson is the arithmetic average of all components and can only have a whole value (5, 4, 3, 2), which is rounded according to the statistical method.

5. List of recommended literature:

- *main:*

- Nelson Textbook of Pediatrics , 2-Volume Set , 20th Edition , 2016 by Robert M. Kliegman , Bonita MD Stanton , Joseph St. _ Geme and Nina F Schor , 5315 p.
- Basics of pediatrics according to Nelson: in 2 volumes. Volume 1 / Karen J. _ Marcante , Robert M. Kligman ; translation of the 8th Eng . edition. Scientific editors of the translation V.S. Berezenko , T.V. Rest Kyiv: VSV "Medicine", 2019. T1-378 p., T2- 426 p.
- Pediatrics: textbook for students . of higher education institutions of the IV level of accreditation / edited by Prof. O.V. Heavy. - Ed. 5th amendment. and supplements .- Vinnytsia: Nova Kniga, 2018. 1152 p.: ill .
- Pediatrics: teach . manual: in 2 vols. // Ed. M.L. Aryaeva , N.V. Kotova. – Odesa: ONMedU, 2014. – Volume 2: Diseases of young children. Pulmonology. Allergology. Cardiology. Gastroenterology. Nephrology. HIV infection. Primary health care. - 312 p.
- Pediatrics: national textbook. Edited by V.V. Careful Volume 1,2. - Kyiv, 2013.- T.-1040 p., T.2-1024 p.

- *additional:*

- Dudnyk V.M. Differential diagnosis of the most common childhood diseases. Educational manual on pediatrics / Ed. V.M. Bagpiper - 1st edition. - Vinnytsia: LLC Nilan -LTD, 2017. – 560 p.

2. Emergency conditions in pediatric practice: teaching . help _ for studies _ higher med. teach _ app . IV level of accreditation / Yu. V. Marushko , H. G. Shef, F. S. Glumcher , S. M. Yaroslavska. - Kyiv: Medicine, 2016. - 400 p.
3. Tang Y, Li W, Baskota M, Zhou Q, Fu Z, Luo Z, et al . Multisystem inflammatory syndrome in children during the coronavirus disease 2019 (COVID-19) pandemic : a systematic review of published case studies . Translation Pediatr . 2021 Jan. _ 10 (1):121-135.

- *electronic information resources* :

1. <http://moz.gov.ua> – Ministry of Health of Ukraine
2. www.who.int - World Health Organization