

**PARACLINICAL METHODS OF INVESTIGATION AND
SEMEIOLOGY OF THE RESPIRATORY SYSTEM DISEASES
IN CHILDREN**

**Academic discipline «Pediatric Propedeutics»
*Teacher's guide for the 3rd year
English medium students***

**ПАРАКЛІНІЧНІ МЕТОДИ ОБСТЕЖЕННЯ ТА
СЕМІОТИКА УРАЖЕНЬ СИСТЕМИ ДИХАННЯ У ДІТЕЙ**

**З дисципліни «Пропедевтика педіатрії»
*Методичні розробки для викладачів до аудиторної
роботи студентів 3-го курсу
медичного факультету***

**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ
Харківський національний медичний університет**

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Затверджено
Вченою радою ХНМУ
Протокол № від

**Харків
ХНМУ
2016**

Paraclinical methods of investigation and semeiology of the respiratory system diseases in children: teacher's guide for the 3rd year English medium students / compiled by.: V.A., Klymenko T.V. Sirenko, O.M. Plakhotna – Kharkiv: KhNMU, 2016. – 16 p.

Compiled by: Klymenko V.A.
Sirenko T.V.
Plakhotna O.M.

Параклінічні методи обстеження та семіотика уражень системи дихання у дітей: метод. розр. для викладачів до аудит. роботи студентів 3 курсу медичних факультетів / упор. В.А.Клименко, Т.В. Сіренко, О.М.Плахотна. – Харків, ХНМУ, 2016. – 16 с.

Упорядники: Клименко В.А.
Сіренко Т.В.
Плахотна О.М.

Amount of educational hours: self-dependent work – 4;
practical training – 4.

Contents

The main clinical and paraclinical methods of investigation include the interrogation, inspection, palpation, percussion (comparative, topographical), auscultation, counting respiratory rate movements, clinical investigation of the nose, throat secret, sputum, pleurisy exudates, bacteriological and virusological investigation of the same materials, roentgenological methods of investigation of lungs, paranasal sinuses, the bronchoscopy, bronchography, investigation of function of external breathing, the routine methods of sick child investigation (blood count, urinalyses, etc.). The semeiology of respiratory system affections: includes the difficulty in breathing, obstruction of respiratory tract, the suffocation, the cough, the sputum, the change of voice, the stridor, the croup, the laryngospasm, the inspiration type of dyspnoe, the expiration type of dyspnoe, the pathological change of thorax shape, the extension of thorax, the pathological change of nose, the low jaw, causing disorder of external breathing; the symptoms of aspiration, the change of skin and mucous membranes color, the adenoids and tonsil's changes, causing the external breathing disorder, the pathological types of breathing (tachypnea, bradypnea), the changes of topographic borders of lungs, the changes of percussion sounds (slightly dulled sound, absolutely flat sound, dulled sound, tympanic overtone, handbox resonance, etc.), the auscultation (vesicular, puerile breathing, bronchial respiration, decreased vesicular respiration, amphorics respiration, rales-dry, moist rales, crepitation, pleural friction rub), symptoms of pneumothorax, piopneumothorax. The pathological syndromes are respiratory insufficiency syndrome, obstructive syndrome, croup syndrome.

Specific goals

- to prescribe the number of laboratory and instrumental investigations in case of respiratory system diseases in children.
- to provide syndrome-based diagnosis of respiratory system diseases in children.

To know:

1. Methods of the respiratory system clinical examination of children: the interrogation, visual inspection, palpation, comparative and topographic percussion, auscultation of the lung.
2. Semeiology of main disorders of respiratory system in children.
3. Respiratory distress syndrome and the respiratory insufficiency syndrome, main symptoms.
4. The spirometry, the roentgenography of the respiratory system.

Be able to:

1. to collect anamnesis of a patient with disease of the respiratory system.
2. to prescribe the laboratory and instrumental investigations in case of respiratory system diseases in children.
3. to provide syndrome-based diagnosis of respiratory system diseases in children.
4. to interpret the results of investigation.

Providing an initial level of knowledge

To apply the materials of the guidelines for independent extra-curricular activities of students to the topic 11.

Materials needed for methodological support:

1. Case history of children with respiratory system diseases, tables, slides, roentgenograms.

The technological card of the lesson

№	Stage of the lesson	Study time (min)	Tutorials		Place of the lesson
			Learning tools	Equipment	
1.	Determination of the initial level of knowledge	20	Testing	Tests	Classroom
2.	Determination of the main points of the topic	25	Quiz, discussion	Graphical structure of the topic, case history of children with the respiratory system diseases.	Classroom
3.	Break	10			
4.	Solution for the training tasks of the topic	45	Independent work of a student under the guidance of a teacher - training of practical skills	Premises and equipment of the hospital	Departments of the hospital
5.	Break	30			
6.	Solution for the training tasks of the topic	45	Independent work of a student under the guidance of a teacher - training of practical skills.	Premises and equipment of the hospital	Departments of the hospital
7.	Break	10			
8.	Determination of the output level of skills readiness.	20	Checking of the practical skills of a student while work in the departments.	Premises and equipment of the hospital	Departments of the hospital

9.	Determination of the output level of knowledge and skills readiness.	15	Solving and discussion of situational assignments Checking entries in the diary of practical training	Situational tasks	Classroom
10.	Summation of the lesson. Assignment to the next lesson.	10	Quiz, discussion		Classroom

The estimated basis of the action in performance of the learning objectives of the topic (sections 4, 6):

1. Self classroom work in the departments for children of different age - medical history, the employment of the clinical and paraclinical methods of the respiratory system examination: interrogation, examination, palpation, percussion, auscultation, roentgenograms.

2. Determination of pathological changes of respiratory system.

Assignments for testing the final level of knowledge

Situational tasks

Task 1

A premature newborn with gestation age 36 weeks was born with body mass 1800 g. The child has dyspnoea, respiratory rate is 86/min. Depression of the stern is marked. What pathological syndrome does the child have?

Answer: respiratory distress syndrome.

Task 2

A 9 – month – old child has body mass 11500 g. The mass of the child at birth was 3,100 g. The weak puerile breathing was founded over all surfaces of lungs. What is the most probable reason of weak puerile breathing?

Answer: the parathrophia.

Task 3

An 8 – month – old infant has the expirate type of dyspnoea. The chest is barrel – shaped, excursion of the chest is weak. The band box sound is found during percussion of lungs, dry wheezing rales – during auscultation. Which syndrome can you diagnose?

Answer: The obstructive syndrome.

Task 4

A 7 – year – old child admitted to the hospital. The bronchoecthases are suspected. Which investigation can support this diagnosis?

Answer: The bronchography.

Task 5

The bronchoscopy, the roentgenography of chest, the examination of sputum, blood count, the spirography were advised for examination of a 4 – year – old girl which suffers from chronic pulmonary disease. What investigation can not be done in this age?

Answer: The spirography.

Task 6

A 8 – year – old child admitted to an allergology department of children hospital with acute attack of bronchial asthma. Spirography and other paraclinical examinations were done, such as respiratory volume, respiratory rate, minutes respiratory volume, Tiffno's index, basic – acid condition. Which from them is not spirography index?

Answer: The basic – acid condition.

Task 7

The Sharco – Leiden crystals and Kurphmans spirals are found an examination of the sputum of a 12 – year – old girl. What disease is this symptom typical for?

Answer: The bronchial asthma.

Task 8

Such clinical and roentgenological symptoms were found during investigation of the child as hyperthermia, short painful cough, asymmetry of chest, thickness of skin fold, returnees of corresponding part of the chest in breathing, dullness of percussion sound. Which syndrome can you suggest?

Answer: The exudative pleuritis.

Task 9

A doctor founded during investigation such symptoms as wheezing, expiratory dyspnea, various moist and dry rales in both sides of the chest on auscultation, the increase of the lung transparency and increase of vessels pattern on roentgenogram. Which syndrome can you diagnose?

Answer: The obstructive syndrome.

Task 10

Differential diagnosis of the dyspnoea in a child of 1 year old includes:

- a) Acute bronchitis.
- b) Bronchial asthma.
- c) Congenital defect of bronchopulmonum apparatus.
- d) Pancreacystosis.
- e) Above mention.

The **maximum number of points** which may be consequently obtained by students is 200 points; this includes 120 points for current educational activity and 80 points for the final lesson.

Current educational activity of students is controlled during practical classes according to specific goals in the course of each practical class as well as during

self-training in the hospital department. It is recommended to apply the following means of diagnostics of the students' level of readiness: control of practical skills, solving cases and test control of theoretical knowledge.

The current assessment of students on respective topics is conducted in the traditional 4-point grade scale ("excellent", "good", "satisfactory" and "unsatisfactory") with further conversion into a multiscore scale.

The grade "Excellent" is given when the student knows the program in toto, illustrating the answers with various examples; gives clear and comprehensive answers without any hints; delivers the material without any inaccuracies or errors; performs practical tasks of a different degree of complexity.

The grade "Good" is given when the student knows the whole program and understands it well, gives correct, consistent and structured but not completely comprehensive answers to questions, although he is able to answer additional questions without mistakes; solves all cases and performs practical tasks experiencing difficulties only in the most complex situations.

The grade "Satisfactory" is given to the student based on his satisfactory level of knowledge and understanding of the entire subject. The student is able to solve modified tasks with the help of hints; solves cases and applies practical skills experiencing difficulties in simple cases; is unable to deliver a consistent answer, but answers direct questions correctly.

The mark "Unsatisfactory" is given when the student's knowledge and skills do not meet the requirements of the grade "satisfactory".

Given the number of practical classes the grades are converted into the multiscore scale as follows:

The mark "Excellent" – 72-80 scores

The mark "Good" – 60-71 scores

The mark "Satisfactory" – 50-59 scores

The mark "Unsatisfactory" – 0 scores

Для нотатків

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Навчальне видання

**Параклінічні методи обстеження та семіотика уражень
системи дихання у дітей**

Упорядники: Клименко Вікторія Анатоліївна
Сіренко Тетяна Вадимівна
Плахотна Ольга Миколаївна

Відповідальний за випуск: Клименко В.А.

Комп'ютерна верстка

Ум. друк. арк. ____ . Тираж ____ прим. Зам. № ____ .
