

**INTERNATIONAL HIGHER SCHOOL OF MEDICINE**

**DEPARTMENT PEDIATRICS**

**SYLLABUS**

**Discipline: PEDIATRIC PULMONOLOGY**

2022-2023 academic year

for students of medical faculty

3 course 6 semester

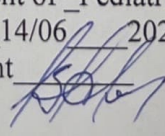
1 credit (38 h, including auditorial 20 h., independent work 18h.)

**Lecturer:**            **prof. V.P. Alekseev**  
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**Venue:**                Zoom

**Practical classes:**    ass. Prof. G.T. Nazhimidinova  
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**Venue:**                National Center Maternity and Childhood Welfare  
                              Str Togolok Moldo, 1A

The Syllabus is considered  
at the meeting of the department of Pediatrics  
Protocol № 8 dated 14/06 2023  
Head of the department 



### Course Objective Pediatric Pulmonology:

to form students' ideas about the basics etiopathogenetic acute and chronic respiratory disease and skills diagnosis, differential diagnosis, treatment and prevention of respiratory diseases.

### After study of the discipline the student must:

#### Knowledge:

epidemiology, etiology, pathogenesis, clinical syndromes, and symptoms of respiratory diseases; laboratory and instrumental methods of diagnosis; principal complications; treatment and prevention.

#### Skills:

examination of patients with respiratory diseases (counting the frequency of breathing in infant's recognition indrawing of the lower chest, breathing definition of asthma and wheezing, to identify the signs of respiratory failure), writing medical history, conduct and interpretation of pikfloumetry, the sample with bronchodilator, technique use dose inhalation aerosols with a spacer.

#### Able to

1. Counting the respiratory rate.
2. Define lower chest indrawing
3. Define wheezing (breathing in asthma and obstructive bronchitis).
4. Define stridor (laryngotracheitis, foreign body, retropharyngeal abscess).
5. Demonstrate The technique of using metered dose inhaler.
6. Demonstrate The technique of using MDI with a spacer (homemade).
7. Interpret of indicator of peak flowmetry.
8. Demonstrate Bronchodilator test.

#### Attitude:

Collect medical history; examine the patient and assess the main clinical symptoms and possible complications; assign and interpret the results of laboratory and instrumental examination; diagnosis and prescribe the treatment.

#### Pre-requisites:

- Anatomy (macro- microanatomy)
- pathological anatomy
- Topographic anatomy
- normal physiology
- pathological physiology
- Biochemistry
- Microbiology, virology and immunology
- Basic pharmacology
- Bioethics
- propediatrics

#### Post-requisites:

- Childhood diseases
- Pediatric surgery
- Children's infectious diseases
- Pediatric neurology
- Family medicine
- Medical genetics
- Public health

### THEMATIC PLAN OF LECTURES

№	Lecture theme	hours
1.	Acute Respiratory Infections (ARI). Bronchitis and bronchiolitis in children.	2
2.	Acute pneumonia in children.	2
3.	Chronic obstructive pulmonary diseases in children (COPD). Bronchiectasis. Pneumosclerosis.	2
4.	Atopic dermatitis. Allergic rhinitis in children.	2
5.	Asthma in children.	2
	Total:	10



### THEMATIC PLAN OF PRACTICAL CLASSES

№	Theme of practical lesson	hours
1.	Acute Respiratory Infections (ARI). Bronchitis and bronchiolitis in children.	2
2.	Acute pneumonia in children.	2
3.	Chronic obstructive pulmonary diseases in children (COPD). Bronchiectasis. Pneumosclerosis	2
4.	Asthma in children.	2
5.	Cystic Fibrosis in children. <i>Control work (module)</i>	2
	Total:	10

### THEMATIC PLAN OF INDEPENDENT WORK OF STUDENTS

Unit №	Theme of independent work	Hours (18h)	Date
1.	Differential diagnostic criteria of ARI in children	4	
2.	Acute respiratory distress syndrome	4	
3.	Atopic dermatitis. Allergic rhinitis in children	4	
4.	Congenital pulmonary anomalies (Congenital pulmonary airway malformation (CPAM))	4	
5.	Interpretation of the respiratory lung function (spirometry and peak flowmeter)	2	

#### Recommended reading for the discipline:

##### Basic:

No	Authors	Title	The year of publishing	publishing house	Availability in the IHSM library (number)
1.	Kliegman RM, Geme III JW	Nelson textbook of pediatrics. Vol.1.- 21th ed.	2020	9 996 128 296	50
2.	Ghai OP, Paul VK, Bagga A.	Essentials of pediatrics. -8th ed.	2013	978-81-239-2334-5	9
3.	GHAJ	Essential pediatrics. Ninth edition. P. 371-394; 766.			
4.	Alekseev.V., Starodubetz.U., Isakova F.	Introduction to Pediatrics: Compendium for foreign student	2012	978-9967-26-670-4	342
5.	Pervez Akber Khan	"Basis of Pediatrics"	2000	7th -E d -	<a href="https://ketabton.com/book/14837">https://ketabton.com/book/14837</a>
6.	Pervez Akbar	Basic of Pediatrics. Tenth edition. P. 243-270			
7.	Lectures				

##### Additional:

1. Pocket book. WHO. Hospital care for children. 2<sup>nd</sup> edition. 2013. P. Cough or cold. P. 90-102. Bronchiolitis P. 94-96. Epiglottitis P.107. Pneumonia P. 80-88. Asthma P.96.
2. Pediatric clinical methods. Fourth edition. MEHARBAN SINGH. SAGAR PUBLICATIONS. New Deli. 2011. Pp. 184-200.



3. Acute Respiratory Infections in Children. Eric A. F. Simoes, Thomas Cherian, Jeffrey Chow, Sonbol A. Shahid-Salles, Ramanan Laxminarayan, and T. Jacob John. Disease Control Priorities in Developing Countries. 2nd edition. 2006. Chapter 25. ISBN-10: 0-8213-6179-1 <https://www.ncbi.nlm.nih.gov/books/NBK11786/>
4. Upper Respiratory Tract Infection. Micah Thomas<sup>1</sup>, Paul A. Bomar<sup>2</sup> In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan. 2021 Jun 30. Affiliations expand. PMID: 30422556. Bookshelf ID: NBK532961. <https://pubmed.ncbi.nlm.nih.gov/30422556/>
5. GINA. Global strategy for asthma management and prevention. Updated 2022. <https://ginasthma.org/wp-content/uploads/2022/07/GINA-Main-Report-2022-FINAL-22-07-01-WMS.pdf>
6. COPD: A Pediatric Disease. <https://www.tandfonline.com/doi/full/10.1080/15412550701815965?scroll=top&needAccess=true&role=tab>.
7. Chronic bronchitis, pediatric. <https://elsevier.health/en-US/preview/chronic-bronchitis-pediatric>
8. Bronchiectasis in children: Clinical manifestations and evaluation <https://www.uptodate.com/contents/bronchiectasis-in-children-clinical-manifestations-and-evaluation>
9. Pneumosclerosis. [https://m.iliveok.com/health/pneumosclerosis\\_75443i15943.html](https://m.iliveok.com/health/pneumosclerosis_75443i15943.html)

### Grading policy and procedures for all types of work

For the period of studying the discipline, the student gains points for the relevant parameters (per unit):

- current score - 40 points
- independent work - 20 points
- control score (final assessment of knowledge per unit) - 40 points

Maximum score - 100 (40+20+40)

### Grading system for student's achievements

Grading criteria per discipline				
Maximum score	Intervals			
	«unsatisfactory»	«satisfactory»	«good»	«excellent»
Current control - 40	0-23	24-30	31-35	36-40
Interval description	Does not complete the task, does not know and does not understand the lecture material of the lesson, which prevents further assimilation of the program; cannot apply the acquired knowledge to solving situational problems, test questions. Does not answer teacher's questions Does not have practical skills when examining a patient	Performs the task not in full, has gaps in the assimilation of lecture material, has difficulty in applying knowledge to solve situational problems, test questions; does not fully and accurately answer the questions of the teacher. When examining a patient, he has poor practical skills	Completes the task in full, knows the lecture material, but sometimes makes mistakes when solving situational problems and test questions, understands the main content of the lecture material, gives correct answers to the teacher's questions. When examining a patient, he partially possesses practical skills	Completes the task in full, easily applies knowledge and skills in solving situational problems and test questions, rarely makes mistakes, gives complete and correct answers to the teacher's questions. When examining a patient, he has full practical skills
Independent work - 20	0-11	12-15	16-17	18-20
Interval description	Presentation, report, table, situational task are missing	The content of the presentation, report, tables partially correspond to the given topic, the sequence of presentation of theoretical issues is violated: etiology, pathogenesis,	The content of the presentation, report, tables does not fully correspond to the given topic, the sequence of presentation of theoretical issues (etiology, pathogenesis,	The content of the presentation, report, tables correspond to the given topic, the sequence of presentation of theoretical issues (etiology, pathogenesis, epidemiology, clinic, differential diagnosis,



		epidemiology, clinic, differential diagnosis, laboratory diagnosis, treatment and prevention. Situational tasks contain little description of a clinical case	epidemiology, clinic, differential diagnosis, laboratory diagnosis, treatment and prevention) is not fully preserved. Situational tasks incompletely contain a description of a clinical case	laboratory diagnosis, treatment and prevention) is fully preserved. Situational tasks contain a description of the clinical case in its entirety
Control work (module) - 40	0-23	24-30	31-35	36-40
Interval description	Does not know the answers to test questions and situational tasks	Poor knowledge of answers to test questions and situational tasks	Knows well the answers to test questions and situational tasks	Knows the answers to test questions and situational tasks

#### **Conduct Policy: (lateness, absence, behavior in the auditorium, late submission of work)**

- Punctuality and completion of tasks.
- Mandatory attendance of classes.
- Attending class in a clean medical uniform.
- Eliminating conversations on a cell phone in the classroom.
- Active participation in the learning process.
- Doing homework on time.
- Academic detention at the time specified by the teacher.

For violations of the Conduct Policy, the total points for discipline might be reduced to 1-5 points.

#### **Academic Ethics Policy.**

- Be tolerant, respect the opinions of others.
- Formulate objections in the correct form.
- Constructively support feedback in all classes.
- Plagiarism and other forms of dishonest work are unacceptable. Plagiarism includes the following: the absence of references when using printed and electronic materials, quotes, thoughts and works of other authors or students.
- Prompting and cheating during tests, exams, classes is unacceptable as well as passing an exam for another student, unauthorized copying of materials.

For violations of the Academic Ethics Policy, the total points for the discipline may be reduced to 1-5 points.

#### **Guidelines for the lessons of the discipline**

#### **Key questions covered in lesson 1: Acute Respiratory Infections (ARI). Bronchitis and bronchiolitis in children (2h.)**

1. Repetition material propaedeutic respiratory system (4 semester)
  - Organs of the respiratory system (upper and lower), their function;
  - Anatomical and physiological characteristics of the respiratory system in children;
  - The main symptoms of respiratory disease - fast breathing, wheeze, stridor, grunting, and retraction (lower chest indrawing)
2. ARI. Definition,
3. ARI - Common Cold or Nasopharyngitis, Flu, Acute Tonsillopharyngitis, Croup, Epiglottitis, Laryngitis and Laryngotracheobronchitis (Infectious croup), adenoviral infection. For all diseases: etiology, pathogenesis, clinical features. The principles of treatment. Preventive measures. Clinical and laboratory criteria for the differential diagnosis of acute respiratory diseases.
4. Acute bronchitis. Etiology, pathogenesis, clinical features, classification. Clinical and laboratory criteria acute bronchitis, complications. Treatment and preventive measurements.
5. Acute bronchiolitis. Etiology, pathogenesis, clinical features. Clinical and laboratory criteria for the differential diagnosis of acute bronchiolitis, complications. Respiratory distress syndrome (RDS). Treatment and preventive measurements.



### Recommended reading for the lesson 1:

#### Basic:

1. GHAI. Essential pediatrics. Ninth edition. P. 380-382; 759.
2. Pervez Akbar. Basic of Pediatrics. Tenth edition. P. 243-270
3. Nelson. Textbook of pediatrics. 20<sup>th</sup> edition. Common cold P. 2011-2014. Acute pharyngitis P. 2017-2021. Acute upper airway obstruction P. 2031-2035. Bronchitis and bronchiolitis P. 2044-2048. Pneumonia 2088-2093. Cystic fibrosis P. 2098—2113.
4. Pocket book. WHO. Hospital care for children. 2<sup>nd</sup> edition. 2013. P. Cough or cold. P. 90-102. Bronchiolitis P. 94-96. Epiglottitis P. 107. Pneumonia P. 80-88. Asthma P. 96.
5. Lectures

#### Additional:

1. Pediatric clinical methods. Fourth edition. MEHARBAN SINGH. SAGAR PUBLICATIONS. New Delhi. 2011. Pp. 184-200.
2. Acute Respiratory Infections in Children. Eric A. F. Simoes, Thomas Cherian, Jeffrey Chow, Sonbol A. Shahid-Salles, Ramanan Laxminarayan, and T. Jacob John. Disease Control Priorities in Developing Countries. 2nd edition. 2006. Chapter 25. . ISBN-10: 0-8213-6179-1 <https://www.ncbi.nlm.nih.gov/books/NBK11786/>
3. Upper Respiratory Tract Infection. Micah Thomas<sup>1</sup>, Paul A. Bomar<sup>2</sup> In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2021 Jan. 2021 Jun 30. Affiliations expand. PMID: 30422556. Bookshelf ID: NBK532961. <https://pubmed.ncbi.nlm.nih.gov/30422556/>

### Key questions covered in lesson 2: Acute pneumonia in children (2h.)

1. Predisposing factors in the development and course of acute pneumonia.
2. Pneumonia. Etiology, pathogens. Classification.
3. Respiratory and general symptoms of acute pneumonia.
4. Age features of clinical manifestations of the illness.
5. Laboratory and radiological diagnosis of various forms of acute pneumonia.
6. Differential criteria of pneumonia.
6. Complications of acute pneumonia.
7. Basic principles of treatment.
8. Indications and the details of the treatment of children at home. Prevention.

### Recommended reading for the lesson 2

#### Basic:

1. GHAI. Essential pediatrics. Eighth edition. P. 377-380.
2. Nelson. Textbook of pediatrics. 20<sup>th</sup> edition. Pneumonia 2089-2093.
3. Pocket book. WHO. Hospital care for children. 2<sup>nd</sup> edition. 2013. Pneumonia P. 80-88.
4. Pervez Akbar. Basic of Pediatrics. Tenth edition. P. 243-270
5. Lectures.

#### Additional:

1. Pneumonia. WHO. 2019. <https://www.who.int/news-room/fact-sheets/detail/pneumonia>
2. Pediatric Pneumonia Author Information Chiemelie Ebeledike; Thaer Ahmad. Last Update: August 12, 2021. <https://www.ncbi.nlm.nih.gov/books/NBK536940/>

### Key questions covered in lesson 3: Chronic obstructive pulmonary diseases (COPD) in children (2h.)

1. COPD – definition, causes and risk factors, pathogenesis
2. COPD – classification
3. Clinical Features of COPD
4. Diagnostic criteria
5. Differential diagnosis COPD
6. Investigations
7. Pharmacological therapy for stable COPD
8. Prevention of COPD



### **Recommended reading for the lesson 3**

#### **Basic:**

1. GHAI. Essential pediatrics. Ninth edition. P. 390-392
2. Nelson. Textbook of pediatrics. 20<sup>th</sup> edition.
3. Pervez Akbar. Basic of Pediatrics. Tenth edition. P. 243-270
4. Global strategy for prevention, diagnosis and management of COPD: 2023 report <https://goldcopd.org/2023-gold-report-2/>
5. Lectures

#### **Additional:**

1. COPD: A Pediatric Disease.  
<https://www.tandfonline.com/doi/full/10.1080/15412550701815965?scroll=top&needAccess=true&role=tab>.  
Lectures.
2. Chronic bronchitis, pediatric. <https://elsevier.health/en-US/preview/chronic-bronchitis-pediatric>
3. Bronchiectasis in children: Clinical manifestations and evaluation  
<https://www.uptodate.com/contents/bronchiectasis-in-children-clinical-manifestations-and-evaluation>
4. Pneumosclerosis. [https://m.liveok.com/health/pneumosclerosis\\_75443i15943.html](https://m.liveok.com/health/pneumosclerosis_75443i15943.html)

### **Key questions covered in lesson 4: Asthma in children (2h.)**

1. Asthma. Definition.
2. Etiology. Types of allergens, irritants, risk factors for asthma
3. Pathogenesis of bronchial obstruction.
4. Leading clinical symptoms of asthma. Features of status asthmaticus.
5. Classification on severity and control of level asthma.
6. Instrumental and laboratory diagnostic criteria. Lung function
7. Treatment of exacerbation asthma and status asthmaticus.
8. Step-therapy of bronchial asthma
9. Complications of asthma

### **Recommended reading for the lesson 4:**

#### **Basic:**

1. GHAI. Essential pediatrics. Ninth edition. P. 382-390.
2. Nelson. Textbook of pediatrics. 20<sup>th</sup> edition.
3. Pocket book. WHO. Hospital care for children. 2<sup>nd</sup> edition. 2013. Asthma P.96.
4. Pocket Guide for Asthma management and prevention. 2021. <https://ginasthma.org/wp-content/uploads/2021/05/GINA-Pocket-Guide-2021-V2-WMS.pdf>
5. Pervez Akbar. Basic of Pediatrics. Tenth edition. P. 243-270
6. Lectures.

#### **Additional:**

8. CDC. Publications on Asthma. [https://www.cdc.gov/asthma/resources\\_professionals.html](https://www.cdc.gov/asthma/resources_professionals.html)
9. Pediatric asthma. Jenna M. Lizzo; Sara Cortes. 2021. <https://www.ncbi.nlm.nih.gov/books/NBK551631/>
10. GINA. Global strategy for asthma management and prevention. Updated 2022. <https://ginasthma.org/wp-content/uploads/2022/07/GINA-Main-Report-2022-FINAL-22-07-01-WMS.pdf>

### **Key questions covered in lesson 5: Cystic Fibrosis in children (2h.)**

1. Cystic fibrosis in children. Etiology. Pathogenesis.
2. Leading clinical symptoms of cystic fibrosis in children.
3. Criteria for the diagnosis of cystic fibrosis.
4. Diagnostic criteria for cystic fibrosis.
5. Complications (pulmonary heart, malabsorption syndrome, multiple organ failure) and their manifestations.
6. Principles of treatment.

### **Recommended reading for the lesson 5**

#### **Essential:**

1. GHAI. Essential pediatrics. Ninth edition. P. 392-393.
2. Nelson. Textbook of pediatrics. 20<sup>th</sup> edition. Cystic fibrosis P. 2098—2113.
3. Pocket book. WHO. Hospital care for children. 2<sup>nd</sup> edition. 2013.
4. Pervez Akbar. Basic of Pediatrics. Tenth edition. P. 243-270
5. Lectures



**Methodological instructions for the implementation of independent work on the discipline**

Student need to prepare the abstract /presentation/poster/essay/infographics/clinical case

Requirements for the implementation of the abstract/ essay presentation:

- ✓ Given by electronic and printed form / 2 slide on page and short notes,
- ✓ Typed in Times New Roman 12, 1.5 interval / escape much text in slide in ppt.
- ✓ The first page/slide should contain the full name of the student, group, semester, the name of the abstract, the data of teacher, the filing date of the abstract.
- ✓ Contain parts: introduction, main part, findings / conclusions, list of references, resource.
- ✓ The total essay 6 - 7 pages.