

**Ministry of Health of the Republic of Belarus
Education Institution
"Gomel State Medical University"**

Department of Pediatrics with the course of the Faculty of Advanced Training and Retraining

Author:

N.V. Motorenko, Assistant

I.V. Belomytseva, assistant

METHODOLOGICAL GUIDELINES

for a practical exercise
by a teacher with students
6th year of the Faculty of foreign students,
trainees in speciality 1-790101 in the discipline of pediatrics

Topic: Acute respiratory diseases. Respiratory failure.

Time: 7 hours

Approved at the meeting of the Department of Pediatrics with the Course of the Faculty of Advanced Training and Retraining
(protocol №. 8 of the 14th of June 2022)

2022

LEARNING AND EDUCATIONAL GOALS, OBJECTIVES, MOTIVATION FOR MASTERING THE TOPIC

Educational objective:

- Formation of students' basic professional competence in the study of the discipline of Pediatrics according to the curriculum
- The formation of students' scientific knowledge about diseases of the respiratory system and the prospects of their use in professional practice; abilities and skills necessary to work with patients of different ages, knowledge of the clinical manifestations of disease, treatment and diagnostic measures, the basics of rehabilitation and prevention.

Educational objective:

- Fostering in students a sense of professional responsibility of the future worker of medicine;
- Formation of professionally important and socio-psychological qualities of the doctor personality in the system of doctor-nurse-patient relations;
- formation of students' responsible attitude to their future professional activity;
- Formation of academic and work discipline, discussion of disciplinary questions (attendance of lectures and practical classes, unexcused absences, tardiness, debts on missed classes).

Objectives:

As a result of the study session, the student should

know:

- anatomical and physiological features of the respiratory organs in children, their clinical significance;
- The etiology of acute respiratory system diseases;
- pathogenesis of the main clinical syndromes in acute respiratory diseases;
- Clinical syndromes in acute bronchopulmonary pathology in children and their diagnostic value;
- stages of diagnosis of acute diseases of the respiratory system;
- the basic principles of treatment of children with acute respiratory diseases;
- principles of dispensary care for a child who has had acute pneumonia.
- be able to:
- collect the anamnesis in a child with respiratory diseases;
- objectively assess the condition of the respiratory organs and identify the main pathological syndromes;
- build an algorithm for diagnosing respiratory diseases with the specification of the lesion focus (rhinitis, pharyngitis, laryngitis, tracheitis, bronchitis, bronchiolitis, pneumonia).
- determine the group of nosologies to make a differential diagnosis;
- build a plan of examination of the child with respiratory pathology;
- make a treatment plan for a patient with acute respiratory pathology;

- to provide syndromic emergency care to a child with acute respiratory diseases in the development of emergency conditions (hyperthermic, convulsive, obstructive syndromes, neurotoxemia, laryngeal stenosis);
- make a plan of dispensary care for a child who has had acute pneumonia.

know:

- methods of objective (palpation, percussion, auscultation) and additional (measuring, laboratory, instrumental, histological, immunological, etc.) examination
- communication skills with patients of different age and their parents, medical personnel.

Motivation for mastering the topic:

- Obtained knowledge and skills during the study of the discipline of pediatrics allows to motivate students to improve theoretical and practical knowledge for the implementation of early diagnosis, treatment and complex rehabilitation measures for children with respiratory system diseases, tactics of emergency care.

MATERIAL EQUIPMENT

Tables on the theme of the lesson, medical records of inpatients, a set of hemograms, biochemical blood tests, sets of chest X-rays, computer tomograms of the lungs, bronchoscopy findings, the results of ultrasound heart and internal organs, electrocardiograms, spiograms, phonendoscope; scales, stadiometer, tape measure; task bank for independent work; selection of thematic patients in the hospital departments.

CONTROL QUESTIONS FROM RELATED DISCIPLINES

1. *"Normal Physiology", "Pathological Physiology"*:
 - Mechanism of gas exchange in the lungs.
 - The pathogens (microbes, viruses), capable of affecting the respiratory tract.
 - Pathophysiological mechanisms of the main pathological symptoms and syndromes (dyspnea, hypoxia, respiratory failure, cardiovascular syndrome, obstructive syndrome).
 - Pathomorphological changes of respiratory tract in acute and chronic respiratory diseases in children.
2. *"Human Anatomy"*:
 - Anatomico-physiological features of the respiratory system in children.
3. *"Microbiology"*:
 - Name the major causative agents of acute pneumonia in young and older children. Give the characteristic of pathogens.
 - Name the main biological fluids in which the causative agent of pneumonia can be identified.
4. *"Pharmacology"*:
 - Mechanisms of pharmacological action of drugs used in the treatment of acute respiratory diseases.
 - Classification of antibiotics.
5. *"Infectious Diseases"*.
 - Pathogens (microbes, viruses), capable of affecting the respiratory tract.
6. *"Emergency Care in Pulmonology"*.

- Treatment of emergency conditions in pulmonology and allergology: stenotic laryngotracheitis, obstructive bronchitis, hyperthermic syndrome, anaphylactic shock.

CONTROL QUESTIONS ON THE TOPIC OF THE CLASS

1. Etiopathogenesis, classification of acute respiratory diseases in children of different ages.
2. Differential diagnosis of lesions of the upper and lower respiratory tract.
3. Pulmonary and extrapulmonary complications of pneumonia.
4. Respiratory failure syndrome. Respiratory diseases occurring with respiratory failure syndrome.
5. Modern principles of treatment of complicated and uncomplicated forms of respiratory pathology.
6. Treatment of respiratory failure

PROCESS OF THE STUDY

Introduction

In preparation for practical occupation the clinical protocols of examination and treatment of patients, normative-legal documents, educational-methodical grants, modern medical sources (section of literature) are used.

In the course of teaching the following types of educational activities are implemented: lecture, seminar and practical class, guided self-study of students.

When conducting practical training, educational technologies are used: presentations, training computer programs, lectures, tables, group work, etc.

Current control of progress in the discipline is carried out in several ways:

- 1) oral questioning of students in seminars;
- 2) written assignments (solving situational tasks, test examinations, composing hemograms, etc.)
- 3) written answer to one of the control questions on the topic, justification of clinical diagnosis, definition of examination programme;
- 4) writing and defending an essay.

Intermediate attestation is carried out in the oral format

Theoretical part.

Acute respiratory diseases in children occupy a leading place in the statistics of general morbidity and constitute a large polyetiological group, united not only by localization of process, but also largely epidemiological similarity. This group includes both mild diseases such as rhinitis and pharyngitis and extremely severe forms (epiglottitis, croup) with high mortality rate. The structure of diseases of respiratory system is essentially influenced by age anatomico-physiological features closely connected with morphological and functional immaturity of respiratory organs.[5]

Practical part

Students are instructed, attention is paid to the rules of the internal schedule, the peculiarities of work in the pediatric department ¹ 3 (profile pulmonology). The selection of patients is carried out in accordance with the theme of the lesson. During the practical work the student must carry out:

- collection of complaints and anamnesis of the disease,
- clinical examination of the child,
- making a preliminary diagnosis and drawing up an examination plan,
- interpretation of the results of laboratory and instrumental methods of investigation,
- Formulation of the final clinical diagnosis,
- Formulation of a treatment and rehabilitation plan,
- Writing prescriptions for medications.

Control of assimilation of the topic

1. Demonstration of case studies with analysis of clinical cases:

acute rhinopharyngitis

Acute stenotic laryngotracheitis, stenosis of II degree

Acute stenotic laryngotracheitis, stenosis I

Acute stenotic laryngotracheitis, stenosis III

acute obstructive bronchitis DN I

Acute obstructive bronchitis DN II

acute bronchiolitis

acute epiglottitis

acute pneumonia

acute pneumonia complicated by exudative pleurisy

2. Decipher the suggested lung radiographs in children.

3. Solution of situational tasks

Task 1

A 6-month-old girl was admitted to the clinic with her mother complaining of high body temperature, shortness of breath, spastic cough with hard to remove sputum. The child became ill 4 days ago. The illness started with high fever, nasal discharge, conjunctivitis, coughing.

The child is the result of a normal first pregnancy. Body weight at birth was 3000. Since 2 months of age she was on artificial feeding. Till this moment had two respiratory infections.

On admission her body weight was 5700, her condition was severe, dyspnea of expiratory type, spastic cough. Percussion sound over the lungs, auscultation - rigid breathing, on both sides - numerous moist small bubbling and dry whistling rales. BF is 60 per minute. The heart is not enlarged in size. Tones were rhythmic and muffled. The heart rate was 160 beats per minute. The abdomen was soft, the liver protruded 2.5 cm from under the rib cusp, the spleen was not palpable. Stools were passed once a day, clear. Urination was normal.

General blood count, er. - He had $3.8 \times 10^{12}/l$, Hb - 110 g/l, L - $10 \times 10^9/l$, e - 3%, stab neutrophils - 10%, s - 50%, l - 28%, m - 9%, sed rate - 10 mm/hour.

QUESTIONS:

1. Formulate a preliminary diagnosis.
2. Highlight the main clinical symptoms of the disease.
3. State the etiological factors of the disease.
4. Specify the examination plan.
5. Prescribe treatment with the indication of doses.

Task 2.

A 3-year-old child fell ill acutely with body temperature rising to 37.90°C. His nose was stuffy, he refused to eat.

His condition was of medium severity. The symptoms of intoxication were moderate. The skin was clean. The back wall of the pharynx was hyperemic and granular. Breathing through the nose is difficult. Breathing in the lungs was rigid, BP 28 per minute. Heart tones were ringing and rhythmic, heart rate 120 per minute. The abdomen was soft and painless. Stool and diuresis were normal.

Your presumptive diagnosis. Doctor's tactics.

Task 3.

A 10-year-old child complains of dry painful cough, fever up to 38° C, pain in the right side of the chest when coughing, decreased appetite, weakness.

She became acutely ill when the above symptoms appeared. A district doctor prescribed paracetamol, her condition did not improve, her cough intensified. A follow-up examination by a district doctor revealed bright cheek hyperemia, up to 26 breaths per minute, nonpigmented serous discharge from the nose, hyperemia of the palatine palps and the posterior pharyngeal wall. Percussion revealed shortening of the percussion sound on the right side below the angle of the scapula; auscultatively, there was weakened breathing, inconstant crepitation. Heart tones are loud, rhythmic, moderate tachycardia up to 110 per minute. There were no changes in other organs.

Five days ago, the youngest brother fell ill with acute respiratory infections.

QUESTIONS:

1. Make a preliminary diagnosis and justify it.
2. Outline a plan for examining the child.
3. Where should this child be treated, at home or as an inpatient? Justify why?
4. Make a treatment plan for this patient. Prescribe the treatment and indicate the dosage.

GUIDELINES FOR ORGANIZING AND CARRYING OUT THE SIW

Students use the time allotted for independent work for:

- *working through the topics (issues) assigned for independent study;*
- *problem solutions;*
- *carrying out research and creative assignments;*
- *preparing thematic reports, presentations;*
- *completing practical assignments;*
- *designing information and demonstration materials (stands, posters, charts, tables, newspapers, etc.);*
- *compilation of thematic selection of literary sources, Internet sources;*
- *duty in health care organizations;*
- *making a review of scientific literature on the issues of the class.*
- *preparation of lectures, talks with patients on the prevention of respiratory diseases and the formation of a healthy lifestyle;*
- *drawing up situational problems on the topic of the class.*

The main methods of organizing independent work:

- *making a report;*
- *The study of topics and problems not covered in the classroom;*
- *preparation and participation in active forms of learning.*

The list of tasks of the SIW:

- *study of clinical guidelines (examination and treatment protocols for children) with acute laryngotracheitis, acute bronchitis, acute pneumonia, cystic fibrosis, bronchial asthma, bronchiectatic disease.*

- *Making situational tasks on the topic of the class:*

acute rhinopharyngitis

Acute stenotic laryngotracheitis, degree II stenosis

Acute stenotic laryngotracheitis, stenosis I degree

Acute stenotic laryngotracheitis, stenosis III

acute obstructive bronchitis DN I

Acute obstructive bronchitis DN II

acute bronchiolitis

acute epiglottitis

acute pneumonia

Acute pneumonia caused by exudative pleurisy

Write prescriptions for the main groups of drugs used in pulmonology.

Perform research work on the topic of the class.

METHODOLOGICAL RECOMMENDATIONS ON THE ORGANIZATION AND IMPLEMENTATION OF THE SSR**The recommended forms of GSSS organization are:**

- 1. preparation of essays on proposed topics;*
- 2. solving case studies on the subject of the class*
- 3. tests on the subject of the lesson.*

List of GSSS tasks:**1.Prepare an abstract on the proposed topic:**

- *Cortagener's syndrome.*
- *Congenital malformations of the respiratory system*
- *Screening and diagnosis of hereditary and congenital respiratory diseases*

2.Solution of situational tasks:

Task 1. A 5-month-old baby, body weight 5800 g, is on mixed feeding.

The child's mother complains of coughing, body temperature increase up to 38.7C. From the medical history. A week ago, the child's mother had the flu. At that time, the child was coughing, body temperature suddenly increased to febrile digits, the child became restless, coughing became frequent. The child received paracetamol on an outpatient basis.

On admission, the child's condition was severe due to symptoms of intoxication and respiratory failure. Skin was pale, slight cyanosis of the nasolabial triangle. BF- 50 per 1 min. Above the lungs on the posterior surface of the chest on the upper right, percussion sound was shortened, moist small bubbling rales and crepitations were heard. Heart tones are muffled. The heart rate is 120 per 1 min.

The liver protrudes from under the edge of the rib arch by 3 cm. The stool was mushy, yellow, without pathological impurities 5 times a day. Diuresis was sufficient.

The general blood count was as follows: red blood cells - $3.8 \times 10^{12}/l$; hemoglobin - 106 g/l; CP - 0.83; leukocytes - $15.2 \times 10^9/l$, eosinophils - 4%, stab neutrophils - 12%, segmented neutrophils - 52%; lymphocytes - 24%, monocytes - 8%; sed rate - 46 mm/hr. Toxic granularity of leukocytes, hypochromia of erythrocytes were noted.

On chest X-ray: small focal shadows in the medial parts of the right lung, intensification of the lung pattern.

1. Identify the pathological syndromes.
2. Formulate a clinical diagnosis.
3. apply treatment to the patient.

Task 2. A 6-year-old child had a body temperature of 39.0°C three days ago, and cough appeared. The disease is associated with hypothermia. On admission, his body temperature was 38.7°C . Cough was frequent and moist. The skin was clean, of normal color. Hyperemia of the pharynx arches was noted. The number of breaths was 24 per minute. Comparative percussion of the lungs reveals shortening of the percussion tone under the left scapula. Auscultation revealed moist small bubbling rales on the left side of the lower lung. The heart rate was 102 per minute. Heart sounds are loud and rhythmic. The abdomen was soft, painless, and the liver was not enlarged. The stools were regular and regular. The urine is painless.

Your presumptive diagnosis. Examination plan. Prescribe treatment.

Task 3. A 7-year-old child fell ill acutely after hypothermia, his temperature rose to 39.0°C , he had a painful dry cough, and headache. The child originated from the first pregnancy, which was terminated throughout, and the first premature birth. Respiratory distress syndrome during neonatal period. He was on artificial feeding from birth. During his first year of life he had three respiratory infections. In the following years the child had frequent acute respiratory infections (4-5 times a year), had lacunar angina, chickenpox and rubella. He suffers from multivalent (food, medicinal) allergies. He was vaccinated according to his age and had not had any reactions to his vaccinations. On examination at home: condition was severe, complained of headache, dry cough. Skin was pale, with "marbled" pattern. Mucous membranes were clean and dry. Pharynx hyperemic. Breathing was grunting. Breath rate was 32 per minute. The chest was bloated, with the right side lagging behind in breathing. Percussion: on the right side, below the scapula, there is a bluntness of percussion. Auscultatively: breathing is rigid, weakened over blunted area, no rales. Heart sounds are loud, no murmurs, heart rate 120 beats per minute. The abdomen is soft and painless. The liver is at the edge of the rib arch, the spleen is not palpable.

Additional data to the task on pediatrics

General blood work: Hb - 115 g/l, L - $18.6 \times 10^9/l$, p/l - 10%, s - 57%, e - 1%, l - 23%, m - 9%, sed rate - 28 mm/hour.

Chest radiography: intense darkening in the area of segments VIII and IX of the right lung.

Assignment to the pediatrics problem

1. Diagnose and justify the diagnosis.
2. What additional examinations should be performed?
3. What changes in the biochemical blood test do you expect?
4. Name the main links in the pathogenesis of the disease developed in the child.
5. What previous diseases contributed to the development of this form of the disease?
6. Carry out the differential diagnosis.
7. Prescribe treatment.

3. Test control

1. A two-year-old child started coughing and had a fever three days ago. The anamnesis shows that the child was playing with a wooden ball. Examination revealed breathing over the right lung, decreased excursion. Body temperature was 36.8°C. Which of the following is currently indicated for the child?
 1. antibiotics
 2. bronchoscopy
 3. bronchodilators
 4. Chest radiologic examination
 5. Physical therapy
2. In which cases is expiratory dyspnea observed?
 1. bronchitis
 2. bronchial asthma
 3. Croup
 4. Pharyngeal abscess
 5. In case of a foreign body
3. The causative agent of bacterial pneumonia in children is more often:
 1. Streptococcus group A
 2. Staphylococcus aureus
 3. Pneumococcus
 4. Haemophilus influenzae
 5. Group B Streptococcus
4. The cough reflex is stimulated with the following except:
 1. Vibration massage
 2. Irritation of the pharynx with a catheter when mucus is aspirated
 3. changes in body position
 4. the Icarus II machine
 5. Continuous nasal lavage
5. Factors contributing to the development of pneumonia in newborn infants include the following except:
 1. Pneumopathy
 2. Prematurity
 - Toxicosis in the first half of pregnancy

4. Influenza before delivery 6.
6. Acute pneumonia can be diagnosed by the following radiologic signs except:
 1. Pouring darkening in several segments
 2. Darkening of the lobe of the lung
 3. Darkening of segments with a clear pleural boundary
 4. Unclear pulmonary pattern
7. In acute pneumonia in older children, all of the following are most common except:
 1. Subfebrile fever for 5-7 days
 2. Enlarged spleen
 3. asthenic syndrome
 4. Respiratory failure.
8. In pneumonia, all of the following percussive sound changes are detected except:
 1. Shortening
 2. weakening
 3. Blunting
 - Bluntness
 5. Boxed
9. In acute pneumonia, the earliest symptom is:
 1. Dry spreading rales on both sides
 2. Large bubbling inconstant rales on both sides
 3. pale skin
 4. Shortening of percussion sound
10. Choose the sign on the basis of which the differential diagnosis between pneumonia and bronchiolitis can be made:
 1. dyspnea
 2. Moist small bubbling rales on auscultation
 3. weakened breathing
 4. Percussion findings
 5. Radiological findings
11. Staphylococcal pneumonia is indicated for treatment:
 1. Penicillin
 2. Methicillin
 3. ampicillin
 4. Cephalosporins
12. In pneumonia, the main factor in the occurrence of hypoxia is:
 1. Temperature rise
 2. Superficial breathing.
 3. Increased metabolism
 4. tachycardia
13. You have prescribed ampicillin for your child. How should it be taken?

1. Thirty minutes before a meal.
 2. 1.5 hours before a meal
 3. 30 minutes after a meal
 4. Regardless of meals
14. Which of the following drugs stimulates surfactant formation?
1. Mucosolvin
 2. Mucodyne
 3. Solutan
 4. Bromhexin
15. State the most appropriate treatment for a patient with severe pneumococcal pneumonia:
1. Penicillin intravenously
 2. Cephalosporin, gentamicin
 3. Glucocorticoids
 4. Therapeutic bronchoscopy
16. Specify the signs characteristic of mycoplasma pneumoniae:
1. acute onset
 2. Segmental and subsegmental lingering on lung radiographs
 3. Moist rales, crepitations
 4. large amount of sputum
 5. Hyperleukocytosis
17. Choose the first priority prescription for a patient with acute pneumonia complicated by exudative pleurisy:
1. Change of antibiotic
 2. Oxygen therapy
 3. Draining of the pleural cavity
 4. electrophysical therapy
 5. Appointment of hormonal drugs
18. On the basis of which study can respiratory failure be most correctly diagnosed?
1. history
 2. Physical examination of the patient
 3. Chest radiologic examination
 4. Spirographic examination
 5. Arterial blood gas (BHA) study
19. State the preferred antibiotic for mycoplasma pneumoniae:
1. tetracycline
 2. erythromycin
 3. levomycetin
 4. aminoglycosides
20. Initial therapy for pneumonia caused by Gram-positive flora should be:
1. Penicillin

2. erythromycin
3. levomycetin
4. tetracycline
21. At what age does croup pneumonia in children have a typical course?
 1. At infant age
 2. In early childhood
 3. At school age
22. Which of the following pathogens causes epiglottitis?
 1. Influenza virus
 2. Parainfluenza virus
 3. Respiratory syncytial virus
 4. Diphtheria bacteria
 5. Haemophilus influenzae bacillus
23. Which of the following pathogens most often causes bronchiolitis?
 1. Influenza virus
 2. Parainfluenza virus
 3. Respiratory syncytial virus
 4. Diphtheria bacteria
 5. Haemophilus influenzae bacillus.
24. Which of the following pathogens most often causes laryngotracheitis (croup)?
 1. Influenza virus
 2. Parainfluenza virus
 3. Respiratory syncytial virus
 4. Diphtheria bacteria
 5. Haemophilus influenzae bacillus.
25. In which cases is expiratory dyspnea seen?
 1. bronchitis
 2. bronchial asthma
 3. Croup
 4. Pharyngeal abscess
 5. In case of a foreign body

Answers: 1 - 4; 2 - 2; 3 - 3; 4 - 5; 6 - 4; 7 - 2; 8 - 5; 9 - 4; 10 - 5; 11 - 4; 12 - 2; 13 - 4; 14 - 4; 15 - 1; 16 - 2; 17 - 3; 18 - 5; 19 - 1; 20 - 1; 21 - 3; 22 - 5; 23 - 3; 24 - 2; 25 - 2.

Forms of GSSS performance control:

1. checking and evaluating the abstract on the given topic;
2. checking and evaluating the correctness of solving situational tasks
3. test control.

LIST OF REFERENCES

BASIC LITERATURE

1. Шабалов, Н. П. Детские болезни : учебник : в 2 т. – СПб : Питер, 2021. – Т. 1. – 880 с. – Режим доступа: <https://docplayer.com/215163401-Shabalov-n-p-sh12-detskie-bolezni-uchebnik-dlya-vuzov-tom-1-8-e-izd-spb-piter-s-il-seriya-uchebnik-dlya-vuzov.html> – Дата доступа: 28.05.2022.
2. Шабалов, Н. П. Детские болезни : учебник : в 2 т. – СПб : Питер, 2021. – Т. 2. – 896 с. – Режим доступа: <https://docplayer.com/215163401-Shabalov-n-p-sh12-detskie-bolezni-uchebnik-dlya-vuzov-tom-1-8-e-izd-spb-piter-s-il-seriya-uchebnik-dlya-vuzov.html> – Дата доступа: 28.05.2022.
3. Педиатрия = Pediatrics : учебник для иностр. студентов учреждений высш. образования по специальности "Лечеб. дело" / Н. С. Парамонова [и др.]. – Минск : Новое знание, 2021. – 597, [1] с.

SUPPLEMENTARY LITERATURE

1. Асирян, Е. Г. Клинико-иммунологическое обоснование применения иммунокорректирующего лечения у детей с бронхиальной астмой : монография / Е. Г. Асирян : УО «Витеб. гос. мед. уни-т», каф. Педиатрии. – Витебск : ВГМУ, 2018. – 242 с. : ил., табл. – Библиогр. : с.209-242. – Режим доступа: https://www.elib.vsmu.by/bitstream/123/20717/1/Asirian-EG_Kliniko-immunologicheskoe_obosnovanie_primeneniia_immunokorrigiruiushchego_1_echeniia_u_detej_s_bronkhial%27noj_astmoj_2018.pdf – Дата доступа: 28.05.2022.
2. Вёрткин, А. Л. Неотложная медицинская помощь на догоспитальном этапе [Электронный ресурс] : учебник / А. Л. Вёрткин, Л. А. Алексанян, М. В. Балабанова и др. ; под ред. А. Л. Вёрткина. - М. : ГЭОТАР-Медиа, 2016. - 544 с. – ISBN 978-5-9704-3579-3 – Режим доступа: <http://www.studmedlib.ru/book/ISBN9785970435793.html> – Дата доступа: 28.05.2022.
3. Детская пульмонология : нац. рук. / под ред. Б. М. Блохина. – Москва : ГЭОТАР-Медиа, 2021. – 957 с. : ил., табл. - (Национальные руководства). – Предм. указ.: с. 950-957 (НЛ) <https://www.rosmedlib.ru/book/ISBN9785970458570.html> – Дата доступа: 28.05.2022.

4. Зарянкина, А. И. Бронхиты у детей : учеб.-метод. пособие для студентов 4-6 курсов всех фак. учреждений высш. мед. образования, врачей-интернов, педиатров, врачей общ. практики, слушателей курсов повышения квалификации и переподгот. / А. И. Зарянкина, А. А. Козловский. – Гомель : ГомГМУ, 2018. – 17 с. – Режим доступа: <https://elib.gsmu.by/handle/GomSMU/3952> – Дата доступа: 28.05.2022.

5. Козловский, А. А. Бронхообструктивный синдром у детей : методическое пособие / А. А. Козловский. – Минск, 2016. – 24 с.

6. Кильдиярова, Р. Р. Детские болезни [Электронный ресурс] : учебник / под ред. Р. Р. Кильдияровой. – М. : ГЭОТАР-Медиа, 2015. – 832 с. – ISBN - Режим доступа: <http://www.studmedlib.ru/book/ISBN9785970429488.html> – Дата доступа: 28.05.2022.

7. Кильдиярова, Р. Р. Физикальное обследование ребенка [Электронный ресурс] : учеб. пособие / Р. Р. Кильдиярова, Ю. Ф. Лобанов, Т. И. Легонькова – М. : ГЭОТАР-Медиа, 2015. – 256 с. – ISBN 978-5-9704-3243-3 – Режим доступа: <https://www.rosmedlib.ru/ru/book/ISBN9785970432433.html> – Дата доступа: 28.05.2022.

8. Курат, Ш. Неотложные состояния в педиатрии : пер. с англ. / Ш. Курат, Б. Реш. – М. : Медицинская литература, 2018. – 264 с.

9. Неотложная помощь в педиатрии : пособие для студентов учреждений высш. образования, обучающихся по специальности 1-79 01 01 «Лечеб. дело» / М-во здравоохранения Респ. Беларусь, УО «Витеб. Гос. Мед. ун-т», каф. Педиатрии ; под ред И.М. Лысенко. – Витебск : Изд-во ВГМУ, 2018. – 298 с : табл. – Рек. УМО по высш. мед. образованию Респ. Беларусь. – Режим доступа: <https://elib.vsmu.by/handle/123/20179> – Дата доступа: 28.05.2022.

10. Пропедевтика детских болезней : учебное пособие для студентов учреждений высш. образования по специальности «Педиатрия» / под ред. М. В. Чичко, А. М. Чичко. – Минск : Мисанта, 2018. – 911 с. : ил., табл. + 1 электрон. Опт. Диск (CD-ROM). – Допущено М-вом образования Респ. Беларусь.

11. Таточенко, В. К. Болезни органов дыхания у детей / В. Т. Таточенко. – М., 2015. – 396 с. – Режим доступа: https://www.studmed.ru/rachinskiy-sv-tatochenko-vk-bolezni-organov-dyhaniya-u-detey_c83a09b21ea.html – Дата доступа: 28.05.2022.

12. Abbas, A. K. Basic immunology : functions and disorders of the immune system / A. K. Abbas, A. H. Lichtman, S. Pillai. – 5th ed. – St. Louis : Elsevier, [2016]. – 335 p. : col. ill., tab. – Mode of access: <https://www.pdfdrive.com/basic-immunology-functions-and-disorders-of-the-immune-system-d185969491.html> – Date of access: 28.05.2022.

13. Davidson's Principles and Practice of Medicine / ed. by Brian R. Walker, Nicki R. Colledge, Stuart H. Ralston, Ian D. Penman. – 22nd Edition. – Edinburgh [and oth.] : Elsevier, 2014. – 1372 p. : il. + Student consult online. – Mode of access: <https://www.pdfdrive.com/download.pdf?id=187180918&h=48127b36055c802e24ccae5f777f85c9&u=cache&ext=pdf> – Date of access: 28.05.2022.

14. Jones, T. Renal and urinary systems / T. Jones. – 4th ed. – Edinburgh [et al.] : Elsevier, Mosby, 2015. – viii, 144 p. : ill., phot., tab. + Student consult online. – (Crash course / ed. D. Horton-Szar). – Mode of access: <https://by1lib.org/dl/2461115/ca91dd> – Date of access: 28.05.2022.

15. **Introduction to pediatrics** / Н. С. Парамонова, В. С. Жемойтяк, П. Р. Горбачевский. – Гродно : ГрГМУ, 2012. – 360 с.

16. Nelson textbook of pediatrics. — 21th ed. / [edited by] Robert M. Kliegman [et al.] : Elsevier, 2020. – 4264 p. – Mode of access: <http://31.42.184.140/main/2394000/e4be57a004c31aeb7dc9c1943f0aeba6/%28E%C4%9Fitim%20Tanr%C4%B1s%C4%B1%29%20Robert%20M.%20Kliegman%20Joseph%20St%20Geme%20-%20Nelson%20Textbook%20of%20Pediatrics%2C%202-Volume%20Set-Elsevier%20%282019%29.pdf> – Date of access: 28.05.2022.

17. **Avery's neonatology. Pathophysiology and management of the newborn.** – 6th ed. / [edited by] MacDonald, Mhairi G.; Seshia, Mary M. K.; Mullett, Martha D. [et al.]. : LWW: Seventh edition, 2015. – 1216 p. – Mode of access: <https://edubookpdf.com/medical/nelson-textbook-ofpediatrics-21th-edition.html> – Date of access: 28.05.2022.

18. **Buonocore, G. Neonatology: A Practical Apparoach to Neonatal Disease** / G.Buonocore, R. Bracci, M.Weindling. – 2018. – 2528p – Mode of access: <https://link.springer.com/referencework/10.1007/978-3-319-29489-6#about> – Date of access: 28.05.2022.

ELECTRONIC DATABASES

1. Консультант студента. Электронная библиотека медицинского вуза. Расширенный пакет = Student consultant. Electronic library of medical high school. Extended package [Электронный ресурс] / Издательская группа «ГЭОТАР-Медиа», ООО «ИПУЗ». – Режим доступа: <http://www.studmedlib.ru> – Дата доступа: 28.05.2022. (Включает: «Электронную библиотеку медицинского ВУЗа»; ГЭОТАР-Медиа. Премиум комплект; Книги из комплекта «Консультант врача»).

2. Scopus [Electronic resource] / Elsevier. – Mode of access: <https://scopus.com> – Date of access: 28.05.2022.

3. Springer Medicine and Biomedical and Life science eBooks collections [Electronic resource] / Springer International Publishing AG. – Mode of access: <https://link.springer.com> – Date of access: 28.05.2022.

4. Springer Medicine Journals collection [Electronic resource] / Springer International Publishing AG. – Mode of access: <https://link.springer.com> – Date of access: 28.05.2022.