MINISTRY OF HEALTH OF THE REPUBLIC OF BELARUS
EDUCATIONAL INSTITUTION
BELARUSIAN STATE MEDICAL UNIVERSITY

APPROVED
by First Vice-Rector, Professor
_____I.N.Moroz
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Reg. # UD-Д.79-75/1920/edu.

CURRENT ISSUES OF PULMONOLOGY

Curriculum of higher educational institution in the educational discipline for the specialty:

1-79 01 01 General Medicine

2019

The curriculum is based on the educational standard of higher education in the specialty 1-79 01 01 «General Medicine», approved and enforced by the decree of the Ministry of Education of the Republic of Belarus in August 30, 2013 № 88, as amended and supplemented by the decree of the Ministry of Education of the Republic of Belarus in November 28, 2017 № 150.

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RECOMMENDED FOR APPROVAL:

by the 1st Department of Internal Diseases of the Educational Institution «Belarusian State Medical University»
(protocol # 1 of 30.08.2019);

by the Scientific Methodical Council of the Educational Institution «Belarusian State Medical University»
(protocol # 2 of 16.10.2019)

EXPLANATORY NOTE

«Current Issues of Pulmonology» is the educational discipline containing systematized scientific knowledge on etiology, pathogenesis, clinical manifestations, methods of diagnosis, treatment and prevention of main diseases and conditions encountered in pulmonological practice.

The curriculum of the discipline «Current Issues of Pulmonology» is aimed at studying the latest scientific data on etiology, pathogenesis, clinical manifestations, methods of diagnosis, treatment and prevention of respiratory diseases.

The aim of teaching and studying the educational discipline «Current Issues of Pulmonology» is the formation and acquisition of scientific knowledge about various diseases and conditions encountered in the practice of a pulmonologist, modern diagnostic methods, prescription of effective therapy and prevention of complications.

The tasks of studying the educational discipline are to acquire academic competencies by students based on the ability to self-search for educational and information resources, mastering the methods of acquiring and understanding knowledge about:

- factors of the external and internal environment in the development of respiratory diseases;
- causes and main mechanisms of the respiratory diseases pathogenesis;
- typical clinical manifestations of the respiratory system damage;
- modern diagnostic methods;
- strategies and tactics for the pulmonary patients management from the positions of evidence-based medicine.

The tasks of teaching the educational discipline include the formation of social, personal and professional competencies based on the knowledge and application of:

- methods of individual examination of pulmonological patients;
- tactics for making a diagnosis and differential diagnosis in respiratory system pathology;
- methods of making examination plan for a pulmonological patient and evaluation of obtained laboratory and instrumental data;
- methods and medications of the therapeutic treatment of respiratory diseases;
- methods of respiratory diseases prevention;
- emergency medical care in respiratory diseases.

Teaching and successful learning of the educational discipline «Current Issues of Pulmonology» is carried out on the basis of the knowledge and skills previously acquired by the students in the following disciplines:

Human Anatomy. The structure and functions of organs and systems. Individual, gender and age characteristics of the human body. Topography of internal organs and their anatomical and topographic relationships. The projection of internal organs on the surface of the body. X-ray anatomy. The influence of labor, physical

exercises, social conditions and environmental factors on the development and structure of the human body.

General Physiology. Physiological bases of activity of cells, organs, tissues and the whole human body in the conditions of its interaction with the environment. Physiological functions of the human body at various levels of organization, mechanisms of their regulation and self-regulation. The main indicators characterizing the normal state of the physiological functions of the human body and its systems. Physiological basis of healthy lifestyle.

Histology, Cytology, Embryology. Principles of organization and the histological structure of organs and systems, the tissue and cellular composition of their structural and functional units, the relationship of various tissues in the organs. General patterns of tissues and organs reaction to external influences, features of their radiosensitivity and radioresistance. Structural basis of homeostasis.

Pharmacology. Principles of pharmacodynamics and pharmacokinetics of drugs. Factors determining the therapeutic efficacy, side effects, allergenicity and toxicity of drugs. Main drug therapy for various pathological processes and the most common diseases. Prescription. Prescribtion of drugs in various dosage forms.

General Hygiene and Military Hygiene. Influence of the environment on health, hygienic value of air, soil, water, solar radiation. Diseases associated with adverse effects of climatic and social factors. Hygienic aspects of nutrition. Organization and implementation of preventive measures. Personal hygiene, hygienic requirements to the organization of mode of life, work, rest. Ecology and rational environmental management.

Microbiology, Virology, Immunology. Classification, morphological characteristics, genetics, physiology, ecology and evolution of microorganisms. Normal microflora of the human body. Etiology, pathogenesis, immunity and microbiological diagnosis, basis of specific treatment and prevention of bacterial, viral, fungal and protozoal diseases. Characteristic of opportunistic microorganisms. Opportunistic infections and their diagnosis. Health care-associated infections. The immune system of the human body, age peculiarities. Natural, anti-infectious, transplant and antineoplastic immunity. Allergy, immunological tolerance. Immunopathology, clinical and environmental immunology.

Pathological Physiology. General doctrine of the disease. Concepts and categories of pathology. Classification and nomenclature of diseases. Typical pathological processes. General patterns of occurrence and mechanisms of development of inflammation, tumor growth, fever, hypoxia, typical metabolic disorders, starvation, neurogenic dystrophies. Principles of correction of structural and functional disorders in typical pathological processes. General patterns of violations of various organs and systems of the human body. Mechanisms of compensation of functions and structures violation, principles of violations correction.

Pathological Anatomy. General pathological processes. Compensatory and adaptive processes. Immunopathology. General tumor growth issues. Pathological anatomy (classification, etiology, patho- and morphogenesis, structural characteristics at the macro and micro levels, pathomorphism, outcomes and complications,

thanatogenesis) of the heart and blood vessels, respiratory organs, gastrointestinal tract, biliary system, liver, kidneys; peculiarities in people of different age groups.

Propaedeutic of Internal Diseases. Age-related anatomical and physiological characteristics of organs and systems of the human body. Methods of examining healthy and sick people. Additional research methods and principles of the development of diagnostic programs. Diagnostic process. Semiotics and syndromes of the main lesions of organs and systems of the human body. The basis of a balanced diet in therapeutic diseases in various age groups. International Diseases Classification.

Radiodiagnosis and Radiotherapy. Radiation imaging methods (X-ray, radionuclide, ultrasound, magnetic resonance imaging, medical thermography) and radiation therapy methods (ionizing radiation, ionizing radiation in combination with other methods) of various diseases, their peculiarities in people of different age groups.

Topographic Anatomy and Operative Surgery. Layer-by-layer structure of anatomical regions. Organ interposition (syntopy), their skin projection (golotopiya), position over skeleton (skeletopy). Blood supply, innervation and lymph drainage in normal and pathological conditions.

Internal Diseases. Principles of subjective and objective (physical) diagnosis, main symptoms of respiratory diseases.

Professional Diseases. Etiology, pathogenesis, clinical picture, diagnosis, treatment, medical and social examination (MSE) and prevention of diseases caused by adverse conditions of the labor process.

The study of the educational discipline «Current Issues of Pulmonology» should ensure the formation of students' academic, social, personal and professional competencies.

Academic Competency Requirements

A specialist should:

– be able to apply basic scientific and theoretical knowledge to solve theoretical and practical problems.

– be able to work independently.

– have an interdisciplinary approach to solving problems.

Requirements for social and personal competencies of a specialist

A specialist should:

– possess health care skills.

Requirements for professional competencies of a specialist

A specialist should be able to:

Preventive help:

– apply knowledge of structure and function of the organism in norm and pathology, peculiarities of life organization in population level;

– use knowledge of basic physical, chemical, biological and physiological patterns of human body activity in norm and pathology.

Health care:

– provide medical care for the most common diseases, injuries, disorders, including urgent and life-threatening conditions;

– use medical diagnostic equipment;

– apply modern methods of diagnosis and treatment of diseases in various stages of medical care;

– apply techniques and methods of rehabilitation treatment;

– independently acquire and use in practice new knowledge and skills including new areas of knowledge.

Expert advisory activities:

– diagnosis human health;

– use basic laws of natural science disciplines in his/her professional activity, apply the knowledge and skills acquired in general professional disciplines to preserve, restore and improve the health of the population;

– apply skills of professional behavior (deontology), know and observe standards of medical ethics.

As a result of studying the educational discipline «Current Issues of Pulmonology» the student should

know:

– main symptoms of illnesses / injuries of the respiratory system that require emergency care;

– basic principles of cardiopulmonary resuscitation;

– etiology, pathogenesis, classification, clinical manifestations and differential diagnostic signs of respiratory diseases that require routine and emergency medical care;

– principles of conservative therapy and indications for surgical treatment including lung transplantation;

be able to:

– use basic methods of general clinical examination of patients in the pulmonology department and evaluate their results;

– evaluate the results of the main methods of laboratory and instrumental examination of patients;

– substantiate the clinical diagnosis;

– carry out cardio-pulmonary resuscitation;

– fill in medical records;

– make differential diagnosis based on the results of laboratory and instrumental research methods;

– choose an adequate medical and organizational tactics for managing patients with respiratory pathologies;

master the skills of:

– emergency care methods;

– recording and interpreting an electrocardiogram;

– performing pleural cavity aspiration in patients with pleural effusion;

– determination of ABO blood grouping and Rhesus factor;

– subcutaneous, intramuscular and intravenous infusions;

– the chest compressions method;

– mechanical ventilation with simple methods.

Total number of hours for the discipline study is 54 academic hours. Classroom hours according to the types of studies: practical classes – 28 hours, student independent work (self-study) – 26 hours.

Current assessment is carried out according to the syllabus of the specialty in the form of a credit (11/12 semester).

Form of higher education - full-time.

ALLOCATION OF ACADEMIC TIME ACCORDING TO THE SEMESTERS OF STUDY

Code of the specialty	Semester	Number of training hours					Form of assessment
		Total	Classroom	of which		Out-of-class self-study	
				Lectures	Laboratory classes (practical classes or seminars)		
1-79 01 01 «General Medicine»	12	**54**	28		28	**26**	Credit

THEMATIC PLAN

Section (topic) name	Number of class hours	
	lectures	practical
1. Differential diagnosis of dyspnea	-	7
2. Secondary changes in the lungs	-	7
3. The significance of interstitial lung disease in the general practitioner's practice	-	7
4. A new look at pulmonary edema	-	7
Total hours	-	**28**

EDUCATIONAL MATERIAL CONTENTS

1. Differential diagnosis of dyspnea

Differential diagnosis of acute dyspnea. Acute respiratory failure (ARF): diagnosis and emergency care.

Differential diagnosis of slowly developing shortness of breath.

a-1-antitrypsin deficiency.

Secondary bronchial obstruction syndrome caused by tuberculosis, cancer, circulatory failure, pulmonary embolism, Mendelson's syndrome, aspergillosis, lesions of the central nervous system and others.

New in the diagnosis and treatment of bronchial obstruction syndrome.

2. Secondary changes in the lungs

Lung changes in infective endocarditis, sepsis.

Hypereosinophilic syndrome.

Changes in the lungs in pulmonary embolism (PE).

Pulmonary manifestations of tumors of various localization.

Pulmonary manifestations of amyloidosis.

3. The significance of interstitial lung disease in the general practitioner's practice

Occupational lung diseases.

Drug damage of the lungs.

Lung lesions in diffuse connective tissue diseases.

The differential diagnosis and emergency care in hemoptysis and pulmonary hemorrhage.

Indications for lung transplantation.

4. A new look at pulmonary edema

The role of viruses in the acute respiratory distress syndrome development.

Toxic pulmonary edema.

Differential diagnosis of pulmonary edema.

Current approaches to diagnosis and treatment of acute respiratory distress syndrome.

Etiology and pathogenesis of pulmonary heart disease.

Septic shock.

EDUCATIONAL METHODICAL CARD OF THE EDUCATIONAL DISCIPLINE « CURRENT ISSUES OF PULMONOLOGY »

Number of theme, section	Section (topic) name	Number of class hours		out-of-class selfstudies	Equipment	Form of knowledge assessment
		lectures	practical			
1	Differential diagnosis of dyspnea	-	7	6	Multimedia projector	Interview, tests, control work
2	Secondary changes in the lungs	-	7	7	Multimedia projector	Interview, tests, control work
3	The significance of interstitial lung disease in the general practitioner's practice	-	7	6	Multimedia projector	Interview, tests, control work
4	A new look at pulmonary edema	-	7	7	Multimedia projector	Interview, tests, control work, credit
	Total hours		**28**	**26**		

INFORMATION AND METHODICAL PART

LITERATURE

Basic:

1. Conn's Current Therapy 2016 / E.T.Bope, R.D.Kellerman. – Elsevier 2015. – 1344 p.
2. Harrison's Principles of Internal Medicine / D.I.Casper [et al.]. – 19th ed. – McGraw-Hill Education, 2015. – 3000 p.
3. Internal Medicine Bulletpoints Handbook: Intended For: Healthcare Practitioners and Students at all Levels / R.M.Gullberg. – 1st ed. –BookBaby 2015 – 117 p.

Additional:

4. Clinical Pulmonology / C.G.Weber. – 16th ed. – Pacific Primary Care Software. PC, 2013. – 856 p.
5. Comprehensive Clinical Pulmonology / R.J.Johnson, J.Feehally, J.Floege. – 5th ed. – Saunders, 2014. – 1320 p.
6. Kelley's Textbook of Pulmonology : Expert Consult Premium Edition / G.S.Farestein [et al.]. – 9th ed. – Saunders, 2012. – 2292 p.
7. Mayo Clinic Cardiology. Concise Textbook / ed. G.J.Murphy, M.A.Lloyd. – 4th ed. – Oxford University Press, 2012. – 1120 p.
8. Murray & Nadel's Textbook of Respiratory Medicine / V.C. Broaddus [et al.]. – 6th ed. – Elsevier, 2015. – 2064 p.
9. The Bethesda Handbook of Clinical Hematology / G.P.Rogers N S Yong. – 3rd ed. – LWW, 2013. – 512 p.

LIST OF USED DIAGNOSTIC METHODS

The following forms are used to diagnose the competencies:

1. Oral form:
   - interview;
2. Written form:
   - tests;
   - control works;
3. Oral-written form:
   - credits.

LIST OF PRACTICAL SKILLS

1. Anamnesis taking, examination, percussion, palpation, auscultation of all organs and systems of the patient.
2. Formulation and justification of the preliminary diagnosis.
3. Planning a patient examination.
4. Drawing up a treatment plan taking into account the preliminary diagnosis.

5. Formulation of a complete diagnosis, carrying out necessary differential diagnostics.

6. Recording the electrocardiogram and its interpretation.

7. Carrying out peak flowmetry and its interpretation.

8. Aspiration of the pleural cavity with pleural effusion.

9. Performing primary cardiopulmonary resuscitation. Providing emergency medical care for asthma attacks, pulmonary thromboembolism, pulmonary edema, acute allergic reactions, pulmonary hemorrhage.

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Curriculum content, composition and accompanying documents comply with established requirements.

Dean of the Medical Faculty for International Students of the Educational Institution «Belarusian State Medical University» — O.S.Ishutin
15. 10. 2019

Methodologist of the Educational Institution «Belarusian State Medical University» — S.V.Zaturanova
17. 10. 2019

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