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**I. K. Akhunbaev Kyrgyz State Medical Academy**  
**Educational and Methodological Association for Higher Medical and**  
**Pharmaceutical Education at the MES KR**

**CATALOG OF COMPETENCIES**

**in the specialty "Pulmonologist"**

**POSTGRADUATE LEVEL**

**Bishkek 2020**

**Catalog of Competences (postgraduate level) specialty "Pulmonologist (respiratory specialist)"** developed by a working group consisting of: Sooronbaev T. M. (chair), Isakova, G. B. (Vice-Chairman), Estebesova B. M., Masaidova A. J., Mambetalieva A. S., T. J. Doolotova, Tilekeeva S., Isakova A., Kemelova J. K., B. R. Osmonov

External consultancy: Director of the reformation project of medical education, Professor Louis Louton (Switzerland); Director of the educational program HERMES, Professor at the University Hospital of Zurich SilviaUlrich (Switzerland) and Head of the Department of Respiratory Medicine at the University Hospital of Zurich, Professor Konrad E. Bloch.

The catalog was reviewed by: the staff of the I. K. Akhunbaev KSMA, academician M. Mirrakhimov, NCCT, Medical Faculty of the B. N. Yeltsin KRSU, S. B. Daniyarov KSMIRAT

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## **Explanatory note**

Currently, the Kyrgyz Republic is actively implementing health sector reforms. The system of medical education is undergoing significant changes, as one of the fundamental systems that provide practical healthcare with highly professional personnel.

As part of the ongoing reforms in the health sector, the course is taken to improve the provision of medical care in all its branches, including specialized medical care, which in turn requires the need for training highly qualified medical personnel of a new generation, with a large number of skills.

The role of the pulmonologist/respiratory specialist is one of the main ones, due to the high prevalence of respiratory diseases, high rates of burden and mortality from respiratory diseases in Kyrgyzstan.

The task of health education organizations within the framework of the reforms carried out in the medical education system is not to increase the number of medical personnel, but to improve the quality and compliance of their training, according to the changing needs of the population.

In this regard, a new catalog of competencies of a pulmonologist (respiratory specialist) has been revised and developed.

When developing this competence catalog, the following documents are taken as a basis: materials of the state educational standard of postgraduate medical education in the specialty "Pulmonologist (respiratory medicine)", the educational program of the European Respiratory Society HERMES (Harmonizing Education in Respiratory Medicine for European Specialists), and "Swiss Catalog of Learning Objectives for Undergraduate Medical Training"; 2016.

In developing the instrument is also taken into consideration international standards training of doctors of narrow specialties, but particularly taken into account the fact that the duration of postgraduate training of specialists of therapeutic disciplines is 2 years after completion of residency training in the specialty "doctor of general practice" in accordance with the new "Strategy for the development of postgraduate and continuing medical education in the Kyrgyz Republic for the period 2014-2020.", approved by Ministry of Health of the Kyrgyz Republic dated 18.05.2015 for No. 248.

## **Chapter I. General provisions**

### **1.1. General part**

Pulmonology / respiratory medicine - is a discipline dealing with prevention, diagnosis and treatment of respiratory diseases, research and implementation of new technologies, in close connection with allergy/immunology, sleep medicine, intensive care, thoracic surgery, Phthisiology, radiation medicine, pathology, examination of disability and other branches of medicine.

In many countries of the world, specialists dealing with diseases of the lungs and respiratory tract are called "respiratory specialists" or doctors "respiratory medicine", in this connection, we have determined the equivalence of the terms "pulmonology" and "respiratory medicine".

### **1.2. The definition of the term "pulmonologist/respiratory specialist"**

Pulmonologist / respiratory specialist is a doctor dealing with prevention, diagnosis and treatment of respiratory diseases, research and implementation of new technologies, in close connection with allergy/immunology, sleep medicine, intensive care, thoracic surgery, Phthisiology, radiation medicine, pathology, examination of disability and other branches of medicine.

### **1.3. Basic principles of medical practice of a pulmonologist.**

The pulmonologist uses the following principles in his work:

- open and unrestricted access to medical care (since respiratory medicine is a frequent pathology in the health care system);
- simultaneous treatment of acute, chronic respiratory diseases and comorbid conditions in cooperation with other specialists;
- preventive orientation to prevent the impact of risk factors the development of respiratory diseases by informing the population and risk groups;
- long-term management/management of patients with chronic respiratory diseases;
- evidence-based medicine and cost-effectiveness;

### **1.4. Purpose of the document**

This Catalog of Competencies should become part of the regulations for postgraduate training and, therefore, valid for all postgraduate training programs in the specialty of pulmonology/respiratory medicine.

**Based on the catalog of competencies of a pulmonologist:**

**defined by:**

- the purpose and content of postgraduate training of a pulmonologist/respiratory doctor;
- the level of professional competence, knowledge and practical skills of a pulmonologist/respiratory doctor

**developed by:**

- pulmonologist/respiratory training programs;
- criteria for assessing the quality of training of a pulmonologist/respiratory doctor;
- standard requirements for the certification of a pulmonologist/respiratory doctor;
- standards of examination, treatment, rehabilitation and follow-up of patients.

**organized by:**

- educational process;
- professional orientation of medical graduates;

**conducted by:**

- attestation of pulmonologists/respiratory doctors.

### **1.5. Users of the document.**

According to the purpose of the document, the users are:

- Ministry of Health;
- educational organizations;
- health organizations;
- professional associations;
- medical practitioners;
- clinical residents;
- other interested parties.

## **Chapter 2. General tasks and competencies**

This chapter lists the general competencies that a pulmonologist should have. The general competencies presented in the Catalog are consistent with international recommendations and approaches that have been summarized by the Royal Society of Physicians of Canada. According to this approach, a pulmonologist should be not only a professional in his field, but also a

manager, a specialist in communication skills, a promoter of a healthy lifestyle, a research scientist.

### **2.1. A pulmonologist/respiratory doctor, as a medical specialist/expert**

Pulmonologist/respiratory doctor, as a medical specialist/expert - this is a doctor who has received special multidisciplinary training to provide specialized care.

As a specialist, he provides care to patients within the limits of his professional competence, based on the principles of evidence-based medicine

#### **The competence of the pulmonologist/respiratory medicine doctor:**

- to take care of the pulmonary health of the population (to assess the risks to the health of patients, to give advice on maintaining and strengthening health, maintaining a healthy lifestyle, both physically and mentally);
- to treat patients in cooperation with representatives of other specialties, duly respecting their right to self-determination;
- collect anamnesis, complaints and clinical examination of patients with respiratory diseases, interpret the information obtained during the collection of anamnesis and clinical examination, prescribe and conduct the necessary examinations and conduct differential diagnostics, followed by determining the patient's management plans.
- perform the surveys and procedures provided for in the competence catalog for pulmonologist/respiratory doctor
- advise patients and their families on the formation of a healthy lifestyle and prevention of respiratory diseases;
- carry out all diagnostic and therapeutic measures, taking into account the availability, effectiveness and safety.
- store and protect medical information properly;
- constantly increase, maintain and expand professional knowledge and skills.

### **2.2. Communication skills**

Pulmonologist / respiratory doctor is able to:

- build trusting relationships with patients, their families, and other close relatives;
- get the necessary information from patients and their relatives to form the correct diagnosis and determine the tactics of its management.
- be able to inform the patient about possible risks during diagnostic and therapeutic measures and, if necessary, obtain written consent;
- make a decision on the conduct of diagnostic and therapeutic procedures in the relation to incapacitated and underage patients with the participation and consent of their relatives;

- maintain the necessary medical records in an appropriate manner when managing patients;
- be able to empathize and report bad news, be able to analyze mistakes.

### **2.3. Teamwork skills**

The pulmonologist/respiratory doctor is able to:

- find a common language and cooperate with representatives of other specialties, especially with nurses who provide long-term follow-up to patients with chronic respiratory diseases;
- take into account the opinions of other specialists, as well as avoid conflicts by finding a compromise.

### **2.4. Management skills**

As a manager, a pulmonologist/respiratory doctor is able to:

- manage successfully, taking on management tasks that correspond to their professional position;
- effectively use limited health resources in the best interests of the patient, taking into account efficiency, adequacy and cost-effectiveness;
- evaluate and use relevant information for effective patient management;
- provide and improve the quality of medical care.

### **2.5. Health promotion and healthy lifestyle promotion skills**

Pulmonologist / respiratory doctor is able to:

- identify the factors that negatively affect human and social health and take the necessary measures to prevent their impact.

### **2.6. Research Scientist**

As a research scientist, pulmonologist/respiratory doctor is able to:

- constantly improve professional skills;
- obtain new knowledge from reliable international sources and use it in their professional activities;
- raise awareness among patients, medical students, doctors, government officials, and the public through their training
- promote the development, dissemination and implementation of new knowledge and methods;
- must participate in international research.

### **2.7. Knowledge in the field of professional ethics**

As a professional, a pulmonologist/respiratory doctor is able to:

- to carry out their professional activities in accordance with high quality standards, demonstrating a responsible and careful attitude;
- practice while respecting the legal aspects of their activities.

### **Chapter 3. Professional tasks and competencies that must be acquired in the specialty**

The pulmonologist/respiratory doctor is obliged to master the following types of activities and their corresponding personal tasks for providing specialized pulmonological/respiratory care to the population, in accordance with the regulatory documents of the Kyrgyz Republic:

- diagnosis, treatment, prevention and rehabilitation of respiratory diseases;
- providing emergency care to respiratory patients;
- performing medical manipulations, according to the list of competencies;
- organizational and managerial activities.

#### **The professional competencies of a pulmonologist are characterized:**

##### **In diagnostic activities:**

- Ability and readiness to make a diagnosis based on a diagnostic study in the field of respiratory diseases
- Ability and readiness for differential diagnosis of diseases on the basis of based on diagnostic studies in the field of respiratory diseases
- The ability and willingness to identify the main pathological symptoms and syndromes of respiratory diseases in patients, using knowledge of the basics of medical, biological and clinical disciplines, taking into account the laws of the course of pathology in organs, systems and the body as a whole; to analyze the patterns of functioning of organs and systems in respiratory diseases and pathological processes;
- Use the algorithm for making a diagnosis (main, concomitant, complications), taking into account the International Statistical Classification of Diseases and Health Problems (ICD)
- Perform basic diagnostic measures to identify urgent and life-threatening conditions in respiratory diseases and diseases of internal organs;

##### **In medical activities:**

- Ability and willingness to perform basic therapeutic measures in patients with respiratory diseases of one or another group of nosological forms that can cause severe complications and (or) death (diseases of the cardiovascular, endocrine, respiratory, digestive, urinary systems, blood, as well as rheumatological diseases);

- Identify life-threatening violations in a timely manner, use methods of their immediate elimination, and implement anti-shock measures;
- The ability and willingness to prescribe adequate treatment to patients in a timely manner in accordance with the diagnosis, implement an algorithm for selecting drug and non-drug therapy for specialized patients.

#### **In rehabilitation activities**

- Ability and willingness to apply various rehabilitation measures (medical, social, psychological) for respiratory diseases
- The ability and willingness to make recommendations on the choice of the optimal regime during the rehabilitation of respiratory patients (motor activity, depending on the morphofunctional status), to determine the indications and contraindications to the appointment of physical therapy, physiotherapy, reflexology, herbal medicine.

#### **In preventive activities**

- The ability and willingness to apply modern hygienic methods of collecting and medical and statistical analysis of information on the health indicators of adults and adolescents at the level of various departments of medical organizations in order to develop scientifically based measures to improve and preserve the health of the population
- The ability and willingness to use methods of assessing natural and medico-social factors in the development of respiratory diseases, to carry out their correction, to carry out preventive measures to prevent them, to carry out sanitary and educational work on hygienic issues.

#### **In organizational and managerial activities**

- The ability and willingness to use the regulatory documentation adopted in the health care of the Kyrgyz Republic (laws of the Kyrgyz Republic, technical regulations, international and national standards, orders, recommendations, the international system of units (SI), current international classifications), as well as documentation for assessing the quality and effectiveness of medical organizations;
- The ability and willingness to use knowledge of the organizational structure of medical institutions of various types/levels, their management and economic activities, to analyze the performance of their structural units departments, to evaluate the effectiveness of modern medical and socio-economic technologies in the provision of medical services to patients.

### **3.1. Diseases and conditions most frequently encountered in the practice of a pulmonologist / respiratory specialist**

To indicate the level of competence that must be achieved by the end of training in this discipline, the following gradation is used:

**Level 1: Knowledge sufficient to conduct the patient under the supervision or consultation of a specialist**, indicates that the clinical resident is guided in this clinical situation, makes a preliminary diagnosis and redirects the patient to the secondary or tertiary level for final verification of the diagnosis and selection of therapy; subsequently, it monitors the prescribed therapy (medical examination).

**Level 2: Sufficient awareness to recognize the pathology and determine the circumstances under which the patient should be referred** to a specialist indicates that the clinical resident can independently diagnose and treat the majority of patients with this disease or condition; if necessary, determine the indications for hospitalization.

**The letter "H"** - means that the condition or disease is urgent and indicates the need for emergency diagnosis and / or treatment. The resident is able to assess the patient's condition, start providing emergency care and organize urgent hospitalization.

### List 1

Modules	Level	
<b>Respiratory diseases</b>		
Bronchial asthma	2	H
Acute bronchitis	2	
Chronic bronchitis	2	
COPB (chronic obstructive bronchitis and/or emphysema)	2	
Bronchiolitis	2	
Bronchiectatic disease	2	
Respiratory stenosis and tracheobronchomalacia	1	H
Tracheo-esophageal fistula	1	H
Diseases of the upper respiratory tract	2	
Vocal cord dysfunction	1	
Aspiration of foreign bodies	1	H
Gastroesophageal reflux	2	
<b>Chest tumors</b>		
Lung cancer	1	
Lung metastases	1	
Mesothelioma	1	

Pleural metastases and other pleural tumors	1	
Benign intra-thoracic tumors	1	
Mediastinal tumors	1	
Chest wall tumors	1	
Sarcoma	1	
Lymphoma	1	
<b>Non-tuberculosis respiratory infection</b>		
Upper respiratory tract infection	2	
Lower respiratory tract infection	2	
Community-acquired pneumonia	2	
Nosocomial pneumonia	2	
Pneumonia in immunocompromised individuals	1	
Other types of pneumonia	2	
Parapneumonic pleural effusion and empyema	1	
Lung abscess	1	
Fungal infection	1	
Parasitic infection	1	
Epidemic viral infection	2	
<b>Tuberculosis</b>		
Tuberculosis of the lungs	1	
Extrapulmonary tuberculosis	1	
Tuberculosis in immunocompromised individuals	1	
Latent tuberculosis infection	1	
Non-tuberculosis mycobacterial diseases	1	
<b>Lung vascular diseases</b>		
Pulmonary embolism	1	H
Primary pulmonary hypertension	1	

Secondary pulmonary hypertension	1	
<b>Occupational diseases and diseases related to environmental pollution</b>		
Professional bronchial asthma	1	H
Respiratory reactivity disorder syndrome	1	
Pneumoconiosis and asbestosis	1	
Hypersensitive pneumonitis	1	
Diseases associated with dust and gas inhalation	1	
Diseases related to residential air pollution	1	
Diseases associated with air pollution	1	
Smoking-related illnesses	2	
Altitude sickness 1	1	H
Diseases associated with immersion under water	1	H
<b>Diffuse parenchymal (interstitial) diseases</b>		
Sarcoidosis		
Idiopathic interstitial pneumonias, including idiopathic pulmonary fibrosis (IPF), nonspecific interstitial pneumonias (NIP), cryptogenic organizing pneumonias (COP), acute interstitial pneumonias (AIP), interstitial lung disease associated with respiratory bronchiolitis (RB-ILD), desquamative interstitial pneumonia (DIP), lymphoid interstitial pneumonia (LIP)	1	
Cryptogenic organizing pneumonia (COP) of unknown etiology/ obliterating bronchiolitis-organizing pneumonia (OBOP)	1	
<b>Iatrogenic diseases</b>		
Medicinal disease	2	H
Complications of invasive procedures	1	H
Diseases caused by exposure to radiation	1	H
<b>Acute injury</b>		
Acute inhalation injury	2	H
Chest injury injury	1	H

<b>Respiratory failure</b>		
Acute respiratory distress syndrome	1	H
Obstructive pulmonary diseases	2	H
Neuromuscular pathology	1	
Chest wall diseases	1	
Other restrictive diseases	1	
<b>Pleural diseases</b>		
Pleural effusion	1	H
Chylothorax	1	H
Hemothorax	1	H
Fibrothorax	1	H
Pneumothorax	1	H
<b>Diseases of the chest wall and respiratory muscles, including the diaphragm</b>		
Chest wall deformities	1	
Neuromuscular pathology	1	
Impaired conduction along the phrenic nerve	1	
Diaphragmatic hernia 1	1	
<b>Non-neoplastic diseases of the mediastinum</b>		
Mediastinitis 1 N	1	H
Mediastinal fibrosis 1	1	
Pneumomediastinum 1	1	
<b>Pulmonary-pleural manifestations of systemic / extrapulmonary pathology</b>		
Collagen vascular diseases	1	
Heart disease	1	
Diseases of the abdominal cavity	1	
Blood diseases	1	
Obese	2	

Hyperventilation syndrome	2	
<b>Herpetic and developmental diseases</b>		
Cystic fibrosis	1	
Primary ciliary dyskinesia	1	
Alpha-1-antitrypsin 1 deficiency	1	
Malformations	1	
<b>Lung diseases and pregnancy</b>		
Bronchial asthma	2	H
Cystic fibrosis	1	
Tuberculosis	1	
Sarcoidosis	1	
Restrictive lung diseases	1	
Lung diseases caused by pregnancy	2	
<b>Allergic (IgE - mediated) diseases</b>		
Diseases of the upper respiratory tract	2	
Bronchial asthma	2	H
Bronchopulmonary aspergillosis	2	
Anaphylaxis	2	H
<b>Eosinophilic diseases</b>		
Non-asthmatic eosinophilic bronchitis	2	
Acute and chronic eosinophilic pneumonia	2	
Hypereosinophilic syndrome	2	
Churg-Strauss Syndrome	1	
<b>Sleep-related pathology</b>		
Obstructive sleep apnea syndrome	1	H
Central sleep apnea syndrome	1	H
Hypoventilation syndrome in obesity	1	H

<b>Immunodeficiency states</b>		
Congenital immunodeficiency syndrome	1	H
Acquired immunodeficiency syndrome	1	H
Diseases associated with HIV infection	1	H
Medicinal disease	1	H
Graft rejection reaction	1	H
Post-transplant immunodeficiency	1	H
<b>Other lung diseases</b>		
Langerhans-cell histiocytosis	1	
Lymphangiomyomatosis (LAM)	1	
Pulmonary alveolar proteinosis	1	
Amyloidosis	1	

### 3.2. General patient problems

#### List 2

	Level
Difficult patient / aggressive patient in the practice of a pulmonologist / respiratory medicine	1
Disability in diseases of the bronchopulmonary system	1
Gender problems in respiratory diseases	1
Postoperative conditions in respiratory diseases	2

### 3.3 Medical manipulations and practical skills

To indicate the level of competence that must be achieved by the end of training in clinical residency, the following gradation is used:

**Level 1:** can explain the principle of manipulation, knows the indications and contraindications to manipulation, knows the clinical significance of the procedure, has seen the manipulation performed (on a patient, on a dummy, on a video, or others.); can interpret the data obtained as a result of manipulation.

**Level 2:** has the correct technique of performing the manipulation, has sufficient experience for self-execution, can interpret the data obtained as a result of manipulation.

**List 3**

<b>№</b>	<b>MANIPULATION</b>	<b>LEVEL</b>
1.	Objective examination of the patient.	2
2.	Peak flowmetry with an assessment of the results of its monitoring.	2
3.	Pulse oximetry with interpretation of results	2
4.	Sputum collection and bacterioscopy	2
5.	Inhaled administration of drugs with a nebulizer	2
6.	Oxygen therapy	2
7.	Preparation of material for cytological bacteriological examination (sputum, blood, pleural fluid, washing water).	2
8.	Pleural puncture (therapeutic and diagnostic) with the interpretation of the cellular composition of the pleural contents.	2
9.	Pleural drainage	1
10.	Bronchoscopy, bronchoalveolar lavage	1
11.	Conducting non-invasive ventilation support (VRR and CPAP therapy)	2
12.	Polygraphy	1
13.	Performing and interpreting the results of spirometry with a bronchodilatation test	2
14.	Ergospirometry	1
15.	6 minute step test	2
16.	Arterial blood sampling and interpretation of arterial blood gas analysis	1
17.	Conducting and interpreting capnography data	2
18.	ECG testing and data interpretation	2
19.	Performing artificial respiration "mouth to mouth" and "mouth to nose" (on the dummy)	2
20.	Knowledge of methods of cleaning the upper respiratory tract and	2

	fluid aspiration.	
21.	Performing indirect heart massage	2
22.	Knowledge of methods of electrical defibrillation of the heart	2
23.	Use of respiratory questionnaires (Epfort scale, mMRC," SAT "and" AST " tests, CRB-65, Fagerstrom test.	2
24.	Injections (i / m, I / v, n / a)	2
25.	Interpretation of intradermal allergological samples	2
26.	Interpretation of tuberculin skin tests	2
27.	Interpretation of body plethysmography	2
28.	Interpretation of chest X-ray data	2
29.	Interpretation of chest computed tomography data	2
30.	Interpretation of ECHO CG data	2

### 3.4. Provision of emergency medical care.

The pulmonologist/respiratory specialist should be able to independently diagnose and provide emergency (urgent) care at the pre-hospital stage, as well as determine the tactics of providing further medical care in the following emergency conditions:

#### List 4

1	<p><b>General medical issues</b></p> <p>1.1. Clinical death</p> <p>1.2. Poisoning and intoxication.</p> <p>1.3. Collapse</p> <p>1.4. Fainting</p> <p>1.5. Shock</p> <p>1.6. Coma</p> <p>1.7. Hypertensive crisis</p> <p>1.8. Acute coronary syndrome</p> <p>1.9. Bleeding</p> <p>1.10 Rhythm and conduction disorders</p>
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2

**Respiratory medicine (pulmonology)**

- 2.1. Anaphylactic shock.
- 2.2. Acute respiratory failure
- 2.3. Severe asthma attack
- 2.4. Urticaria and Quincke's edema.
- 2.5. Pulmonary embolism.
- 2.6. Acute heart failure.
- 2.7. Pulmonary edema.
- 2.8. Pneumothorax (open, closed).
- 2.9. Pulmonary hemorrhage