



# Pulmonary Disease Blueprint

## Certification Examination (CERT)

### Purpose of the exam

The exam is designed to evaluate the knowledge, diagnostic reasoning, and clinical judgment skills expected of the certified pulmonologist in the broad domain of the discipline. The ability to make appropriate diagnostic and management decisions that have important consequences for patients will be assessed. The exam may require recognition of common as well as rare clinical problems for which patients may consult a certified pulmonologist.

### Exam content

Exam content is determined by a pre-established blueprint, or table of specifications. The blueprint is developed by ABIM and is reviewed annually and updated as needed for currency. Trainees, training program directors, and certified practitioners in the discipline are surveyed periodically to provide feedback and inform the blueprinting process.

The primary medical content categories of the blueprint are shown below, with the percentage assigned to each for a typical exam:

Medical Content Category	% of Exam
Obstructive Lung Disease	17.5%
Critical Care Medicine	15%
Diffuse Parenchymal Lung Disease (DPLD)	10%
Sleep Medicine, Neuromuscular and Skeletal	10%
Epidemiology	2%
Infections	12%
Neoplasia	9.5%
Pleural Disease	5%
Quality, Safety, and Complications	5%
Transplantation	2%
Vascular Diseases	6%
Respiratory Physiology and Pulmonary Symptoms	4%
Occupational and Environmental Diseases	2%
	100%

Exam questions in the content areas above may also address clinical topics in general internal medicine that are relevant to the practice of pulmonary medicine.

*ABIM is committed to working toward health equity and believes that board-certified physicians should have an understanding of health care disparities. Therefore, health equity content that is clinically important to each discipline will be included in assessments, and the use of gender, race, and ethnicity identifiers will be re-evaluated.*

### **Exam format**

The exam is composed of up to 240 single-best-answer multiple-choice questions, of which approximately 40 are new questions that do not count in the examinee's score. Most questions describe patient scenarios and ask about the work done (that is, tasks performed) by physicians in the course of practice:

- Making a diagnosis
- Ordering and interpreting results of tests
- Recommending treatment or other patient care
- Assessing risk, determining prognosis, and applying principles from epidemiologic studies
- Understanding the underlying pathophysiology of disease and basic science knowledge applicable to patient care

Clinical information presented may include patient photographs, radiographs, electrocardiograms, recordings of heart or lung sounds, video, and other media to illustrate relevant patient findings. It is possible to enlarge ("zoom") most radiographic and histologic images. [Learn more information on how exams are developed.](#)

A tutorial including examples of ABIM exam question format can be found at <http://www.abim.org/certification/exam-information/pulmonary-disease/exam-tutorial>.

The blueprint can be expanded for additional detail as shown below. Each of the medical content categories is listed there, and below each major category are the content subsections and specific topics that *may* appear in the exam. Please note: actual exam content may vary.

## Obstructive Lung Disease

17.5% of Exam

### Asthma

9%

Pathophysiology and diagnosis of asthma

Genetics

Epidemiology

Biology

Evaluation (bronchodilator responses and  
provocative challenge)

Severity and stepped care

Mild to moderate

Severe

Asthma in pregnancy

Perioperative care

Complications of care

Special types and phenotypes of asthma

Aspirin-sensitive asthma

Exercise-induced asthma

Eosinophilic TH2-high asthma

Cough variant asthma and other special types

Asthma mimics

Paradoxical vocal fold motion (Inducible laryngeal obstruction)

Genetic (cystic fibrosis, alpha-1 antitrypsin disease, primary  
ciliary dyskinesia) and nongenetic

Hypereosinophilic Löffler syndrome and other  
parasitic infections

Infiltrative airway processes (granulomatous, amyloidosis,  
and other processes)

Heart failure

Central airway obstruction

Exacerbation

Status asthmaticus

Viral infections, allergens, and other causes

Allergic bronchopulmonary aspergillosis and fungusis

Eosinophilic granulomatosis with polyangiitis

### Chronic obstructive pulmonary disease (COPD)

6.5%

Pathophysiology and diagnosis of COPD

Genetics

Epidemiology

<ul style="list-style-type: none"> <li>Biology</li> <li>Evaluation (guidelines, physiology of airflow, and imaging)</li> <li>Management of chronic stable disease <ul style="list-style-type: none"> <li>Pharmaceutical therapies</li> <li>Nonpharmaceutical therapies (rehabilitation, oxygen, palliation, and other therapies)</li> <li>Operative and bronchoscopic procedures</li> <li>Preoperative assessment and perioperative management</li> <li>Comorbidities (vascular disease, lung cancer, and other conditions)</li> </ul> </li> <li>Exacerbation of COPD <ul style="list-style-type: none"> <li>Pharmaceutical therapies</li> <li>Nonpharmaceutical therapies (noninvasive positive-pressure ventilation [NIPPV] and mucociliary clearance)</li> <li>Prevention of exacerbations</li> <li>Mimics (heart failure and pulmonary embolism)</li> </ul> </li> </ul>	
<b>Obstructive, other than asthma and COPD</b>	2%
<ul style="list-style-type: none"> <li>Cystic fibrosis (CF) <ul style="list-style-type: none"> <li>Pathophysiology</li> <li>Airway clearance</li> </ul> </li> <li>Non-CF bronchiectasis and issues other than infection</li> <li>Central airway obstruction</li> </ul>	

<b>Critical Care Medicine</b>	<b>15%</b> of Exam
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<b>Assessment and monitoring</b>	2%
<ul style="list-style-type: none"> <li>Outcomes prediction including prognostic scoring systems</li> <li>Assessment for agitation, cognitive impairment, and delirium</li> <li>Cardiovascular assessment and monitoring</li> <li>Critical care ultrasound</li> <li>Determination of brain death</li> </ul>	
<b>Therapeutics</b>	4%
<ul style="list-style-type: none"> <li>Airway management in respiratory failure</li> <li>Assisted ventilation <ul style="list-style-type: none"> <li>Invasive mechanical ventilation</li> <li>Noninvasive mechanical ventilation</li> <li>Extracorporeal membrane oxygenation and CO<sub>2</sub> removal</li> </ul> </li> </ul>	

Sedation, analgesia, and neuromuscular blockade	
Blood component replacement	
Enteral and parenteral nutrition (including feeding tubes)	
Early mobilization and rehabilitation	
Cardiopulmonary resuscitation and brain protective strategies	
Indications for renal replacement therapy	
Management of potential organ donors	
<b>Prevention and management of complications</b>	2.5%
Catheter-associated complications	
Ventilator-associated complications	
Acquired coagulation disorders	
Acquired gastroduodenal stress ulcers, ileus, and diarrhea	
Aspiration	
Acquired neuromuscular weakness	
<b>Nonrespiratory critical care</b>	2.5%
Shock	
Septic shock	
Cardiogenic shock	
Hypovolemic and distributive shock	
Hypovolemic shock	
Anaphylaxis and drug-induced shock	
Hemorrhagic shock (non-pulmonary hemorrhage)	
Cardiovascular critical care	
Acute coronary syndromes	
Acute heart failure	
Tachyarrhythmias and bradyarrhythmias	
Hypertensive and other vascular emergencies	
Neurologic critical care	
Acute liver failure and other acute abdominal processes	
Acute renal failure	
Severe, acute endocrine and metabolic disorders	
Coagulopathies	
Hypothermia and hyperthermia	
Toxicology	
<b>Respiratory Failure</b>	4%
Acute respiratory distress syndrome	
Other hypoxemic respiratory failure (e.g., e-cigarette and vaping-associated lung injury)	

Respiratory failure complicating airway obstruction  
 Asthma  
 COPD  
 Central airway obstruction  
 Hypercapnic respiratory failure  
 Massive hemoptysis and diffuse alveolar hemorrhage  
 Respiratory failure related to COVID-19

<b>Diffuse Parenchymal Lung Disease (DPLD)</b>	<b>10%</b> of Exam
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**Interstitial lung disease (ILD) associated with systemic inflammatory disease** 2.5%

Connective tissue disease (CTD)–associated ILD  
 Rheumatoid arthritis  
 Systemic sclerosis  
 Polymyositis, dermatomyositis, and anti-synthetase syndromes  
 Sjogren syndrome  
 Systemic lupus erythematosus  
 Other connective tissue diseases  
 Inflammatory bowel disease–associated ILD  
 IgG4-related disease and other diseases

**Idiopathic interstitial pneumonias** 3.5%

Acute interstitial pneumonia  
 Cryptogenic organizing pneumonia  
 Desquamative interstitial pneumonia  
 Idiopathic pulmonary fibrosis  
 Lymphocytic interstitial pneumonia (LIP)  
 Nonspecific interstitial pneumonia  
 Respiratory bronchiolitis–associated ILD  
 Acute and chronic eosinophilic pneumonias  
 Idiopathic pleuropulmonary fibroelastosis and other conditions

**Granulomatous interstitial lung diseases** 2%

Sarcoidosis  
 Pulmonary  
 Extrapulmonary  
 Hypersensitivity pneumonitis  
 Granulomatous lymphocytic ILD and other conditions

<b>Diffuse cystic lung diseases (DCLDs)</b>	<2%
Lymphangiomyomatosis	
Langerhans cell histiocytosis	
Birt-Hogg-Dube syndrome	
Follicular bronchiolitis and cystic LIP	
Light-chain deposition disease, neurofibromatosis, Marfan syndrome, and other DCLDs	
<b>Radiation induced pneumonitis and fibrosis</b>	<2%
<b>Drug-induced interstitial lung disease</b>	
<b>Pulmonary alveolar proteinosis</b>	
<b>Constrictive bronchiolitis (idiopathic and toxic exposure-induced)</b>	
<b>Genetic and other rare interstitial lung diseases</b>	

<b>Sleep Medicine, Neuromuscular and Skeletal</b>	<b>10%</b> of Exam
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<b>Sleep, Respiratory</b>	6.5%
Central sleep apnea	
Altitude	
Cheyne-Stokes breathing	
Other sleep, respiratory topics (idiopathic, pathophysiology)	
Evaluation	
Normal Physiology, sleep and respiration	
Obstructive sleep apnea	
Pathophysiology	
Evaluation	
Therapy	
Outcomes	
Procedures	
Polysomnography	
Home sleep apnea testing	
Multiple Sleep Latency Test (MSLT) and Maintenance of Wakefulness Test (MWT)	
<b>Sleep, Nonrespiratory</b>	<2%
Insomnia	
Narcolepsy	
Periodic limb movement disorder	
Restless legs syndrome	
Interactions of cardiopulmonary disease and sleep	

<b>Hypoventilation</b>	2.5%
Chest wall and skeletal	
Obesity	
Neuromuscular disease	
Ventilatory control	

<b>Epidemiology</b>	<b>2%</b> of Exam
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<b>Interpretation of clinical studies</b>	<2%
Study design	
Causal inference	
Sources of error	
Analytic issues	
Screening studies	
Diagnostic studies	
<b>Pandemic response</b>	<2%

<b>Infections</b>	<b>12%</b> of Exam
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<b>Host defense mechanisms</b>	<2%
Nonimmune mechanisms	
Innate immunity	
Adaptive immunity	
<b>Vaccination</b>	<2%
Pneumococcus and other bacteria (HIB, Pertussis)	
Influenza and other respiratory viruses	
<b>Common syndromes of pulmonary infection</b>	4%
Upper respiratory tract infections	
Acute bronchitis	
Community-acquired pneumonia	
Aspiration, lung abscess, and anaerobic infections	
Empyema	
Nosocomial pneumonia (hospital-acquired pneumonia [HAP], healthcare-acquired pneumonia [HCAP], ventilator-associated pneumonia [VAP])	
Bronchiectasis	
CF-related	
Non-CF-related	
Mediastinitis	



<b>The Immunocompromised Host</b>	<2%
Chemotherapy-related, post-transplantation, and drug-induced HIV and AIDS	
Congenital and acquired immune system disorders	
<b>Major pathogens in pulmonary infection</b>	5%
Pneumonia due to gram-positive bacteria	
Pneumococcus	
<i>Staphylococcus aureus</i> , including methicillin-resistant <i>S. aureus</i> (MRSA) and community-associated MRSA (CA-MRSA)	
Other gram-positive bacteria ( <i>Nocardia</i> , enterococci)	
Pneumonia due to gram-negative bacteria	
<i>Pseudomonas</i>	
Enterobacteriaceae	
Other gram-negative bacteria ( <i>Burkholderia</i> , <i>Legionella</i> )	
Viruses	
Influenza	
COVID-19/SARS-CoV-2	
Cytomegalovirus infection, herpes, and varicella	
<i>Aspergillus</i> and other opportunistic fungi ( <i>Mucor</i> )	
Endemic fungoses (histoplasmosis, blastomycosis, coccidioidomycosis) and cryptococcosis	
Parasitic infections	
Tuberculosis (TB)	
Non-TB mycobacterial infection	
<b>Extrapulmonary Infections in the ICU</b>	<2%

<b>Neoplasia</b>	<b>9.5%</b> of Exam
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<b>Lung cancer</b>	3%
Non-small cell lung cancer	
Diagnostic evaluation	
Staging	
TNM staging and noninvasive staging	
Invasive mediastinal staging	
Molecular markers	
Small cell lung cancer	

Treatments for lung cancer	
Lung cancer requiring surgical treatment	
Lung cancer requiring nonsurgical treatment (chemotherapy, radiation therapy, palliative therapy)	
<b>Other intrathoracic tumors</b>	2%
Other primary lung tumors	
Carcinoid tumors	
Hamartoma	
Adenoid cystic carcinoma and other primary lung tumors	
Tumors of the mediastinum	
Thymoma	
Lymphoma	
Other mediastinal tumors	
Plasmacytoma, sarcoma, and other thoracic tumors	
Metastatic disease	
<b>Malignant pleural disease</b>	<2%
Mesothelioma	
Malignant pleural effusion or pleural metastasis	
<b>Complications</b>	<2%
Paraneoplastic syndromes	
Superior vena cava syndrome	
<b>Pulmonary nodules</b>	<2%
Solitary pulmonary nodule	
Multiple pulmonary nodules	
Mimics of pulmonary nodules and masses	
<b>Physiologic assessment for thoracic surgery</b>	<2%
<b>Interventional pulmonary medicine and thoracic surgery</b>	<2%
Bronchoscopy, EBUS, and other interventional airway procedures	
Palliative interventions	
Video-assisted thoracoscopy (VATS) and other surgery	
<b>Lung cancer screening</b>	<2%

<b>Pleural Disease</b>	<b>5%</b> of Exam
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<b>Structure and physiology</b>	<2%
Fibrosis	
Calcification	
Thickening	

Fluid dynamics	
Trapped lung and lung entrapment	
<b>Pneumothorax</b>	<2%
Primary spontaneous	
Secondary	
Parenchymal disease-related	
Iatrogenic	
Traumatic	
Catamenial, familial, and other types	
Outcomes	
<b>Effusions and pleural pathology</b>	2%
Transudative	
Hemodynamic and oncotic	
Hydrothorax	
Urinothorax and other types	
Exudative	
Infectious	
Occupational	
Noninfectious inflammatory	
Hemorrhagic	
Chylous	
Drug-induced	
Eosinophilic	
<b>Diagnostic and therapeutic procedures</b>	<2%
Thoracentesis and pleuroscopy	
Chest tubes and tunneled pleural catheters	

<b>Quality, Safety, and Complications</b>
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<b>5%</b> of Exam
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<b>Methods of assessing quality, safety, and patient satisfaction</b>	<2%
Benchmarking	
Adverse event reporting	
Patient satisfaction surveys	
Root cause analysis	
Failure mode and effects analysis	
<b>Methods for improving quality and safety</b>	<2%

<b>Complications of medical care</b>	2%
Adverse drug effects and drug interactions	
Complications of bronchoscopy and pleural procedures	
Adverse outcomes of thoracic surgery	
Adverse effects of thoracic radiation therapy	
Complications of translaryngeal intubation and tracheostomy	
Infection control	
<b>Ethics and professionalism (advance directives, end of life, decision-making capacity, etc.)</b>	<2%

<b>Transplantation</b>	<b>2% of Exam</b>
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<b>Lung transplantation</b>	<2%
Patient selection	
Complications of lung transplantation	
Transplantation outcomes	
<b>Pulmonary complications of transplantation other than lung</b>	<2%
Infections	
Neoplastic complications	
Other complications of organ transplantation (graft-versus-host disease)	

<b>Vascular Diseases</b>	<b>6% of Exam</b>
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<b>Pulmonary thromboembolic disease</b>	2.5%
Deep venous thrombosis	
Pulmonary thromboembolism	
Nonthrombotic pulmonary embolism	
Infectious thrombophlebitis	
<b>Pulmonary hypertension</b>	<2%
Pulmonary arterial hypertension	
Chronic thromboembolic disease	
Other pulmonary hypertension related to heart or lung disease	
Right ventricular failure	
<b>Pulmonary vasculitis and capillaritis</b>	<2%
Granulomatosis with polyangiitis	
Anti-glomerular basement membrane disease	
Microscopic polyangiitis and other pulmonary vasculitides	

<b>Pulmonary vascular malformations</b>	<2%
Pulmonary arteriovenous malformation	
Hepatopulmonary syndrome	
<b>Sickle cell disease</b>	<2%

<b>Respiratory Physiology and Pulmonary Symptoms</b>	<b>4%</b> of Exam
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<b>Respiratory physiology</b>	2%
Pulmonary mechanics	
Oxygenation	
Cardiovascular physiology	
Cardiopulmonary exercise testing	
Acid-base interpretation	
Hypercapnia and hypocapnia	
Pulmonary function testing	
<b>Special situations</b>	<2%
Pregnancy	
Obesity	
Neuromuscular disease	
Preoperative evaluation (nonthoracic surgery)	
Barometric pressure-related (high altitude, diving, and other special situations)	
<b>Approach to pulmonary symptoms</b>	<2%
Dyspnea	
Cough	
Chest pain	
Hemoptysis	

<b>Occupational and Environmental Diseases</b>	<b>2%</b> of Exam
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<b>Tobacco use treatment and smoking cessation</b>
<b>Occupational asthma and work-exacerbated asthma</b>
<b>Indoor and outdoor air pollution</b>
<b>Barometric- or thermal-related disorders</b>
<b>Pneumoconioses</b>
Asbestosis
Berylliosis
Coal-workers' pneumoconiosis

Hard metal pneumoconiosis

Silicosis

**Toxic inhalations**

E-cigarette and vaping-associated lung injury

Carbon monoxide

Smoke inhalation

Other toxic exposures (cobalt, dust, endotoxin, metal fume fever,  
organic agents)

**Environmental cancer risk**

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