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:

<table>
<thead>
<tr>
<th>Medical Content Category</th>
<th>% of Exam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstructive Lung Disease</td>
<td>17.5%</td>
</tr>
<tr>
<td>Critical Care Medicine</td>
<td>15%</td>
</tr>
<tr>
<td>Diffuse Parenchymal Lung Disease (DPLD)</td>
<td>10%</td>
</tr>
<tr>
<td>Sleep Medicine, Neuromuscular and Skeletal</td>
<td>10%</td>
</tr>
<tr>
<td>Epidemiology</td>
<td>2%</td>
</tr>
<tr>
<td>Infections</td>
<td>12%</td>
</tr>
<tr>
<td>Neoplasia</td>
<td>9.5%</td>
</tr>
<tr>
<td>Pleural Disease</td>
<td>5%</td>
</tr>
<tr>
<td>Quality, Safety, and Complications</td>
<td>5%</td>
</tr>
<tr>
<td>Transplantation</td>
<td>2%</td>
</tr>
<tr>
<td>Vascular Diseases</td>
<td>6%</td>
</tr>
<tr>
<td>Respiratory Physiology and Pulmonary Symptoms</td>
<td>4%</td>
</tr>
<tr>
<td>Occupational and Environmental Diseases</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
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](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 fungosis
Eosinophilic granulomatosis with polyangiitis

Chronic obstructive pulmonary disease (COPD) 6.5%

Pathophysiology and diagnosis of COPD
- Genetics
- Epidemiology
Biology
Evaluation (guidelines, physiology of airflow, and imaging)

Management of chronic stable disease
Pharmaceutical therapies
Nonpharmaceutical therapies (rehabilitation, oxygen, palliation, and other therapies)
Operative and bronchoscopic procedures
Preoperative assessment and perioperative management
Comorbidities (vascular disease, lung cancer, and other conditions)

Exacerbation of COPD
Pharmaceutical therapies
Nonpharmaceutical therapies (noninvasive positive-pressure ventilation [NIPPV] and mucociliary clearance)
Prevention of exacerbations
Mimics (heart failure and pulmonary embolism)

Obstructive, other than asthma and COPD 2%
Cystic fibrosis (CF)
Pathophysiology
Airway clearance
Non-CF bronchiectasis and issues other than infection
Central airway obstruction

<table>
<thead>
<tr>
<th>Critical Care Medicine</th>
<th>15% of Exam</th>
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</thead>
</table>

Assessment and monitoring 2%
Outcomes prediction including prognostic scoring systems
Assessment for agitation, cognitive impairment, and delirium
Cardiovascular assessment and monitoring
Critical care ultrasound
Determination of brain death

Therapeutics 4%
Airway management in respiratory failure
Assisted ventilation
Invasive mechanical ventilation
Noninvasive mechanical ventilation
Extracorporeal membrane oxygenation and CO₂ removal
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

**Prevention and management of complications** 2.5%
Catheter-associated complications
Ventilator-associated complications
Acquired coagulation disorders
Acquired gastroduodenal stress ulcers, ileus, and diarrhea
Aspiration
Acquired neuromuscular weakness

**Nonrespiratory critical care** 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

**Respiratory Failure** 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

**Diffuse Parenchymal Lung Disease (DPLD)**

<table>
<thead>
<tr>
<th>Diffuse Parenchymal Lung Disease (DPLD)</th>
<th>10% of Exam</th>
</tr>
</thead>
</table>

**Interstitial lung disease (ILD) associated with systemic inflammatory disease**

- 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**

- 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**

- Sarcoidosis
  - Pulmonary
  - Extrapulmonary
- Hypersensitivity pneumonitis
- Granulomatous lymphocytic ILD and other conditions
Diffuse cystic lung diseases (DCLDs) <2%
- Lymphangioleiomyomatosis
- Langerhans cell histiocytosis
- Birt-Hogg-Dube syndrome
- Follicular bronchiolitis and cystic LIP
- Light-chain deposition disease, neurofibromatosis, Marfan syndrome, and other DCLDs

Radiation induced pneumonitis and fibrosis <2%

Drug-induced interstitial lung disease

Pulmonary alveolar proteinosis

Constrictive bronchiolitis (idiopathic and toxic exposure-induced)

Genetic and other rare interstitial lung diseases

Sleep Medicine, Neuromuscular and Skeletal 10% of Exam

Sleep, Respiratory 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)

Sleep, Nonrespiratory <2%
- Insomnia
- Narcolepsy
- Periodic limb movement disorder
- Restless legs syndrome
- Interactions of cardiopulmonary disease and sleep
### Hypoventilation
- Chest wall and skeletal
- Obesity
- Neuromuscular disease
- Ventilatory control

### Epidemiology 2% of Exam

<table>
<thead>
<tr>
<th>Interpretation of clinical studies</th>
<th>&lt;2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study design</td>
<td></td>
</tr>
<tr>
<td>Causal inference</td>
<td></td>
</tr>
<tr>
<td>Sources of error</td>
<td></td>
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<tr>
<td>Analytic issues</td>
<td></td>
</tr>
<tr>
<td>Screening studies</td>
<td></td>
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<tr>
<td>Diagnostic studies</td>
<td></td>
</tr>
</tbody>
</table>

| Pandemic response                  | <2% |

### Infections 12% of Exam

<table>
<thead>
<tr>
<th>Host defense mechanisms</th>
<th>&lt;2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonimmune mechanisms</td>
<td></td>
</tr>
<tr>
<td>Innate immunity</td>
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</tr>
<tr>
<td>Adaptive immunity</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vaccination</th>
<th>&lt;2%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumococcus and other bacteria (HIB, Pertussis)</td>
<td></td>
</tr>
<tr>
<td>Influenza and other respiratory viruses</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Common syndromes of pulmonary infection 4%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper respiratory tract infections</td>
</tr>
<tr>
<td>Acute bronchitis</td>
</tr>
<tr>
<td>Community-acquired pneumonia</td>
</tr>
<tr>
<td>Aspiration, lung abscess, and anaerobic infections</td>
</tr>
<tr>
<td>Empyema</td>
</tr>
<tr>
<td>Nosocomial pneumonia (hospital-acquired pneumonia [HAP], healthcare-acquired pneumonia [HCAP], ventilator-associated pneumonia [VAP])</td>
</tr>
<tr>
<td>Bronchiectasis</td>
</tr>
<tr>
<td>CF-related</td>
</tr>
<tr>
<td>Non-CF-related</td>
</tr>
<tr>
<td>Mediastinitis</td>
</tr>
</tbody>
</table>
The Immunocompromised Host

Chemotherapy-related, post-transplantation, and drug-induced HIV and AIDS
Congenital and acquired immune system disorders

Major pathogens in pulmonary infection

Pneumonia due to gram-positive bacteria
- *Staphylococcus aureus*, including methicillin-resistant *S. aureus* (MRSA) and community-associated MRSA (CA-MRSA)
- Other gram-positive bacteria (*Nocardia, enterococci*)

Pneumonia due to gram-negative bacteria
- *Pseudomonas*
- Enterobacteriaceae
- Other gram-negative bacteria (*Burkholderia, Legionella*)

Viruses
- Influenza
- COVID-19/SARS-CoV-2
- Cytomegalovirus infection, herpes, and varicella

*Aspergillus* and other opportunistic fungi (*Mucor*)

Endemic fungoses (histoplasmosis, blastomycosis, coccidioidomycosis) and cryptococcosis

Parasitic infections
- Tuberculosis (TB)
- Non-TB mycobacterial infection

Extrapulmonary Infections in the ICU

Neoplasia 9.5% of Exam

Lung cancer 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)

Other intrathoracic tumors
- 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

Malignant pleural disease
- Mesothelioma
- Malignant pleural effusion or pleural metastasis

Complications
- Paraneoplastic syndromes
- Superior vena cava syndrome

Pulmonary nodules
- Solitary pulmonary nodule
- Multiple pulmonary nodules
- Mimics of pulmonary nodules and masses

Physiologic assessment for thoracic surgery

Interventional pulmonary medicine and thoracic surgery
- Bronchoscopy, EBUS, and other interventional airway procedures
- Palliative interventions
- Video-assisted thoracoscopy (VATS) and other surgery

Lung cancer screening

<table>
<thead>
<tr>
<th>Pleural Disease</th>
<th>5% of Exam</th>
</tr>
</thead>
</table>

Structure and physiology
- Fibrosis
- Calcification
- Thickening
Fluid dynamics
Trapped lung and lung entrapment

**Pneumothorax**

Primary spontaneous
Secondary
  - Parenchymal disease-related
  - Iatrogenic
  - Traumatic
  - Catamenial, familial, and other types

Outcomes

**Effusions and pleural pathology**

Transudative
  - Hemodynamic and oncotic
  - Hydrothorax
  - Urinothorax and other types

Exudative
  - Infectious
  - Occupational
  - Noninfectious inflammatory
  - Hemorrhagic
  - Chylous
  - Drug-induced
  - Eosinophilic

**Diagnostic and therapeutic procedures**

Thoracentesis and pleuroscopy
Chest tubes and tunneled pleural catheters

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**Quality, Safety, and Complications**

Methods of assessing quality, safety, and patient satisfaction

Benchmarking
Adverse event reporting
Patient satisfaction surveys
Root cause analysis
Failure mode and effects analysis

Methods for improving quality and safety
Complications of medical care 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

Ethics and professionalism (advance directives, end of life, decision-making capacity, etc.) <2%

Transplantation 2% of Exam

Lung transplantation <2%
   Patient selection
   Complications of lung transplantation
   Transplantation outcomes

Pulmonary complications of transplantation other than lung <2%
   Infections
   Neoplastic complications
   Other complications of organ transplantation
      (graft-versus-host disease)

Vascular Diseases 6% of Exam

Pulmonary thromboembolic disease 2.5%
   Deep venous thrombosis
   Pulmonary thromboembolism
   Nonthrombotic pulmonary embolism
   Infectious thrombophlebitis

Pulmonary hypertension <2%
   Pulmonary arterial hypertension
   Chronic thromboembolic disease
   Other pulmonary hypertension related to heart or lung disease
   Right ventricular failure

Pulmonary vasculitis and capillaritis <2%
   Granulomatosis with polyangiitis
   Anti-glomerular basement membrane disease
   Microscopic polyangiitis and other pulmonary vasculitides
Pulmonary vascular malformations <2%
  Pulmonary arteriovenous malformation
  Hepatopulmonary syndrome
Sickle cell disease <2%

Respiratory Physiology and Pulmonary Symptoms 4% of Exam

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

Occupational and Environmental Diseases 2% of Exam

Tobacco use treatment and smoking cessation
Occupational asthma and work-exacerbated asthma
Indoor and outdoor air pollution
Barometric- or thermal-related disorders
Pneumoconioses
  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**

July 2023