

ABIM invites diplomates to help develop the Pulmonary Disease MOC exam blueprint

Based on feedback from physicians that MOC assessments should better reflect what they see in practice, in 2017 the American Board of Internal Medicine (ABIM) invited all certified pulmonologists to provide ratings of the relative frequency and importance of blueprint topics in practice.

This review process, which resulted in a new MOC exam blueprint, will be used on a periodic basis to inform and update all MOC assessments created by ABIM, including the Knowledge Check-In introduced in 2019. No matter what form ABIM's assessments ultimately take, they will need to be informed by front-line clinicians sharing their perspective on what is important to know.

A sample of over 450 pulmonologists, similar to the total invited population of pulmonologists in age, gender, time spent in direct patient care, and geographic region of practice, provided the blueprint topic ratings. The ABIM Pulmonary Disease Exam Committee and Pulmonary Disease Board have used this feedback to update the blueprint for MOC assessments (beginning with the Fall 2017 administration of the 10-year MOC exam).

To inform how exam content should be distributed across the major blueprint content categories, ABIM considered the average respondent ratings of topic frequency and importance in each of the content categories.

To determine prioritization of specific exam content within each major medical content category, ABIM used the respondent ratings of topic frequency and importance to set thresholds for these parameters in the exam assembly process (described further under *Detailed content outline* below).

Purpose of the Pulmonary Disease MOC exam

MOC assessments are designed to evaluate whether a certified pulmonologist has maintained competence and currency in the knowledge and judgment required for practice. The MOC assessments emphasize diagnosis and management of prevalent conditions, particularly in areas where practice has changed in recent years. As a result of the blueprint review by ABIM diplomates, MOC assessments place less emphasis on rare conditions and focus more on situations in which physician intervention can have important consequences for patients. For conditions that are usually managed by other specialists, the focus will be on recognition rather than on management.

Exam format

The ten-year MOC exam contains up to 235 single-best-answer multiple-choice questions, of which up to 55 are new questions that do not count in the examinee's score. The Knowledge Check-In is composed of up to 95 single-best-answer multiple-choice questions, of which a small portion are new questions that do not count in the examinee's score (abim.org/about/exam-information/exam-development.aspx). Examinees taking the traditional ten-year MOC exam will have access to an external resource (e.g., UpToDate®) for the entire exam. Examinees taking the Knowledge Check-In will have access to an external resource for the entire exam. Most questions describe patient scenarios and ask about the work done (that is, tasks performed) by physicians in the course of practice:

- **Diagnosis:** making a diagnosis or identifying an underlying condition
- **Testing:** ordering tests for diagnosis, staging, or follow-up
- **Treatment/Care Decisions:** recommending treatment or other patient care
- **Risk Assessment/Prognosis/Epidemiology:** assessing risk, determining prognosis, and applying principles from epidemiologic studies
- **Pathophysiology/Basic Science:** understanding the 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. Tutorials for the traditional ten-year MOC exam and for the Knowledge Check-In, including examples of ABIM exam question format, can be found at abim.org/maintenance-of-certification/assessment-information/pulmonary-disease/exam-tutorial.aspx.

Content distribution

Listed below are the major medical content categories that define the domain for the Pulmonary Disease ten-year MOC exam and the Knowledge Check-In. The relative distribution of content is expressed as a percentage of the total exam. To determine the content distribution, ABIM considered the average respondent ratings of topic frequency and importance. Informed by these data, the Pulmonary Disease Exam Committee and Board have determined the medical content category targets shown below.

CONTENT CATEGORY	Blueprint Target %
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%
Total	100%

How the blueprint ratings are used to assemble the MOC exam

Blueprint reviewers provided ratings of relative frequency in practice for each of the detailed content topics in the blueprint and provided ratings of the relative importance of the topics for each of the tasks described in *Exam format* above. In rating importance, reviewers were asked to consider factors such as the following:

- High risk of a significant adverse outcome
- Cost of care and stewardship of resources
- Common errors in diagnosis or management
- Effect on population health
- Effect on quality of life
- When failure to intervene by the physician deprives a patient of significant benefit

Frequency and importance were rated on a three-point scale corresponding to low, medium, or high. The median importance ratings are reflected in the *Detailed content outline* below. The Pulmonary Disease Exam Committee and Board, in partnership with the physician community, have set the following parameters for selecting MOC exam questions according to the blueprint review ratings:

- At least 65% of exam questions will address high-importance content (indicated in green)
- No more than 35% of exam questions will address medium-importance content (indicated in yellow)
- No exam questions will address low-importance content (indicated in red)

Independent of the importance and task ratings, no more than 30% of exam questions will address low-frequency content (indicated by “LF” following the topic description).

The content selection priorities below are applicable beginning with the Fall 2017 MOC exam and are subject to change in response to future blueprint review.

Note: The same topic may appear in more than one medical content category.

Detailed content outline for the Pulmonary Disease MOC exam and Knowledge Check-In

✔ – **High Importance:** At least 65% of exam questions will address topics and tasks with this designation.

⚠ – **Medium Importance:** No more than 35% of exam questions will address topics and tasks with this designation.

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OBSTRUCTIVE LUNG DISEASE (17.5% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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ASTHMA (9% of exam)

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 LF	⚠	⚠	⚠	⚠	⚠
Exercise-induced asthma	✔	✔	✔	⚠	⚠
Cough variant asthma and other special types	✔	✔	✔	✔	⚠
Eosinophilic TH2-high asthma	⚠	⚠	✔	⚠	⚠

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OBSTRUCTIVE LUNG DISEASE <i>continued...</i> (17.5% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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ASTHMA *continued...* (9% of exam)

Asthma mimics					
Vocal cord dysfunction	✔	✔	✔	⚠	⚠
Genetic (cystic fibrosis, alpha-1 antitrypsin disease, primary ciliary dyskinesia) and nongenetic	LF ⚠	⚠	⚠	⚠	⚠
Hypereosinophilic Löffler's syndrome, and other parasitic infections	LF ⚠	⚠	⚠	⚠	✘
Infiltrative airway processes (granulomatous, amyloidosis, and other processes)	LF ⚠	⚠	⚠	⚠	⚠
Heart failure	✔	✔	✔	✔	✔
Central airway obstruction	✔	✔	✔	⚠	⚠

Exacerbation					
Status asthmaticus	✔	✔	✔	✔	⚠
Viral infections, allergens, and other causes	✔	✔	✔	⚠	⚠
Allergic bronchopulmonary aspergillosis and fungosis	LF ✔	✔	✔	⚠	⚠
Eosinophilic granulomatosis with polyangiitis	LF ⚠	⚠	⚠	⚠	⚠

CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) (6.5% of exam)

Pathophysiology and diagnosis of COPD					
Genetics	LF ⚠	⚠	⚠	✘	✘
Epidemiology	⚠	⚠	⚠	⚠	✘
Biology	LF ⚠	⚠	⚠	⚠	⚠
Evaluation (guidelines, physiology of airflow, and imaging)	✔	✔	✔	✔	✔

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CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) continued... (6.5% of exam)

Management of chronic stable disease					
Pharmaceutical therapies	✔	✔	✔	✔	✔
Nonpharmaceutical therapies (rehabilitation, oxygen, palliation, and other therapies)	✔	✔	✔	✔	⚠
Operative and perioperative management (lung volume reduction, lung cancer, other 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% of exam)

Cystic fibrosis (CF)					
Pathophysiology	LF	⚠	⚠	⚠	⚠
Airway clearance		⚠	⚠	⚠	⚠
Non-CF bronchiectasis and issues other than infection		✔	✔	✔	⚠
Central airway obstruction		✔	✔	✔	⚠

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CRITICAL CARE MEDICINE (15% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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ASSESSMENT AND MONITORING (2% of exam)

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% of exam)

Airway management in respiratory failure	✔	✔	✔	✔	✔
Assisted ventilation					
Invasive mechanical ventilation	✔	✔	✔	✔	✔
Noninvasive mechanical ventilation	✔	✔	✔	✔	✔
Extracorporeal membrane oxygenation and CO ₂ removal	LF	⚠	⚠	⚠	⚠
Weaning from mechanical ventilator support	✔	✔	✔	✔	✔
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	⚠	⚠	⚠	⚠	⚠

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CRITICAL CARE MEDICINE <i>continued...</i> (15% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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PREVENTION AND MANAGEMENT OF COMPLICATIONS (2.5% of exam)

Catheter-associated complications	✔	✔	✔	✔	⚠
Ventilator-associated complications	✔	✔	✔	✔	✔
Acquired coagulation disorders	✔	⚠	⚠	⚠	⚠
Acquired gastroduodenal stress ulcers, ileus, and diarrhea	⚠	⚠	⚠	⚠	⚠
Aspiration	✔	✔	✔	⚠	⚠
Acquired neuromuscular weakness	✔	⚠	⚠	⚠	⚠

RESPIRATORY FAILURE (4% of exam)

Acute respiratory distress syndrome	✔	✔	✔	✔	✔
Other hypoxemic respiratory failure	✔	✔	✔	✔	✔
Respiratory failure complicating airway obstruction					
Asthma	✔	✔	✔	✔	✔
COPD	✔	✔	✔	✔	✔
Central airway obstruction	✔	✔	✔	⚠	⚠
Hypercapnic respiratory failure	✔	✔	✔	✔	✔
Massive hemoptysis and diffuse alveolar hemorrhage	✔	✔	✔	⚠	⚠

NONRESPIRATORY CRITICAL CARE (2.5% of exam)

Shock					
Septic shock	✔	✔	✔	✔	✔
Cardiogenic shock	✔	✔	✔	✔	✔
Hypovolemic and distributive shock					
<i>Hypovolemic shock</i>	✔	✔	✔	✔	✔
<i>Anaphylaxis and drug-induced shock</i>	✔	✔	✔	✔	✔
<i>Hemorrhagic shock (non-pulmonary hemorrhage)</i>	✔	✔	✔	✔	✔

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CRITICAL CARE MEDICINE <i>continued...</i> (15% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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NONRESPIRATORY CRITICAL CARE *continued...* (2.5% of exam)

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 LF	⚠	⚠	⚠	⚠	⚠
Toxicology	✔	⚠	⚠	⚠	⚠

DIFFUSE PARENCHYMAL LUNG DISEASE (DPLD) (10% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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INTERSTITIAL LUNG DISEASE (ILD) ASSOCIATED WITH SYSTEMIC INFLAMMATORY DISEASE (2.5% of exam)

Connective tissue disease (CTD)-associated ILD					
Rheumatoid arthritis	✔	✔	✔	⚠	⚠
Systemic sclerosis	✔	✔	✔	⚠	⚠
Polymyositis and dermatomyositis LF	✔	⚠	⚠	⚠	⚠
Sjögren's syndrome, psoriasis, systemic lupus erythematosus, and other CTDs	✔	✔	✔	⚠	⚠
Inflammatory bowel disease-associated ILD LF	⚠	⚠	⚠	⚠	✘
IgG4-related disease and other diseases LF	⚠	⚠	⚠	✘	✘

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DIFFUSE PARENCHYMAL LUNG DISEASE (DPLD) <i>continued...</i> (10% of exam)		Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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IDIOPATHIC INTERSTITIAL PNEUMONIAS (3.5% of exam)

Acute interstitial pneumonia	LF	✔	⚠	⚠	⚠	⚠
Cryptogenic organizing pneumonia		✔	✔	✔	⚠	⚠
Desquamative interstitial pneumonia	LF	⚠	⚠	⚠	⚠	⚠
Idiopathic pulmonary fibrosis						
Diagnostic evaluation		✔	✔	✔	✔	⚠
Therapeutic approach		✔	✔	✔	✔	⚠
Lymphocytic interstitial pneumonia (LIP)	LF	⚠	⚠	⚠	⚠	✘
Nonspecific interstitial pneumonia		✔	✔	✔	⚠	⚠
Respiratory bronchiolitis-associated ILD	LF	⚠	⚠	⚠	⚠	⚠
Acute and chronic eosinophilic pneumonias	LF	✔	✔	✔	⚠	⚠
Idiopathic pleuropulmonary fibroelastosis and other conditions	LF	⚠	⚠	⚠	✘	✘

GRANULOMATOUS INTERSTITIAL LUNG DISEASES (2% of exam)

Sarcoidosis						
Pulmonary		✔	✔	✔	✔	⚠
Extrapulmonary		✔	✔	✔	⚠	⚠
Hypersensitivity pneumonitis		✔	✔	✔	✔	⚠
Granulomatous lymphocytic ILD and other	LF	⚠	⚠	⚠	⚠	✘

DIFFUSE CYSTIC LUNG DISEASES (DCLDs) (<2% of exam)

Lymphangioleiomyomatosis	LF	⚠	⚠	⚠	⚠	⚠
Langerhans cell histiocytosis	LF	⚠	⚠	⚠	⚠	✘
Birt-Hogg-Dube syndrome	LF	⚠	⚠	✘	✘	✘

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DIFFUSE PARENCHYMAL LUNG DISEASE (DPLD) <i>continued...</i> (10% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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DIFFUSE CYSTIC LUNG DISEASES (DCLDs) *continued...* (<2% of exam)

Follicular bronchiolitis and cystic LIP LF	⚠	⚠	⚠	✘	✘
Light-chain desposition disease, neurofibromatosis, Marfan syndrome, and other DCLDs LF	⚠	⚠	⚠	✘	✘

RADIATION INDUCED PNEUMONITIS AND FIBROSIS (<2% of exam)

Radiation induced pneumonitis and fibrosis LF	⚠	⚠	⚠	⚠	⚠
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DRUG-INDUCED INTERSTITIAL LUNG DISEASE (<2% of exam)

Drug-induced interstitial lung disease LF	⚠	⚠	⚠	⚠	⚠
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PULMONARY ALVEOLAR PROTEINOSIS (<2% of exam)

Pulmonary alveolar proteinosis LF	⚠	⚠	⚠	⚠	⚠
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CONSTRICTIVE BRONCHIOLITIS (IDIOPATHIC AND TOXIC EXPOSURE-INDUCED) (<2% of exam)

Constrictive bronchiolitis (idiopathic and toxic exposure-induced) LF	⚠	⚠	⚠	⚠	⚠
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GENETIC AND OTHER RARE INTERSTITIAL LUNG DISEASE (<2% of exam)

Genetic and other rare interstitial lung diseases LF	⚠	⚠	⚠	⚠	⚠
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SLEEP MEDICINE, NEUROMUSCULAR, AND SKELETAL (10% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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SLEEP, RESPIRATORY (6.5% of exam)

Central sleep apnea					
Altitude	LF	⚠	⚠	⚠	⚠
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, NON-RESPIRATORY (<2% of exam)

Narcolepsy	LF	⚠	⚠	⚠	⚠
Periodic limb movement disorder		⚠	⚠	⚠	⚠
Restless legs syndrome		⚠	⚠	⚠	⚠
Interactions of cardiopulmonary disease and sleep		✔	✔	✔	⚠

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SLEEP MEDICINE, NEUROMUSCULAR, AND SKELETAL <i>continued...</i> (10% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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HYPOVENTILATION (2.5% of exam)

Chest wall/skeletal	⚠	⚠	⚠	⚠	⚠
Obesity	✔	✔	✔	✔	✔
Neuromuscular disease	⚠	⚠	⚠	⚠	⚠
Ventilatory control	⚠	⚠	⚠	⚠	⚠

EPIDEMIOLOGY (2% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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INTERPRETATION OF CLINICAL STUDIES (2% of exam)

Study design	LF	Not Applicable		⚠	Not Applicable
Causal inference	LF	Not Applicable		⚠	Not Applicable
Sources of error		Not Applicable		⚠	Not Applicable
Analytic issues		Not Applicable		⚠	Not Applicable
Screening studies		Not Applicable		⚠	Not Applicable
Diagnostic studies		Not Applicable		⚠	Not Applicable

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INFECTIONS (12% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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HOST DEFENSE MECHANISMS (<2% of exam)

Nonimmune mechanisms	⚡	⚡	⚡	⚡	⚡
Innate immunity	LF ⚡	⚡	⚡	⚡	⚡
Adaptive immunity	LF ⚡	⚡	⚡	⚡	⚡

VACCINATION (<2% of exam)

Pneumococcus and other bacteria (HIB, Pertussis)	✔	✔	✔	⚡	⚡
Influenza and other respiratory viruses	✔	✔	✔	⚡	⚡

COMMON SYNDROMES OF PULMONARY INFECTION (4% of exam)

Upper respiratory tract infections	✔	✔	✔	⚡	⚡
Acute bronchitis	✔	✔	✔	⚡	⚡
Community-acquired pneumonia	✔	✔	✔	✔	✔
Aspiration, lung abscess, and anaerobic infections	✔	✔	✔	⚡	⚡
Empyema	✔	✔	✔	✔	⚡
Nosocomial pneumonia (hospital-acquired pneumonia [HAP], health-care-acquired pneumonia [HCAP], ventilator-associated pneumonia [VAP])	✔	✔	✔	✔	⚡
Bronchiectasis					
CF-related	LF ⚡	⚡	⚡	⚡	⚡
Non-CF-related	✔	⚡	✔	⚡	⚡
Mediastinitis	LF ⚡	⚡	⚡	⚡	✘

THE IMMUNOCOMPROMISED HOST (<2% of exam)

Chemotherapy-related, post-transplant, and drug-induced	✔	✔	✔	⚡	⚡
HIV and AIDS	LF ⚡	⚡	⚡	⚡	⚡
Congenital and acquired immune system disorders	LF ⚡	⚡	⚡	✘	✘

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INFECTIONS <i>continued...</i> (12% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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MAJOR PATHOGENS IN PULMONARY INFECTION (5% of exam)

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>) LF	⚠	⚠	⚠	⚠	✘
Viruses					
Influenza	✔	✔	✔	✔	⚠
Cytomegalovirus infection, herpes, and varicella LF	⚠	⚠	⚠	✘	✘
Aspergillus and other opportunistic fungi (<i>Mucor</i>)	✔	✔	✔	⚠	✘
Endemic fungoses (histoplasmosis, blastomycosis, coccidioidomycosis) and cryptococcosis LF	✔	⚠	⚠	⚠	✘
Parasitic infections LF	⚠	⚠	⚠	⚠	✘
Tuberculosis (TB)	✔	✔	✔	⚠	⚠
Non-TB mycobacterial infection	✔	✔	✔	⚠	⚠

EXTRAPULMONARY INFECTIONS IN THE ICU (<2% of exam)

Extrapulmonary infections in the ICU	✔	✔	✔	⚠	⚠
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NEOPLASIA (9.5% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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LUNG CANCER (3% of exam)

Non-small cell lung cancer					
Diagnostic evaluation	✔	✔	✔	✔	⚠
Staging					
<i>TNM staging and noninvasive staging</i>	✔	✔	✔	✔	⚠
<i>Invasive mediastinal staging</i>	✔	✔	✔	✔	⚠
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 (2% of exam)

Other primary lung tumors					
Carcinoid tumors	LF	⚠	⚠	⚠	⚠
Hamartoma	LF	⚠	⚠	⚠	✘
Adenoid cystic and other primary lung tumors	LF	⚠	⚠	⚠	✘
Tumors of the mediastinum					
Thymoma	LF	⚠	⚠	⚠	✘
Lymphoma		✔	⚠	⚠	⚠
Other mediastinal tumors	LF	⚠	⚠	⚠	⚠
Plasmacytoma, sarcoma, and other thoracic tumors	LF	⚠	✘	✘	✘
Metastatic disease		✔	✔	✔	⚠

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NEOPLASIA continued... (9.5% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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MALIGNANT PLEURAL DISEASE (<2% of exam)

Mesothelioma	LF	⚠	⚠	⚠	⚠	⚠
Malignant pleural effusion or pleural metastasis		✔	✔	✔	✔	⚠

COMPLICATIONS (<2% of exam)

Paraneoplastic syndromes		⚠	⚠	⚠	⚠	⚠
Superior vena cava syndrome		✔	⚠	⚠	⚠	⚠

PULMONARY NODULES (<2% of exam)

Solitary pulmonary nodule		✔	✔	✔	✔	✔
Multiple pulmonary nodules		✔	✔	✔	✔	✔
Mimics of pulmonary nodules and masses		✔	✔	✔	✔	⚠

PHYSIOLOGIC ASSESSMENT FOR THORACIC SURGERY (<2% of exam)

Physiologic assessment for thoracic surgery		✔	✔	✔	✔	⚠
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INTERVENTIONAL PULMONARY MEDICINE AND THORACIC SURGERY (<2% of exam)

Bronchoscopy, EBUS, and other interventional airway procedures		✔	✔	✔	✔	⚠
Palliative interventions		✔	✔	✔	✔	⚠
Video-assisted thoracoscopy (VATS) and other surgery		✔	⚠	⚠	⚠	⚠

LUNG CANCER SCREENING (<2% of exam)

Lung cancer screening		✔	✔	✔	✔	⚠
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PLEURAL DISEASE (5% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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STRUCTURE AND PHYSIOLOGY (<2% of exam)

Fibrosis	✔	⚡	✔	⚡	⚡
Calcification	⚡	⚡	⚡	⚡	⚡
Thickening	⚡	⚡	⚡	⚡	⚡
Fluid dynamics	⚡	⚡	⚡	⚡	⚡
Trapped lung and lung entrapment	✔	⚡	⚡	⚡	⚡

PNEUMOTHORAX (<2% of exam)

Primary spontaneous	✔	✔	✔	⚡	⚡
Secondary					
Parenchymal disease-related	✔	✔	✔	⚡	⚡
Iatrogenic	✔	✔	✔	⚡	⚡
Traumatic	⚡	⚡	⚡	⚡	✘
Catamenial, familial, and other types	LF ⚡	⚡	⚡	✘	✘
Outcomes	⚡	⚡	⚡	⚡	✘

EFFUSIONS AND PLEURAL PATHOLOGY (2% of exam)

Transudative					
Hemodynamic and oncotic	✔	✔	✔	⚡	⚡
Hydrothorax	⚡	⚡	✔	⚡	⚡
Urinothorax and other types	LF ⚡	⚡	⚡	✘	✘

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PLEURAL DISEASE <i>continued...</i> (5% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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EFFUSIONS AND PLEURAL PATHOLOGY *continued... (2% of exam)*

Exudative					
Infectious	✔	✔	✔	⚠	⚠
Occupational	LF ⚠	⚠	⚠	⚠	✘
Noninfectious inflammatory	⚠	⚠	⚠	⚠	⚠
Hemorrhagic	✔	⚠	⚠	⚠	⚠
Chylous	LF ⚠	⚠	⚠	⚠	⚠
Drug-induced	LF ⚠	⚠	⚠	✘	✘
Eosinophilic	LF ⚠	⚠	⚠	⚠	✘

DIAGNOSTIC AND THERAPEUTIC PROCEDURES (*<2% of exam*)

Thoracentesis and pleuroscopy	✔	✔	✔	⚠	⚠
Chest tubes and tunneled pleural catheters	✔	✔	✔	⚠	⚠

QUALITY, SAFETY, AND COMPLICATIONS (5% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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METHODS OF ASSESSING QUALITY, SAFETY, AND PATIENT SATISFACTION (*<2% of exam*)

Benchmarking	⚠ – Task not otherwise specified				
Adverse event reporting	⚠	⚠	⚠	⚠	⚠
Patient satisfaction surveys	⚠	⚠	⚠	⚠	⚠
Root cause analysis	⚠	⚠	⚠	⚠	⚠
Failure mode and effects analysis	LF ⚠	⚠	⚠	✘	✘

METHODS FOR IMPROVING QUALITY AND SAFETY (*<2% of exam*)

Methods for improving quality and safety	⚠	⚠	⚠	⚠	⚠
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DISCLOSURE OF ERRORS TO PATIENTS AND FAMILY MEMBERS (*<2% of exam*)

Disclosure of errors to patients and family members	⚠	⚠	⚠	⚠	⚠
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QUALITY, SAFETY, AND COMPLICATIONS <i>continued...</i> (5% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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COMPLICATIONS OF MEDICAL CARE (2% of exam)

Adverse drug effects and drug interactions	✔	✔	✔	⚡	⚡
Complications of bronchoscopy and pleural procedures	✔	✔	✔	✔	⚡
Adverse outcomes of thoracic surgery	✔	✔	✔	⚡	⚡
Adverse effects of thoracic radiation therapy LF	✔	✔	⚡	⚡	⚡
Complications of translaryngeal intubation and tracheostomy	✔	✔	✔	✔	⚡
Infection control	⚡	⚡	⚡	⚡	⚡

ETHICS AND PROFESSIONALISM (<2% of exam)

Ethics and professionalism	⚡	⚡	⚡	⚡	⚡
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TRANSPLANTATION (2% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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LUNG TRANSPLANTATION (<2% of exam)

Patient selection LF	⚡	⚡	⚡	⚡	⚡
Complications of lung transplantation LF	⚡	⚡	⚡	⚡	✘
Transplantation outcomes LF	⚡	⚡	⚡	⚡	✘

PULMONARY COMPLICATIONS OF TRANSPLANTATION OTHER THAN LUNG (<2% of exam)

Infections LF	⚡	⚡	⚡	⚡	✘
Neoplastic complications LF	⚡	⚡	⚡	⚡	✘
Other complications of organ transplantation (graft-versus-host disease) LF	⚡	⚡	⚡	✘	✘

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VASCULAR DISEASES (6% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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PULMONARY THROMBOEMBOLIC DISEASE (2.5% of exam)

Deep venous thrombosis	✔	✔	✔	✔	⚡
Pulmonary thromboembolism	✔	✔	✔	✔	⚡
Nonthrombotic pulmonary embolism	⚡	⚡	⚡	⚡	⚡
Lemierre's syndrome LF	⚡	⚡	⚡	✘	✘

PULMONARY HYPERTENSION (<2% of exam)

Pulmonary arterial hypertension	✔	✔	⚡	⚡	⚡
Chronic thromboembolic disease LF	⚡	⚡	⚡	⚡	⚡
Other pulmonary hypertension (veno-occlusive disease, portopulmonary hypertension) LF	⚡	⚡	⚡	⚡	⚡
Right ventricular failure	✔	✔	✔	⚡	⚡

PULMONARY VASCULITIS AND CAPILLARITIS (<2% of exam)

Granulomatosis with polyangiitis LF	⚡	⚡	⚡	⚡	⚡
Anti-glomerular basement membrane disease LF	⚡	⚡	⚡	⚡	✘
Microscopic polyangiitis and other pulmonary vasculidities LF	⚡	⚡	⚡	⚡	✘

PULMONARY VASCULAR MALFORMATIONS (<2% of exam)

Pulmonary arteriovenous malformation LF	⚡	⚡	⚡	⚡	✘
Hepatopulmonary syndrome LF	⚡	⚡	⚡	⚡	⚡

SICKLE CELL DISEASE (<2% of exam)

Sickle cell disease LF	⚡	⚡	⚡	⚡	⚡
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RESPIRATORY PHYSIOLOGY AND PULMONARY SYMPTOMS (4% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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RESPIRATORY PHYSIOLOGY (2% of exam)

Pulmonary mechanics	⚠	⚠	⚠	⚠	⚠
Oxygenation	✔	✔	✔	✔	✔
Cardiovascular physiology	✔	✔	✔	⚠	⚠
Cardiopulmonary exercise testing LF	⚠	⚠	⚠	⚠	⚠
Acid-base interpretation	✔	✔	✔	⚠	✔
Hypercapnia and hypocapnia	✔	✔	✔	✔	✔
Pulmonary function testing	✔	✔	✔	✔	✔

SPECIAL SITUATIONS (<2% of exam)

Pregnancy LF	⚠	⚠	⚠	⚠	⚠
Obesity	✔	✔	✔	✔	⚠
Neuromuscular disease	⚠	⚠	⚠	⚠	⚠
Preoperative evaluation (nonthoracic surgery)	✔	✔	✔	✔	⚠
Barometric pressure related (high altitude, diving, and other special situations) LF	⚠	⚠	⚠	✘	✘

APPROACH TO PULMONARY SYMPTOMS (<2% of exam)

Dyspnea	✔	✔	✔	✔	✔
Cough	✔	✔	✔	✔	✔
Chest pain	✔	✔	✔	✔	⚠
Hemoptysis	✔	✔	✔	✔	⚠

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OCCUPATIONAL AND ENVIRONMENTAL DISEASES (2% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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TOBACCO USE TREATMENT AND SMOKING CESSATION (<2% of exam)

Tobacco use treatment and smoking cessation	✔	✔	✔	✔	✔
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OCCUPATIONAL ASTHMA AND WORK-EXACERBATED ASTHMA (<2% of exam)

Occupational asthma and work-exacerbated asthma	⚠	⚠	⚠	⚠	⚠
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INDOOR AND OUTDOOR AIR POLLUTION (<2% of exam)

Indoor and outdoor air pollution	LF	⚠	⚠	⚠	⚠	✘
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BAROMETRIC- OR THERMAL-RELATED DISORDERS (<2% of exam)

Barometric- or thermal-related disorders	LF	⚠	✘	✘	✘	✘
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PNEUMOCONIOSES (<2% of exam)

Asbestosis		⚠	⚠	⚠	⚠	⚠
Berylliosis	LF	⚠	⚠	⚠	⚠	✘
Coal workers' pneumoconiosis	LF	⚠	⚠	⚠	✘	✘
Hard metal pneumoconiosis	LF	⚠	✘	✘	✘	✘
Silicosis	LF	⚠	⚠	⚠	⚠	✘

WORK AND DISABILITY EVALUATION (<2% of exam)

Work and disability evaluation		⚠	⚠	⚠	⚠	✘
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TOXIC INHALATIONS (<2% of exam)

Carbon monoxide	LF	⚠	⚠	⚠	⚠	⚠
Smoke inhalation	LF	⚠	⚠	⚠	⚠	⚠
Other toxic exposures (cobalt, dust, endotoxin, metal fume fever, organic agents)	LF	⚠	⚠	⚠	⚠	⚠

ENVIRONMENTAL CANCER RISK (<2% of exam)

Environmental cancer risk		⚠	⚠	⚠	⚠	⚠
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