PULMONARY DISEASE Blueprint

For traditional, 10-year Maintenance of Certification (MOC) exam and Longitudinal Knowledge Assessment (LKA®)

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. 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. ABIM used this feedback to update the blueprint for MOC assessments (beginning with the Fall 2017 administration of the traditional, 10-year MOC exam).

To inform how assessment 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 assessment 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 Assessments

MOC assessments are designed to evaluate whether a certified pulmologist 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, 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.

Assessment format

The traditional, 10-year MOC exam is composed of up to 235 single-best-answer multiple-choice questions, of which approximately 55 are new questions that do not count in the examinee's score. Examinees taking the traditional, 10-year MOC exam will have access to an external resource (i.e., UpToDate®) for the entire exam.

The LKA for MOC, slated to launch in 2023, is a five-year cycle in which physicians answer questions on an ongoing basis and receive feedback on how they're performing along the way. More information on how assessments are developed can be found at abim.org/about/exam-information/exam-development.aspx.

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

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.

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. Exam tutorials, 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 MOC traditional, 10-year exam and the LKA. The relative distribution of content is expressed as a percentage of the total assessment. To determine the content distribution, ABIM considered the average respondent ratings of topic frequency and importance. Informed by these data, the Pulmonary Disease Approval 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 assessment

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 *Assessment 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 Approval Committee and Board, in partnership with the physician community, have set the following parameters for selecting MOC assessment questions according to the blueprint review ratings:

- At least 65% of questions will address high-importance content (indicated in green)
- No more than 35% of 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 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 traditional, 10-year 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 traditional, 10-year MOC exam and the LKA

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

⊘ – ***Medium Importance****: No more than 35% of 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**
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	✓	✓	✓	⊘	⊘
Eosinophilic TH2-high asthma	⊘	⊘	✓	⊘	⊘
Cough variant asthma and other special types	✓	✓	✓	✓	⊘

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OBSTRUCTIVE LUNG DISEASE *continued…* *(17.5% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
ASTHMA *continued… (9% of exam)*					
Asthma mimics					
Paradoxical vocal fold motion (Inducible laryngeal obstruction)	✓	✓	✓	⊘	⊘
Genetic (cystic fibrosis, alpha-1 antitrypsin disease, primary ciliary dyskinesia) and nongenetic **LF**	⊘	⊘	⊘	⊘	⊘
Hypereosinophilic Löffler 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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OBSTRUCTIVE LUNG DISEASE *continued…* *(17.5% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
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 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% 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
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	⊘	⊘	⊘	⊘	⊘
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 *continued…* *(15% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
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	✓	⊘	⊘	⊘	⊘
NONRESPIRATORY CRITICAL CARE *(2.5% of exam)*					
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	✓	⊘	⊘	⊘	⊘

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CRITICAL CARE MEDICINE *continued…* *(15% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**

NONRESPIRATORY CRITICAL CARE *continued… (2.5% of exam)*

Hypothermia and hyperthermia **LF**	⊘	⊘	⊘	⊘	⊘
Toxicology	✅	⊘	⊘	⊘	⊘

RESPIRATORY FAILURE *(4% of exam)*

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 **LF**	✅	✅	✅	⊘	⊘
Respiratory failure related to COVID-19	✅	✅	✅	✅	⊘

DIFFUSE PARENCHYMAL LUNG DISEASE (DPLD) *(10% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**

INTERSTITIAL LUNG DISEASE (ILD) ASSOCIATED WITH SYSTEMIC INFLAMMATORY DISEASE *(2.5% of exam)*

Connective tissue disease (CTD)-associated ILD					
Rheumatoid arthritis	✅	✅	✅	⊘	⊘
Systemic sclerosis	✅	✅	✅	⊘	⊘
Polymyositis, dermatomyositis, and anti-synthetase syndromes **LF**	✅	⊘	⊘	⊘	⊘
Sjögren syndrome	✅	✅	✅	⊘	⊘
Systemic lupus erythematosus	✅	✅	✅	⊘	⊘
Other connective tissue diseases	✅	✅	✅	⊘	⊘

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DIFFUSE PARENCHYMAL LUNG DISEASE (DPLD) *continued…* *(10% of exam)*		**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
INTERSTITIAL LUNG DISEASE (ILD) ASSOCIATED WITH SYSTEMIC INFLAMMATORY DISEASE *continued… (2.5% of exam)*						
Inflammatory bowel disease-associated ILD	LF	⊘	⊘	⊘	⊘	⊗
IgG4-related disease and other diseases	LF	⊘	⊘	⊘	⊗	⊗
IDIOPATHIC INTERSTITIAL PNEUMONIAS *(3.5% of exam)*						
Acute interstitial pneumonia	LF	✓	⊘	⊘	⊘	⊘
Cryptogenic organizing pneumonia		✓	✓	✓	⊘	⊘
Desquamative interstitial pneumonia	LF	⊘	⊘	⊘	⊘	⊘
Idiopathic pulmonary fibrosis		✓	✓	✓	✓	⊘
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 conditions	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) *continued…* *(10% of exam)*		**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
DIFFUSE CYSTIC LUNG DISEASES (DCLDS) *continued… (<2% of exam)*						
Follicular bronchiolitis and cystic LIP	**LF**	⊘	⊘	⊘	⊗	⊗
Light-chain deposition disease, neurofibromatosis, Marfan syndrome, and other DCLDs	**LF**	⊘	⊘	⊘	⊗	⊗
RADIATION INDUCED PNEUMONITIS AND FIBROSIS *(<2% of exam)*						
Radiation induced pneumonitis and fibrosis	**LF**	⊘	⊘	⊘	⊘	⊘
DRUG-INDUCED INTERSTITIAL LUNG DISEASE *(<2% of exam)*						
Drug-induced interstitial lung disease	**LF**	⊘	⊘	⊘	⊘	⊘
PULMONARY ALVEOLAR PROTEINOSIS *(<2% of exam)*						
Pulmonary alveolar proteinosis	**LF**	⊘	⊘	⊘	⊘	⊘
CONSTRICTIVE BRONCHIOLITIS (IDIOPATHIC AND TOXIC EXPOSURE-INDUCED) *(<2% of exam)*						
Constrictive bronchiolitis (idiopathic and toxic exposure-induced)	**LF**	⊘	⊘	⊘	⊘	⊘
GENETIC AND OTHER RARE INTERSTITIAL LUNG DISEASES *(<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**

SLEEP, RESPIRATORY *(6.5% of exam)*

	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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)*

	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
Insomnia	⊘	⊘	⊘	⊗	⊗
Narcolepsy **LF**	⊘	⊘	⊘	⊘	⊘
Periodic limb movement disorder	⊘	⊘	⊘	⊘	⊘
Restless legs syndrome	⊘	⊘	⊘	⊘	⊘
Interactions of cardiopulmonary disease and sleep	✓	✓	✓	✓	⊘

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SLEEP MEDICINE, NEUROMUSCULAR, AND SKELETAL *continued…* *(10% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
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**
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*
PANDEMIC RESPONSE *(<2% of exam)*					
Pandemic response	✓	✓	✓	✓	⊗

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INFECTIONS *(12% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**
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 *continued…* *(12% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**

MAJOR PATHOGENS IN PULMONARY INFECTION *(5% of exam)*

Pneumonia due to gram-positive bacteria					
Pneumococcus	✓	✓	✓	✓	⊘
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*) **LF**	⊘	⊘	⊘	⊘	⊗
Viruses					
Influenza	✓	✓	✓	✓	⊘
COVID-19/SARS-CoV-2	✓	✓	✓	✓	⊘
Cytomegalovirus infection, herpes, and varicella **LF**	⊘	⊘	⊘	⊗	⊗
Aspergillus and other opportunistic fungi (*Mucor*)	✓	✓	✓	⊘	⊗
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
LUNG CANCER *(3% of exam)*					
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 *(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**
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	✓	✓	✓	✓	⊘
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**
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

continued…

(5% of exam)

EFFUSIONS AND PLEURAL PATHOLOGY *continued… (2% of exam)*

	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
Exudative					
Infectious	✓	✓	✓	⊘	⊘
Occupational **LF**	⊘	⊘	⊘	⊘	⊗
Noninfectious inflammatory	⊘	⊘	⊘	⊘	⊘
Hemorrhagic	✓	⊘	⊘	⊘	⊘
Chylous **LF**	⊘	⊘	⊘	⊘	⊘
Drug-induced **LF**	⊘	⊘	⊘	⊗	⊗
Eosinophilic **LF**	⊘	⊘	⊘	⊘	⊗

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

	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
Thoracentesis and pleuroscopy	✓	✓	✓	⊘	⊘
Chest tubes and tunneled pleural catheters	✓	✓	✓	⊘	⊘

QUALITY, SAFETY, AND COMPLICATIONS

(5% of exam)

METHODS OF ASSESSING QUALITY, SAFETY, AND PATIENT SATISFACTION *(<2% of exam)*

	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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)*

	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
Methods for improving quality and safety	⊘	⊘	⊘	⊘	⊘

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QUALITY, SAFETY, AND COMPLICATIONS *continued…* *(5% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**

COMPLICATIONS OF MEDICAL CARE *(2% of exam)*

	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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)*

	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
Ethics and professionalism (advance directives, end of life, decision-making capacity, etc.)	⊘	⊘	⊘	⊘	⊘

TRANSPLANTATION *(2% of exam)*	**Diagnosis**	**Testing**	**Treatment/ Care Decisions**	**Risk Assessment/ Prognosis/ Epidemiology**	**Pathophysiology/ Basic Science**

LUNG TRANSPLANTATION *(<2% of exam)*

	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
Patient selection LF	⊘	⊘	⊘	⊘	⊘
Complications of lung transplantation LF	⊘	⊘	⊘	⊘	⊗
Transplantation outcomes LF	⊘	⊘	⊘	⊘	⊗

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

	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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**
PULMONARY THROMBOEMBOLIC DISEASE *(2.5% of exam)*					
Deep venous thrombosis	✅	✅	✅	✅	⊘
Pulmonary thromboembolism	✅	✅	✅	✅	⊘
Nonthrombotic pulmonary embolism	⊘	⊘	⊘	⊘	⊘
Infectious thrombophlebitis **LF**	⊘	⊘	⊘	⊗	⊗
PULMONARY HYPERTENSION *(<2% of exam)*					
Pulmonary arterial hypertension	✅	✅	⊘	⊘	⊘
Chronic thromboembolic disease **LF**	⊘	⊘	⊘	⊘	⊘
Other pulmonary hypertension related to heart or lung disease **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 vasculitides **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**
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**
TOBACCO USE TREATMENT AND SMOKING CESSATION *(<2% of exam)*					
Tobacco use treatment and smoking cessation	✓	✓	✓	✓	✓
OCCUPATIONAL ASTHMA AND WORK-EXACERBATED ASTHMA *(<2% of exam)*					
Occupational asthma and work-exacerbated asthma	⊘	⊘	⊘	⊘	⊘
INDOOR AND OUTDOOR AIR POLLUTION *(<2% of exam)*					
Indoor and outdoor air pollution **LF**	⊘	⊘	⊘	⊘	⊗
BAROMETRIC- OR THERMAL-RELATED DISORDERS *(<2% of exam)*					
Barometric- or thermal-related disorders **LF**	⊘	⊗	⊗	⊗	⊗
PNEUMOCONIOSES *(<2% of exam)*					
Asbestosis	⊘	⊘	⊘	⊘	⊘
Berylliosis **LF**	⊘	⊘	⊘	⊘	⊗
Coal workers' pneumoconiosis **LF**	⊘	⊘	⊘	⊗	⊗
Hard metal pneumoconiosis **LF**	⊘	⊗	⊗	⊗	⊗
Silicosis **LF**	⊘	⊘	⊘	⊘	⊗
TOXIC INHALATIONS *(<2% of exam)*					
E-cigarette and vaping-associated lung injury	✓	⊘	✓	⊘	⊗
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	⊘	⊘	⊘	⊘	⊘