TRANSPLANT HEPATOLOGY Blueprint

Maintenance of Certification Examination (MOC)

Purpose of the exam

The exam, which is developed jointly by the ABIM and the American Board of Pediatrics, is designed to evaluate the knowledge, diagnostic reasoning, and clinical judgment skills expected of the certified transplant hepatologist 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 transplant hepatologist.

Exam content

Exam content is determined by a pre-established blueprint, or table of specifications, which 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
Pretransplant	45%
Perioperative	20%
Post-transplant	25%
Transplant Immunology	5%
Miscellaneous	5%
	100%

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, predominantly describing patient scenarios. All candidates will see up to 180 common questions. ABIM candidates will see up to 60 additional questions specific to adult content areas; American Board of Pediatrics candidates will see up to 60 additional questions specific to Pediatric content areas. Questions 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, and other media to illustrate relevant patient findings. More information on how exams are developed can be found at: https://www.abim.org/about/exam-information/exam-development.aspx.

Examinees will have access to an external resource (e.g., UpToDate®) for the exam. A tutorial including examples of ABIM exam question format can be found at https://www.abim.org/maintenance-of-certification/assessment-information/transplanthepatology/exam-tutorial.aspx.

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.

Pretransplant	**45%** of Exam

Biliary atresia (pediatrics only)	2%
Genetic liver disease	4%
Cholestatic syndromes (including progressive familial intrahepatic cholestasis [PFICs])	
Hereditary hemorrhagic telangiectasia (internal medicine only)	
Wilson disease	
Alpha-1-antitrypsin deficiency	
Iron overload syndromes	
Mitochondrial defect	
Urea cycle defect (pediatrics only)	
Cystic fibrosis	
Fibrocystic diseases (including Caroli disease and choledochal cysts)	
Familial amyloid polyneuropathy (FAP) (internal medicine only)	
Other genetic liver diseases (including erythropoietic protoporphyria)	
Autoimmune disorders	3%
Primary biliary cholangitis (internal medicine only)	
Hepatitis	
Overlap syndrome (including autoimmune cholangiopathy)	
Primary sclerosing cholangitis (including IgG4 cholangiopathy)	
Sarcoidosis (internal medicine only)	
Celiac disease	
Viral hepatitis	7%
Hepatitis A (HAV)	
Hepatitis B (HBV)	
Hepatitis C (HCV)	
Hepatitis D (HDV)	
Hepatitis E (HEV)	
Other viruses (including Epstein-Barr virus, cytomegalovirus, herpes simplex virus)	
Budd-Chiari syndrome, sinusoidal obstruction syndrome, and congestive hepatopathy	<2%
Growth failure (pediatrics only)	2%
Portal hypertension	2%

- Varices
- Ascites
- Encephalopathy
- Spontaneous bacterial peritonitis Noncirrhotic portal hypertension
- Hepatic hydrothorax
- Hepatopulmonary syndrome and portopulmonary hypertension Hepatorenal syndrome

Liver tumors 4%

- Hepatocellular carcinoma
- Hepatoblastoma (pediatrics only)
- Cholangiocarcinoma (internal medicine only)
- Other tumors (including benign, hemangioendothelioma, and neuroendocrine)

Selection and evaluation for transplantation 9%

- Pediatric End-Stage Liver Disease (PELD) and Model for End-Stage Liver Disease (MELD) scoring systems, including psychosocial issues
- Contraindications to transplantation
- Exceptions to PELD and MELD systems
- Live donor selection
- Impact of active infection, malignancy, and malnutrition on outcome
- Multiorgan (liver, kidney) recipients
- Co-morbidities (including human immunodeficiency virus [HIV] infection)

Acute liver failure 5%

- Epidemiology
- Etiology
- Pathobiology
- Assessment
- Prognostic indicators
- Treatment
- Indications for transplantation
- Outcome as a function of age and diagnosis

Alcohol-associated liver disease (internal medicine only)	2%
Metabolic dysfunction-associated steatotic liver disease, including metabolic dysfunction-associated steatohepatitis	<2%
Liver diseases of pregnancy	<2%
Transfer of care	<2%
Drug-induced liver disease	<2%

Perioperative **20%** of Exam

Donor selection	3%
Extended-criteria donors	
Steatosis	
Viral infection	
Domino (sequential) (internal medicine only)	
Surgical options, complications specific to graft and donor types (including ABO blood type)	3%
Perioperative complications	6%
Initial poor function or primary nonfunction	
Vascular complications	
Infections (viral, bacterial, and fungal) Hepatitis	
B and C antiviral therapy	
Biliary complications	
Allograft rejection	
Metabolic complications (including neurotoxicity and nephrotoxicity)	
Drug hepatotoxicity	2%
Nutritional support	2%
Living donor	<2%
Small for size syndrome	
Donor complications	
Recipient complications	
Donor transmission of disease	<2%
Donation after circulatory death	<2%
Split graft transplantation	<2%

Post-transplant **25%** of Exam

Immune complications	4%
Rejection	
Graft-versus-host disease	
Alloimmune and autoimmune diseases (de novo)	
Nonimmune complications	5%
Diabetes mellitus	
Renal	
Bone	
Growth and development (pediatrics only)	
Cardiovascular complications	
Vascular complications	
Infectious complications	5%
Viral infections (cytomegalovirus, Epstein-Barr virus, and human herpesvirus)	
Bacterial infections	
Fungal infections	
Emerging infections	
Recurrence of disease (including hepatitis C, cancer, PBC, AIH)	3%
Post-transplant malignancy	2%
Post-transplantation lymphoproliferative disorder (PTLD) Surveillance for malignancy	
Indications for retransplantation	2%
Adherence to medical regimen	2%
Quality of life	2%

Transplant Immunology **5%** of Exam

Basic immunology	2%

Innate and adaptive immune system	
Immune response	
Tolerance	
Mechanism of action and pharmacokinetics (PK) of immunosuppressive medications	2%
Cyclosporine and tacrolimus Mycophenolate mofetil (MMF), mycophenolic acid (MPA), and azathioprine Sirolimus and everolimus	
Antibody therapy	
Drug-drug interactions	
Corticosteroids	
Short-term immune and nonimmune toxicity of immunosuppressive medications	<2%

Miscellaneous **5%** of Exam

Statistics	2%
Kaplan-Meier (KM)	
Cox proportional hazards	
Relative risk	
Odds ratio	
Receiver operating characteristic curves	
Ethics	2%
Psychosocial evaluation	
Living donor transplantation	
Transplant tourism	
Clinical trial participation	
Managed care and reimbursement issues	<2%
Regulatory issues	<2%
Policy implications of organ shortage	
Regulation	