Advanced Heart Failure and Transplant Cardiology 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 advanced heart failure and transplant cardiology specialist 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 specialist in advanced heart failure and transplant cardiology.

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
Heart Failure	50%
Mechanical Circulatory Support	22.5%
Heart Transplantation	22.5%
Pulmonary Hypertension	5%
	100%

Exam questions in the content areas above may also address clinical topics in general internal medicine that are relevant to the practice of advanced heart failure and transplant cardiology.

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

Some questions require interpretation of pictorial material, such as coronary angiograms, ultrasound images, computed tomograms, magnetic resonance images, electrocardiograms, and echocardiograms. 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/advanced-heart-failure-transplant-cardiology/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.

Heart Failure	**50%** of Exam
Acute	10%
New-onset	
Hemodynamics	
Decompensated	
Shock	

Heart failure with reduced ejection fraction (HFrEF)	15%
Stage B	
Stage C	
Stage D	
Comorbidities	
Palliative and transitional care	
Heart failure with preserved ejection fraction (HFpEF)	7.5%
Stage B	
Stage C	
Stage D	
Comorbidities	
Palliative and transitional care	
Specific etiologies of heart failure	17.5%
Adult congenital heart disease	
Arrhythmia-related	
Inherited cardiomyopathy	
Hypertension	
Hypertrophic cardiomyopathy	
Infiltrative cardiomyopathy	
Inflammation and infection	
Coronary artery disease and acute myocardial infarction	
Non-ischemic cardiomyopathy	
Pericardial disease	
Peripartum cardiomyopathy	
Toxic cardiomyopathy including chemotherapy	
Valvular heart disease	

Mechanical Circulatory Support — **22.5%** of Exam

Patient selection	6.5%
Timing of referral	
Comorbidities	
Psychosocial circumstances	
Hemodynamics	
Temporary circulatory assist devices	5%
Percutaneous	
Surgical	
Extracorporeal membrane oxygenation	
Palliative and transitional care	

Durable left ventricular assist devices	10%
Abbott HeartMate 3™	
Complications	
Medtronic HVAD ®	
Complications	
Palliative and Transitional care	
Total artificial heart	<2%

Heart Transplantation — **22.5%** of Exam

Patient selection	3%
Timing of referral	
Consent process	
Comorbidities	
Psychosocial circumstances	
Hemodynamics	
Combined organ transplantation	
Listing criteria	<2%
UNOS algorithms	<2%
Clinical trials and registries	<2%
Transplant immunology	<2%
Histocompatibility	
Allosensitization	
Immune response	
Pre-operative considerations	<2%
Intra-operative complications	<2%
Primary allograft dysfunction	
Right heart failure	
Indications for acute mechanical support	
Bleeding complications	
Early peri-operative complications (< 7 days)	<2%
Late peri-operative complications (7 – 28 days)	<2%
Immunosuppression	2%
Mechanisms of actions	
Adverse reactions	
Drug-drug interactions	
Protocols	
Vaccinations in transplant recipient	
Acute allograft rejection	2%
Hyperacute	
Acute cellular	
Antibody-mediated rejection	

Chronic allograft rejection	<2%
Allograft vasculopathy	
Retransplantation	<2%
Patient selection	
Timing	
Complications	
Post-transplantation considerations	4%
Diabetes mellitus	
Gastrointestinal complications	
Hypertension	
Infection	
Malignancy	
Metabolic disorders	
Palliative and transitional care	
Pregnancy	
Psychosocial circumstances	
Rehabilitation	
Renal dysfunction	

Pulmonary Hypertension	**5%** of Exam

WHO Group 1 – Pulmonary arterial hypertension (PAH)	<2%
WHO Group 2 – Pulmonary hypertension owing to left heart disease	<2%
WHO Group 3 – Pulmonary hypertension owing to lung disease	<2%
WHO Group 4 – Chronic thromboembolic pulmonary hypertension (CTEPH)	<2%

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