

## Cardiovascular Disease

Certification Examination Blueprints

### Blueprint for the Full-Day, Multiple-Choice Questions Component of the Exam:

#### Purpose of the exam

The exam is designed to evaluate the knowledge, diagnostic reasoning, and clinical judgment skills expected of the certified cardiovascular disease 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 cardiovascular disease specialist.

#### 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
Arrhythmias	15%
Coronary Artery Disease	21.5%
Heart Failure and Cardiomyopathy	17%
Valvular Disease	15%
Pericardial Disease	4%
Congenital Heart Disease	5%
Vascular Diseases	6%
Systemic Hypertension and Hypotension	7.5%
Pulmonary Circulation Disorders	3%
Systemic Disorders Affecting the Circulatory System	4%
Normal Cardiovascular Anatomy and Physiology	2%
	100%

Exam questions in the content areas above may also address clinical topics in:

- Preventive and rehabilitative cardiology
- Cardiovascular disease in women
- Geriatric cardiovascular disease
- Preoperative assessment for noncardiac surgery
- Postoperative cardiac care
- Critical care medicine, cardiovascular surgery, and general internal medicine as encountered in the practice of cardiology (including some general pediatrics with an emphasis on adolescent medicine)

### **Exam format**

The exam is composed of multiple-choice questions with a single best answer, predominantly describing patient scenarios. 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

Some questions require interpretation of pictorial material including electrocardiograms, intracardiac electrograms, hemodynamic recordings, chest radiographs, photomicrographs, and imaging studies such as coronary angiograms, echocardiograms, ventriculograms, myocardial perfusion studies, computed tomograms, magnetic resonance images, and intravascular ultrasound images. Some questions may also require recognition and interpretation of recorded heart sounds.

A tutorial including examples of ABIM exam question format can be found at <http://www.abim.org/certification/exam-information/cardiovascular-disease/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.

<b>Arrhythmias</b>	<b>15% of Exam</b>
<b>Atrioventricular conduction disease</b>	<2%
Atrioventricular block, 1st degree	
Atrioventricular block, 2nd degree	
Atrioventricular block, complete	
Left bundle branch block	
Right bundle branch block	
Left anterior fascicular block	
Left posterior fascicular block	
<b>Sinus node dysfunction</b>	<2%
Sinus bradycardia	
Sinus pauses	
Bradycardia-tachycardia syndrome	
<b>Supraventricular arrhythmias</b>	2%
Atrioventricular reentrant nodal tachycardia	
Pre-excitation syndromes (including Wolff-Parkinson-White)	
Atrioventricular reciprocating tachycardia	
<b>Ventricular arrhythmias</b>	2%
Ventricular tachycardia, monomorphic	
Ventricular tachycardia, polymorphic	
With prolonged Q-T interval	
Without prolonged Q-T interval	
Ventricular fibrillation (including idiopathic and non-idiopathic varieties)	
Premature ventricular complexes	
<b>Atrial arrhythmias</b>	3.5%
Paroxysmal atrial fibrillation	
Persistent atrial fibrillation	
Permanent atrial fibrillation	
Typical atrial flutter (Type I)	
Atypical atrial flutter (Type II)	
Atrial tachycardia	
Ectopic atrial rhythms	
<b>Channelopathies</b>	<2%
Long Q-T syndrome	
Brugada syndrome	
Early repolarization syndrome	
<b>Sudden cardiac death</b>	<2%
<b>Syncope</b>	<2%
<b>Pacemaker and ICD function</b>	<2%
<b>Antiarrhythmic drug effects</b>	<2%

<b>Coronary Artery Disease</b>	<b>21.5%</b> of Exam
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<b>Angina pectoris</b>	5%
Unstable angina	
Vasospastic angina	
Angina equivalent	
Exertional angina	
Angina with microvascular disease	
<b>Chronic ischemic heart disease</b>	5%
Coronary atherosclerosis	
Remote myocardial infarction	
Aneurysm of the heart	
Coronary artery aneurysm	
Silent myocardial ischemia	
<b>Acute myocardial infarction</b>	9.5%
STEMI of the anterior wall	
STEMI of the inferior wall	
Right ventricular involvement	
STEMI of the lateral wall	
STEMI of the posterior wall (including inferoposterior wall)	
Type I Non-STEMI	
Type II myocardial infarction	
Spontaneous coronary artery dissection	
STEMI, other	
<b>Early complications following acute myocardial infarction</b>	<2%
Ventricular septal rupture	
Rupture of the cardiac wall	
Rupture of papillary muscle	
Postinfarction angina	
Postinfarction arrhythmias	
Left ventricular pseudoaneurysm	
Dynamic left ventricular outflow tract obstruction	
Postinfarction systolic heart failure	
<b>Atypical chest pain</b>	<2%

<b>Heart Failure and Cardiomyopathy</b>	<b>17%</b> of Exam
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<b>Heart failure</b>	7%
Acute decompensated ventricular failure	
Systolic heart failure (heart failure with reduced ejection fraction)	
Diastolic heart failure (heart failure with preserved ejection fraction)	

Heart failure with improved ejection fraction	
Cardiogenic shock	
<b>Cardiomyopathies</b>	<b>8%</b>
Dilated cardiomyopathies	
Hypertrophic cardiomyopathies	
Restrictive and infiltrative cardiomyopathies	
Chemotherapy-related cardiomyopathy	
Stress-induced cardiomyopathy (Takotsubo syndrome)	
Myocarditis	
Noncompaction cardiomyopathy	
Arrhythmogenic right ventricular dysplasia	
<b>Transplanted heart</b>	<b>&lt;2%</b>
<b>Mechanical circulatory support</b>	<b>&lt;2%</b>

<b>Valvular Disease</b>	<b>15% of Exam</b>
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<b>Mitral valve disorders</b>	<b>5.5%</b>
Mitral valve regurgitation, native	
Mitral valve stenosis, native	
Mitral valve prolapse, native	
Prosthetic mitral valve	
<b>Aortic valve disorders</b>	<b>4.5%</b>
Aortic valve regurgitation, native	
Aortic valve stenosis, native	
Prosthetic aortic valve	
<b>Tricuspid valve disorders</b>	<b>&lt;2%</b>
Tricuspid valve regurgitation, native	
Tricuspid valve stenosis, native	
Prosthetic tricuspid valve	
<b>Pulmonary valve disorders</b>	<b>&lt;2%</b>
Pulmonary valve regurgitation, native	
Pulmonary valve stenosis, native	
Prosthetic pulmonary valve	
<b>Endocarditis</b>	<b>2%</b>
<b>Cardiac murmurs and other cardiac sounds</b>	<b>&lt;2%</b>

<b>Pericardial Disease</b>	<b>4% of Exam</b>
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<b>Acute pericarditis</b>	<b>&lt;2%</b>
<b>Chronic pericarditis (including relapsing)</b>	<b>&lt;2%</b>
<b>Pericardial constriction and effusion</b>	<b>&lt;2%</b>
Pericardial effusion	
Cardiac tamponade	

Constrictive pericarditis	
Effusive-constrictive pericarditis	
<b>Abnormalities of the pericardium</b>	<b>&lt;2%</b>

<b>Congenital Heart Disease</b>	<b>5% of Exam</b>
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<b>Congenital malformations of cardiac chambers and connections</b>	<b>&lt;2%</b>
Complete transposition of the great vessels	
Corrected transposition of the great vessels	
Tricuspid atresia	
Anomalous origin of coronary artery	
Tetralogy of Fallot	
<b>Congenital malformations of cardiac septa</b>	<b>&lt;2%</b>
Ventricular septal defect	
Atrial septal defect	
Patent foramen ovale	
Atrioventricular septal defect	
<b>Congenital malformations of pulmonary and tricuspid valves</b>	<b>&lt;2%</b>
Congenital pulmonary valve stenosis	
Ebstein anomaly	
<b>Congenital malformations of aortic and mitral valves</b>	<b>&lt;2%</b>
<b>Other congenital malformations of the heart</b>	<b>&lt;2%</b>
Dextrocardia	
Congenital heart block	
<b>Congenital malformations of the great arteries</b>	<b>&lt;2%</b>
Patent ductus arteriosus	
Coarctation of the aorta	
Aneurysm of the sinus of Valsalva	
Congenital malformation of the aortic arch	
Pulmonary artery malformation	
<b>Congenital malformations of the great veins</b>	<b>&lt;2%</b>
Persistent left superior vena cava	
Anomalous pulmonary venous connections	
<b>Congenital disorders with cardiovascular implications</b>	<b>&lt;2%</b>
<b>Eisenmenger syndrome</b>	<b>&lt;2%</b>

<b>Vascular Diseases</b>	<b>6% of Exam</b>
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<b>Cerebrovascular diseases</b>	<b>&lt;2%</b>
Cerebral infarction	
Extracranial cervical (carotid and vertebral)	
Subclavian steal syndrome with vertebral artery steal	
Carotid artery dissection	

<b>Diseases of the arteries, arterioles, and capillaries</b>	3%
Peripheral atherosclerosis	
Aortic aneurysm and dissection	
Raynaud's phenomenon	
Thromboangiitis obliterans (Buerger's disease)	
Claudication	
Acute limb ischemia	
Critical limb ischemia	
Atheroembolism	
Septic arterial embolism	
Polyarteritis nodosa	
Mucocutaneous lymph node syndrome (Kawasaki disease)	
Takayasu arteritis	
Giant cell arteritis with polymyalgia rheumatica	
Mesenteric arterial insufficiency	
Subclavian steal syndrome with internal mammary artery steal	
Fibromuscular dysplasia	

<b>Diseases of the veins, lymphatic vessels, and lymph nodes</b>	<2%
Deep vein thrombosis	
Portal vein thrombosis	
Iliac vein compression syndrome (May-Thurner syndrome)	
Varicose veins of the lower extremities	
Chronic venous insufficiency	
Chronic idiopathic venous hypertension	
Lymphedema	

<b>Systemic Hypertension and Hypotension</b>	<b>7.5%</b> of Exam
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<b>Hypertensive diseases</b>	7%
Essential (primary) hypertension	
Hypertensive heart disease	
Hypertensive chronic kidney disease	
Severe or resistant hypertension	
Urgent/emergent hypertension	
Secondary hypertension	
Hypertension in pregnancy	
<b>Hypotensive diseases</b>	<2%
Hypotensive syndrome	
Drug-induced hypotension	

<b>Pulmonary Circulation Disorders</b>	<b>3%</b> of Exam
<b>Pulmonary embolism</b>	<2%
Pulmonary embolism with acute cor pulmonale	
Pulmonary embolism without acute cor pulmonale	
Chronic pulmonary embolism	
<b>Pulmonary hypertension</b>	<2%
Pulmonary arterial hypertension (WHO Group 1)	
Pulmonary hypertension associated with other diseases (WHO Groups 2–5)	
<b>Systemic Disorders Affecting the Circulatory System</b>	<b>4%</b> of Exam
<b>Musculoskeletal and connective tissue</b>	<2%
Systemic lupus erythematosus	
Systemic sclerosis	
<b>Endocrine, nutritional, metabolic, and hematologic disorders</b>	<2%
Dyslipidemias	
Diabetes	
Obesity	
Electrolyte and endocrine abnormalities	
Hematologic disorders	
<b>Renal disorders</b>	<2%
<b>Injury and poisoning</b>	<2%
Toxic effects of alcohol	
Toxic effects of tobacco and nicotine	
Toxic effects of drugs other than alcohol and tobacco	
Anaphylactic shock	
Angioedema	
<b>Cardio-Oncology</b>	<2%
Cardiovascular effects of pharmacological cancer therapy	
Cardiovascular effects of radiation therapy	
Neoplasms	
Malignant neoplasm of the heart and pericardium	
Benign neoplasms (including myxoma, fibroma, and fibroelastoma)	
<b>Normal Cardiovascular Anatomy and Physiology</b>	<b>2%</b> of Exam



## **Blueprint for the Half-Day, Electrocardiograms and Imaging Studies Component of the Exam:**

### **Purpose of the exam**

The exam is designed to evaluate the abilities expected of the certified cardiovascular disease specialist to interpret electrocardiograms and imaging studies. The ability to make appropriate diagnostic 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 cardiovascular disease specialist.

### **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 content categories of the blueprint are shown below, with the percentage assigned to each for a typical exam:

<b>Content Category</b>	<b>% of Exam</b>
Electrocardiograms	48%
Echocardiograms	37%
Coronary Angiograms	15%
	100%

### **Exam format**

Special question formats are used, requiring diagnostic interpretation of electrocardiograms, echocardiograms, and coronary angiograms. The format comprises a brief patient description and one (or multiple) images. To see examples of the answer options lists, view the [Sample Cases - Electrocardiograms and Imaging Studies \(pdf\)](#).

The [interactive exam tutorial](#) allows you to practice navigating the answer option lists.  
<http://www.abim.org/exam/prepare.aspx>

The blueprint can be expanded for additional detail as shown below. Each of the 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.

<b>Electrocardiograms</b>	<b>48%</b> of Exam
General features	2.5 %
P wave abnormalities	<2%
Rhythms	10.5%
Atrial rhythms	
Atrioventricular junctional rhythms	
Ventricular rhythms	
Atrioventricular conduction	6%
Abnormal QRS voltage or axis	3%
Ventricular hypertrophy	<2%
Intraventricular conduction	4.5%
Myocardial infarction	7.5%
S-T, T, and U wave abnormalities	4.5%
Clinical disorders	5%
Pacemaker function	3%
<b>Echocardiograms</b>	<b>37%</b> of Exam
Left ventricular size, function, and structure	11%
Right ventricular size, function, and structure	<2%
Diseases of the atria	<2%
Valvular heart disease	11%
Cardiomyopathy	4%
Systemic disease	<2%
Pulmonary disease	<2%
Diseases of the aorta	2%
Pericardial and pleural diseases	3%
Congenital heart disease	<2%
<b>Coronary Angiograms</b>	<b>15%</b> of Exam
Normal	<2%
Stenoses	3%
Insignificant stenosis	
Moderate stenosis	
Severe stenosis	
Total occlusion	
Filled by collateral vessels	<2%

<b>Spasm</b>	<2%
<b>Thrombus</b>	<2%
<b>Myocardial bridge</b>	<2%
<b>Anomalous origin</b>	<2%
<b>Fistula</b>	<2%
<b>Aneurysm</b>	<2%
<b>Bypass graft</b>	<2%
<b>Dissection</b>	<2%
<b>Stents</b>	<2%
Patent stent	
Occluded stent	

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