



ABIM invites diplomates to help develop the Interventional Cardiology MOC exam blueprint

Based on feedback from physicians that MOC assessments should better reflect what they see in practice, in 2016 the American Board of Internal Medicine (ABIM) invited all certified interventional cardiologists 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 275 interventional cardiologists, similar to the total invited population of interventional cardiologists in age, gender, time spent in direct patient care, and geographic region of practice, provided the blueprint topic ratings. The ABIM Cardiovascular Board Interventional Cardiology Exam Committee and Cardiovascular Board have used this feedback to update the blueprint for the MOC exam (beginning with the Fall 2017 administration).

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 Interventional Cardiology MOC exam

The MOC exam is designed to evaluate whether a certified interventional cardiologist has maintained competence and currency in the knowledge and judgment required for practice. The exam emphasizes diagnosis and management of prevalent conditions, particularly in areas where practice has changed in recent years. As a result of the recent blueprint review by ABIM diplomates, future MOC exams will 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 exam is composed of 220 single-best-answer multiple-choice questions, of which 35 are new questions that do not count in the examinee's score (more information on how exams 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

Some questions require interpretation of pictorial material, such as coronary angiograms, ventriculograms, intravascular ultrasound images, nuclear perfusion studies, computed tomograms, magnetic resonance images, electrocardiograms, echocardiograms, and peripheral vascular imaging studies. A tutorial, including examples of ABIM exam question format, can be found at abim.org/maintenance-of-certification/exam-information/interventional-cardiology/exam-tutorial.aspx.

Content distribution

Listed below are the major medical content categories that define the domain for the Interventional Cardiology MOC exam. 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 Interventional Cardiology Exam Committee and Cardiovascular Board have made adjustments to some category targets, as documented below.

CONTENT CATEGORY	Blueprint target %	
	Previous MOC exams	Beginning with Fall 2017 exam
Case Selection and Management	20%	23%
Procedural Techniques	20%	22%
Complications of Coronary Intervention	8%	8%
Catheter-Based Management of Noncoronary Disease	13%	10%
Basic Science	6%	5%
Anatomy, Anatomic Variants, and Anatomic Pathology	6%	6%
Pharmacology	12%	14%
Cardiac Imaging and Assessment	9%	7%
Miscellaneous	6%	5%
Total	100%	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 Interventional Cardiology Exam Committee and Cardiovascular 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 75% of exam questions will address high-importance content (indicated in green)
- No more than 25% 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 15% 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 Interventional Cardiology MOC exam

 – **High Importance:** At least 75% of exam questions will address topics and tasks with this designation.


















































 – **Medium Importance:** No more than 25% of exam questions will address topics and tasks with this designation.

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CASE SELECTION AND MANAGEMENT (20% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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CHRONIC ISCHEMIC HEART DISEASE (6% of exam)

Clinical characteristics (demographics and comorbidities)					
Laboratory abnormalities and cardiac catheterization (hematology, coagulation, and chemistry)					
Renal insufficiency and cardiac catheterization					
Noninvasive testing before diagnostic catheterization					
Selection of treatment modality					
Interventional therapy					
Surgical therapy					
Medical therapy					
Preoperative cardiac evaluation for noncardiac surgery					
Preoperative revascularization before noncardiac surgery					

UNSTABLE ANGINA AND NON-ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION (UA AND NSTEMI) (4% of exam)

Evaluation and risk stratification of the UA and NSTEMI					
UA/NSTEMI – pharmacologic management					
UA/NSTEMI – timing of cardiac catheterization					
UA/STEMI – percutaneous coronary intervention (PCI)					

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CASE SELECTION AND MANAGEMENT <i>continued...</i> (20% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION (STEMI) (6% of exam)

STEMI systems of care	✔	✔	✔	✔	✔
Primary PCI – procedure	✔	✔	✔	✔	✔
Primary PCI – stents	✔	✔	✔	✔	✔
Primary PCI – thrombectomy	⚡	⚡	⚡	⚡	⚡
Primary PCI – outcomes	✔	✔	✔	✔	✔
Right ventricular infarction LF	✔	✔	✔	✔	⚡
Multivessel PCI	✔	✔	✔	✔	✔
Primary PCI following cardiopulmonary arrest	✔	✔	✔	✔	⚡
STEMI – differential diagnosis	✔	✔	✔	✔	✔
Acute aortic dissection LF	✔	✔	✔	✔	⚡
Therapeutic hypothermia	⚡	⚡	✔	⚡	⚡
Fibrinolytic therapy LF	✔	⚡	✔	⚡	⚡
Transfer for PCI	✔	✔	✔	✔	⚡
Rescue PCI LF	✔	✔	✔	✔	✔
Surgical therapy in STEMI LF	✔	⚡	✔	✔	⚡
Medical management after STEMI	✔	✔	✔	✔	✔

STEMI COMPLICATIONS (4% of exam)

Shock	✔	✔	✔	✔	✔
Electrophysiologic complications	✔	✔	✔	⚡	⚡
Emergency pacing LF	✔	✔	✔	⚡	⚡
Acute respiratory distress	✔	✔	✔	✔	⚡
Mechanical complications (mitral regurgitation [MR], ventricular septal defect [VSD], rupture, pseudoaneurysm) LF	✔	✔	✔	✔	⚡
Advanced Cardiovascular Life Support (ACLS)	<i>Not Applicable</i>		✔	✔	<i>Not Applicable</i>

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PROCEDURAL TECHNIQUES (20% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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PLANNING AND EXECUTION OF INVASIVE AND INTERVENTIONAL PROCEDURES (5% of exam)

General decision-making	✔	✔	✔	✔	✔
Access-site selection	✔	✔	✔	✔	✔
Radial access	✔	✔	✔	✔	⚡
Femoral access	✔	✔	✔	✔	✔
Other access (ulnar, brachial) LF	⚡	⚡	⚡	✘	✘
Vascular access closure devices	✔	✔	✔	✔	✔
Pericardiocentesis LF	✔	✔	✔	✔	✔
Right heart catheterization	✔	✔	✔	✔	✔
Right ventricular biopsy LF	⚡	⚡	⚡	✘	⚡

LESION SUBSETS (6% of exam)

Ostial	✔	✔	✔	✔	⚡
Bifurcation	✔	✔	✔	✔	✔
Long	✔	✔	✔	✔	✔
Tortuous	✔	✔	✔	✔	⚡
Calcified	✔	✔	✔	✔	⚡
Restenosis	✔	✔	✔	✔	✔
Complex single-vessel disease	✔	✔	✔	✔	✔
Multivessel disease	✔	✔	✔	✔	✔
Saphenous vein graft disease	✔	✔	✔	✔	⚡
Coronary artery bridge LF	⚡	⚡	⚡	⚡	⚡
PCI in the anomalous coronary LF	⚡	⚡	⚡	⚡	⚡
Left main	✔	✔	✔	✔	✔
Chronic total occlusion	✔	✔	✔	✔	⚡

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PROCEDURAL TECHNIQUES <i>continued...</i> (20% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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SELECTION AND USE OF EQUIPMENT (6% of exam)

Guide catheters	✔	✔	✔	✔	⚡
Guidewires	✔	✔	✔	✔	✔
Balloon catheters	✔	✔	✔	✔	⚡
Bare metal stents	⚡	⚡	✔	⚡	⚡
Drug-eluting stents	✔	✔	✔	✔	✔
Rotational atherectomy	LF	⚡	✔	✔	⚡
Embolic protection devices	✔	⚡	✔	✔	⚡
Intraaortic balloon pump counterpulsation	✔	✔	✔	✔	✔
Impella	LF	⚡	⚡	⚡	⚡
TandemHeart PTVA	LF	✘	✘	✘	✘
Extracorporeal membrane oxygenation (ECMO)	LF	✘	✘	⚡	✘

PCI TECHNICAL TROUBLESHOOTING AND PROBLEM SOLVING (3% of exam)

Failure to engage guide catheter	✔	✔	✔	✔	⚡
Failure to cross lesion with guidewire	LF	✔	✔	✔	✔
Failure to cross lesion with device	LF	✔	✔	✔	⚡
Failure to dilate lesion	LF	✔	⚡	✔	⚡

COMPLICATIONS OF CORONARY INTERVENTION (8% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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CARDIAC (5% of exam)

Coronary dissection	✔	✔	✔	✔	⚡
Abrupt closure of coronary artery	LF	✔	✔	✔	⚡
Stent thrombosis	LF	✔	✔	✔	✔
Coronary thromboembolism	LF	✔	✔	✔	⚡
Air embolism	LF	✔	✔	✔	⚡

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COMPLICATIONS OF CORONARY INTERVENTION <i>continued...</i> (8% of exam)		Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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CARDIAC *continued...* (5% of exam)

No reflow	LF	✔	✔	✔	✔	✔
Periprocedural myocardial infarction	LF	✔	✔	✔	✔	⚡
Perforation	LF	✔	✔	✔	✔	✔
Tamponade	LF	✔	✔	✔	✔	✔

NONCARDIAC (3% of exam)

Systemic thromboembolism	LF	✔	✔	✔	⚡	⚡
Cerebrovascular complications	LF	✔	✔	✔	✔	✔
Bleeding and hemorrhage		✔	✔	✔	✔	✔
Vascular access and major vessel dissection	LF	✔	✔	✔	✔	✔
Aortic dissection (due to PCI)	LF	✔	✔	✔	✔	⚡
Acute limb ischemia	LF	✔	✔	✔	✔	⚡

CATHETER-BASED MANAGEMENT OF NONCORONARY DISEASE (13% of exam)		Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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HEMODYNAMICS (2% of exam)

Arterial pressure evaluation		✔	✔	✔	✔	⚡
Right heart catheterization		✔	✔	✔	✔	⚡
Valvular stenosis		✔	✔	✔	✔	✔
Valvular regurgitation		✔	✔	✔	✔	✔
Shunt quantification	LF	✔	⚡	✔	⚡	⚡

EVALUATION AND CASE SELECTION IN STRUCTURAL AND VALVULAR HEART DISEASE (6% of exam)

Structural heart disease		✔	✔	✔	✔	⚡
Mitral valve		✔	✔	✔	✔	⚡
Aortic valve		✔	✔	✔	✔	✔
Pulmonic valve	LF	⚡	⚡	⚡	✘	✘

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CATHETER-BASED MANAGEMENT OF NONCORONARY DISEASE <i>continued...</i> (13% of exam)		Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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EVALUATION AND CASE SELECTION IN STRUCTURAL AND VALVULAR HEART DISEASE *continued...* (6% of exam)

Tricuspid valve		⚡	⚡	⚡	⚡	⚡
Hypertrophic cardiomyopathy	LF	✔	✔	✔	✔	⚡
Patent foramen ovale		⚡	⚡	⚡	⚡	⚡
Atrial septal defect	LF	⚡	⚡	⚡	⚡	⚡
Coarctation	LF	⚡	⚡	⚡	⚡	✘
Ventricular septal defect	LF	⚡	⚡	⚡	⚡	⚡

EVALUATION AND CASE SELECTION IN NONCARDIAC VASCULAR DISEASE (5% of exam)

Carotid disease		✔	✔	✔	✔	⚡
Subclavian disease	LF	⚡	⚡	⚡	⚡	⚡
Aortic disease		⚡	⚡	✔	⚡	⚡
Chronic aortic dissection	LF	⚡	⚡	⚡	⚡	⚡
Renal artery stenosis		⚡	⚡	⚡	⚡	⚡
Iliac and femoral arterial disease		✔	✔	✔	✔	⚡
Peripheral interventional therapy		✔	✔	✔	✔	⚡
Ankle-brachial index		✔	✔	✔	✔	⚡

BASIC SCIENCE (6% of exam)		Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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VASCULAR BIOLOGY (4% of exam)

Normal vascular biology	LF	⚡	⚡	⚡	⚡	⚡
Atherosclerosis		✔	✔	✔	✔	⚡
Atherosclerotic plaque		✔	✔	✔	✔	✔
Vascular injury		⚡	⚡	✔	⚡	⚡
Vasoreactivity		⚡	⚡	⚡	⚡	⚡
Reperfusion injury		⚡	⚡	⚡	⚡	⚡

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BASIC SCIENCE <i>continued...</i> (6% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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VASCULAR BIOLOGY *continued...* (4% of exam)

Effects of diabetes mellitus	✔	✔	✔	✔	⚠
Restenosis after balloon percutaneous transluminal coronary angioplasty (PTCA)	✔	✔	✔	⚠	⚠
Restenosis after stent PCI	✔	✔	✔	✔	⚠
Vascular remodeling	⚠	⚠	⚠	⚠	⚠
Microvascular dysfunction	⚠	⚠	⚠	⚠	⚠

PHYSIOLOGY (2% of exam)

Clotting cascade	⚠	⚠	⚠	⚠	⚠
Platelet function	⚠	⚠	⚠	⚠	⚠
Thrombosis and thrombolysis	✔	⚠	⚠	⚠	⚠
Lipid metabolism and lipid abnormalities	✔	✔	✔	✔	⚠

ANATOMY, ANATOMIC VARIANTS, AND ANATOMIC PATHOLOGY (6% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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CARDIAC (5% of exam)

Normal coronary anatomy, dominance	✔	✔	✔	✔	⚠
Anomalous left circumflex	LF	✔	⚠	⚠	⚠
Anomalous left coronary	LF	✔	⚠	⚠	⚠
Anomalous right coronary	LF	✔	⚠	⚠	⚠
Indications for surgery for coronary anomalies	LF	✔	⚠	✔	⚠
Collateral vessels	✔	⚠	⚠	⚠	⚠
Coronary fistulas	LF	⚠	⚠	⚠	⚠
Coronary ectasia and aneurysm		⚠	⚠	⚠	⚠
Other anatomic abnormalities	LF	⚠	⚠	⚠	✘

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ANATOMY, ANATOMIC VARIANTS, AND ANATOMIC PATHOLOGY <i>continued...</i> (6% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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CARDIAC *continued...* (5% of exam)

Angiographic assessment of coronary flow (Thrombolysis in Myocardial Infarction Trial [TIMI] flow grade, TIMI frame count)	✔	✔	✔	✔	⚠
Angiographic assessment of microcirculation (TIMI myocardial perfusion grade)	⚠	⚠	⚠	⚠	⚠
Flow and perfusion effects of arterial spasm, or microembolization	⚠	⚠	⚠	⚠	⚠
Left ventriculography	✔	✔	✔	✔	⚠
Left ventricular dysfunction – stunning and hibernation	✔	✔	✔	✔	⚠
Takotsubo syndrome	✔	✔	✔	✔	⚠
Surgical shunts and baffles LF	✘	⚠	✘	✘	✘

EXTRACARDIAC (<2% of exam)

Aortic arch anatomy and variants LF	⚠	⚠	⚠	⚠	⚠
Arterial anatomy of the cerebral vessels LF	⚠	⚠	⚠	✘	✘
Arterial anatomy of the upper extremities and variants	⚠	⚠	⚠	⚠	⚠
Arterial anatomy of the abdominal vessels LF	⚠	⚠	⚠	⚠	⚠
Arterial anatomy of the lower extremities and variants	⚠	⚠	⚠	⚠	⚠
Superior vena cava (SVC) and inferior vena cava (IVC) anatomy and variants LF	⚠	⚠	⚠	✘	✘

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PHARMACOLOGY (12% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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GENERAL (3% of exam)

Vasopressors	✔	✔	✔	✔	✔
Inotropes	✔	✔	✔	✔	✔
Vasodilators	✔	✔	✔	✔	⚠
Moderate sedation	✔	⚠	✔	⚠	⚠
Reversal agents	LF ✔	⚠	✔	⚠	⚠
Local anesthetic agents	⚠	⚠	⚠	⚠	⚠
Drug-eluting stent (DES) compounds	✔	✔	✔	✔	✔
Fibrinolytic agents	LF ⚠	⚠	⚠	⚠	⚠
Anti-arrhythmic agents	✔	✔	✔	✔	✔
Anti-anginal agents	✔	✔	✔	✔	✔
Anti-lipid agents	✔	✔	✔	✔	✔

INTRAVENOUS ANTIPLATELET AGENTS (2% of exam)

Abciximab	LF ⚠	⚠	⚠	⚠	⚠
Eptifibatide	⚠	⚠	⚠	⚠	⚠
Tirofiban	LF ⚠	⚠	⚠	⚠	⚠
Cangrelor	LF ⚠	⚠	⚠	⚠	⚠

ORAL ANTIPLATELET AGENTS (2% of exam)

Aspirin	✔	✔	✔	✔	✔
Clopidogrel	✔	✔	✔	✔	✔
Prasugrel	✔	✔	✔	✔	✔
Ticagrelor	✔	✔	✔	✔	✔
Cilostazol	LF ⚠	⚠	⚠	⚠	⚠
Vorapaxar	LF ✘	✘	✘	✘	✘
Platelet function testing (genotype and phenotype)	LF ⚠	⚠	⚠	✘	✘

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⚡ – **Medium Importance:** No more than 25% of exam questions will address topics and tasks with this designation.

✘ – **Low Importance:** No exam questions will address topics and tasks with this designation.

LF – Low Frequency: No more than 15% of exam questions will address topics with this designation, regardless of task or importance.

PHARMACOLOGY <i>continued...</i> (12% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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INTRAVENOUS ANTICOAGULANTS (2% of exam)

Unfractionated heparin	✔	✔	✔	✔	✔
Low-molecular-weight heparins	✔	✔	✔	✔	✔
Bivalirudin	✔	✔	✔	✔	✔

ORAL ANTICOAGULANTS (<2% of exam)

Warfarin	✔	✔	✔	✔	✔
Novel oral anticoagulants	✔	✔	✔	✔	✔

CONTRAST AGENTS (2% of exam)

Contrast physics	⚡	⚡	⚡	⚡	⚡
Osmolality and other properties	LF ⚡	LF ⚡	LF ⚡	LF ⚡	LF ⚡
Contrast allergy and anaphylactoid reactions	LF ✔	LF ✔	LF ✔	LF ✔	LF ✔

CARDIAC IMAGING AND ASSESSMENT (9% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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GENERAL TESTS (2% of exam)

Stress testing	✔	✔	✔	✔	⚡
Stress test imaging	✔	✔	✔	✔	⚡
Transthoracic echocardiography	✔	✔	✔	✔	⚡
Transesophageal echocardiography	✔	✔	✔	✔	⚡
Intracardiac echocardiography	LF ✘	LF ✘	LF ✘	LF ✘	LF ✘
Magnetic resonance imaging	LF ⚡	LF ⚡	LF ⚡	LF ✘	LF ✘
Computed tomography angiography (CTA)	⚡	⚡	⚡	⚡	LF ✘
Structural cardiac imaging	LF ⚡	LF ⚡	LF ⚡	LF ✘	LF ✘

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CARDIAC IMAGING AND ASSESSMENT <i>continued...</i> (9% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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DIAGNOSTIC CORONARY IMAGING (5% of exam)

Catheter shapes and sizes	✔	✔	✔	⚠	⚠
Angiographic views and techniques	✔	✔	✔	✔	⚠
Coronary lesion morphology (plaque, stenosis, and thrombus)	✔	✔	✔	✔	✔
Fractional flow reserve (FFR), instantaneous wave-free ratio (iFR), volumetric flow rate (VFR), and coronary flow reserve (CFR)	✔	✔	✔	✔	⚠
Intravascular ultrasonography (IVUS)	✔	✔	✔	⚠	⚠
Optical coherence tomography (OCT) LF	⚠	⚠	⚠	✘	✘
Vulnerable plaque imaging LF	✘	✘	✘	✘	✘

X-RAY RADIOGRAPHY (2% of exam)

Radiation physics and safety	⚠	⚠	⚠	⚠	⚠
Radiographic imaging chain LF	⚠	⚠	⚠	✘	✘
Radiation exposure parameters	⚠	⚠	⚠	⚠	⚠
Risks, injury, and methods of control	✔ – Task not otherwise specified				
Equipment operation and imaging techniques	⚠	⚠	⚠	⚠	⚠

MISCELLANEOUS (6% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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ETHICAL AND LEGAL ISSUES AND RISKS (<2% of exam)

Patient consent	✔	✔	✔	✔	Not Applicable
Patient safety	✔	✔	✔	✔	Not Applicable
Ethics and professionalism	✔	✔	✔	⚠	Not Applicable
Documentation requirements for operative and invasive procedures	Not Applicable	✔	✔	✔	Not Applicable

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MISCELLANEOUS <i>continued...</i> (6% of exam)	Diagnosis	Testing	Treatment/ Care Decisions	Risk Assessment/ Prognosis/ Epidemiology	Pathophysiology/ Basic Science
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PROCEDURE-RELATED DATA (2% of exam)

Statistics and literature interpretation	⚠	⚠	✔	✔	<i>Not Applicable</i>
Epidemiology	⚠	⚠	⚠	⚠	⚠
Cost, cost-effectiveness, and quality of life	⚠	✔	✔	⚠	<i>Not Applicable</i>

QUALITY OF CARE AND APPROPRIATENESS (2% of exam)

Clinical quality measurement and performance improvement (<2% of exam)	⚠	✔	✔	⚠	<i>Not Applicable</i>
Appropriate Use Criteria (AUC)	⚠	✔	✔	⚠	<i>Not Applicable</i>
Adverse event reporting and device surveillance	⚠	⚠	⚠	⚠	<i>Not Applicable</i>