ACGME International

Advanced Specialty Program Requirements for Graduate Medical Education in Interventional Cardiology (Cardiovascular Disease)

Initial approval:

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Int. Introduction

Background and Intent: Programs must achieve and maintain Foundational Accreditation according to the ACGME-I Foundational Requirements prior to receiving Advanced Specialty Accreditation. The Advanced Specialty Requirements noted below complement ACGME-I Foundational Requirements. For each section, the Advanced Specialty Requirements should be considered together with the Foundational Requirements.

Int. I. Definition and Scope of the Specialty

Interventional cardiology is the practice of procedural techniques that improve coronary circulation, alleviate valvular stenosis and regurgitation, and treat other structural heart diseases.

Int. II. Duration of Education

Int. II.A. The educational program in interventional cardiology must be 12 or 24 months in length.

I. Institution

I.A. Sponsoring Institution

I.A.1. A fellowship in interventional cardiology must function as an integral part of an ACGME-I-accredited fellowship in cardiology.

I.A.1.a) There must be a collaborative relationship with the program director of the internal medicine residency program and the cardiovascular disease fellowship program to ensure compliance with ACGME-I requirements.

I.B. Participating Sites

I.B.1. The program should ensure that fellows are not unduly burdened by required rotations at geographically distant sites.

II. Program Personnel and Resources

II.A. Program Director

II.A.1. The program director must have at least three years of documented educational and/or administrative experience in an Accreditation Council for Graduate Medical Education- or ACGME-I-accredited internal medicine cardiovascular disease fellowship or interventional cardiology fellowship.

II.B. Faculty

II.B.1. Fellows should have access to faculty members with expertise in congenital heart disease in adults, hematology, pharmacology, radiation safety, and research.

II.C. Other Program Personnel

See International Foundational Requirements, Section II.C.

II.D. Resources

II.D.1. Appropriate resources to care for patients undergoing interventional cardiology procedures must be present at the primary clinical site, including:

II.D.1.a) cardiac catheterization laboratories, each equipped with cardiac fluoroscopic equipment, digital imaging, recording devices, a full complement of interventional devices, and resuscitative equipment;

II.D.1.a).(1) The primary laboratory must perform a minimum of 400 interventional procedures per year, and each secondary laboratory must perform a minimum of 200 interventional procedures per year.

II.D.1.b) a cardiac surgery intensive care unit; and,

II.D.1.c) a cardiac intensive care unit.

II.D.2. An active cardiac surgery program should be present at the primary clinical site or at a participating site(s).

III. Fellow Appointment

III.A. Eligibility Criteria

III.A.1. Prior to appointment in the program, fellows should have completed an ACGME-I-accredited fellowship program in cardiology, or a cardiology fellowship program acceptable to the Sponsoring Institution's Graduate Medical Education Committee.

III.B. Number of Fellows

See International Foundational Requirements, Section III.B.

IV. Specialty-Specific Educational Program

IV.A. ACGME-I Competencies

IV.A.1. The program must integrate the following ACGME-I Competencies into the curriculum.

IV.A.1.a) Professionalism

IV.A.1.a).(1) Fellows must demonstrate a commitment to professionalism and an adherence to ethical principles.

IV.A.1.b) Patient Care and Procedural Skills

IV.A.1.b).(1) Fellows must provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Fellows must:

IV.A.1.b).(1).(a) demonstrate competence in the prevention evaluation, and management of both inpatients and outpatients with:

IV.A.1.b).(1).(a).(i) acute ischemic syndromes;

IV.A.1.b).(1).(a).(ii) bleeding disorders or complications associated with percutaneous intervention or drugs;

IV.A.1.b).(1).(a).(iii) chronic ischemic heart disease; and,

IV.A.1.b).(1).(a).(iv) valvular and structural heart disease.

IV.A.1.b).(2) Fellows must demonstrate competence in the:

IV.A.1.b).(2).(a).(i) care of patients before and after interventional procedures;

IV.A.1.b).(2).(a).(ii) care of patients in the cardiac care unit, emergency department, or other intensive care settings;

IV.A.1.b).(2).(a).(iii) outpatient follow-up of patients treated with drugs, interventions, devices, or surgery;

IV.A.1.b).(2).(a).(iv) use and limitations of intra-aortic balloon counterpulsation (IABP) and other hemodynamic and circulatory support devices, as available;

IV.A.1.b).(2).(a).(v) use of thrombolytic and antithrombolytic, antiplatelet, and antithrombin agents; and,

IV.A.1.b).(2).(a).(vi) use of vasoactive agents for epicardial and microvascular spasm.

IV.A.1.b).(3) Fellows must demonstrate competence in the management of mechanical complications of percutaneous intervention.

IV.A.1.b).(4) Fellows must demonstrate competence in the management of patients with vascular access complications, including management of closure device complications and pseudoaneurysm.

IV.A.1.b).(5) Fellows must demonstrate competence in the management of patients with major and minor bleeding complications, including retroperitoneal bleeding.

IV.A.1.b).(6) Fellows must be able to perform all medical, diagnostic, and surgical procedures considered essential for the area of practice.

IV.A.1.b).(6).(a) Fellows must demonstrate competence in the ability to:

IV.A.1.b).(6).(a).(i) treat their patients' conditions with practices that are patient-centered, safe, scientifically based, effective, timely, and cost-effective;

IV.A.1.b).(6).(a).(ii) participate in pre-procedural planning, including the indications for the procedure and selection of the appropriate procedure or instruments;

IV.A.1.b).(6).(a).(iii) perform the critical technical manipulations of the procedure; and,

IV.A.1.b).(6).(a).(iv) provide post-procedure care.

IV.A.1.b).(6).(b) Fellows must demonstrate competence in the performance of:

IV.A.1.b).(6).(b).(i) coronary angiograms;

IV.A.1.b).(6).(b).(ii) coronary interventions;

IV.A.1.b).(6).(b).(ii).(a) This must include application and use of balloon angioplasty, stents, and other commonly used interventional devices.

IV.A.1.b).(6).(b).(ii).(b) This must include femoral and brachial/radial cannulation of normal and abnormally located coronary ostia.

IV.A.1.b).(6).(b).(ii).(c) This should include performance of a minimum of 250 coronary interventions.

IV.A.1.b).(6).(b).(iii) comprehensive invasive physiology measurement, such as intracoronary pressure measurement and monitoring, and coronary flow reserve;

IV.A.1.b).(6).(b).(iv) hemodynamic measurements;

IV.A.1.b).(6).(b).(v) intravascular ultrasound; and,

IV.A.1.b).(6).(b).(vi) ventriculography and aortography.

IV.A.1.c) Medical Knowledge

IV.A.1.c).(1) Fellows must demonstrate knowledge of established and evolving biomedical clinical, epidemiological, and social-behavioral sciences, as well as the application of this knowledge to patient care. Fellows must demonstrate knowledge of:

IV.A.1.c).(1).(a) the assessment of plaque composition and response to intervention;

IV.A.1.c).(1).(b) the clinical importance of complete versus incomplete revascularization in a wide variety of clinical and anatomic situations;

IV.A.1.c).(1).(c) clinical utility and limitations of the treatment of valvular and structural heart disease;

IV.A.1.c).(1).(d) detailed coronary anatomy;

IV.A.1.c).(1).(e) pathophysiology or restenosis;

IV.A.1.c).(1).(f) physiology of coronary flow and detection of flow-limiting conditions;

IV.A.1.c).(1).(g) radiation physics, biology, and safety related to the use of x-ray imaging equipment;

IV.A.1.c).(1).(h) the role of emergency coronary bypass surgery in the management of complications of percutaneous intervention;

IV.A.1.c).(1).(i) the role and limitations of established and emerging therapies for treatment of restenosis;

IV.A.1.c).(1).(j) the role of platelets and the clotting cascade in

response to vascular injury;

IV.A.1.c).(1).(k) the role of randomized clinical trials and registry experiences in clinical decision-making;

IV.A.1.c).(1).(l) strengths and limitations of both non-invasive and invasive coronary evaluation during the recovery phase after acute myocardial infarction;

IV.A.1.c).(1).(m) short- and log-term strengths and limitations of differing percutaneous approaches for a wide variety of anatomic situations related to cardiovascular disease;

IV.A.1.c).(1).(n) strengths and weaknesses of mechanical versus lytic approaches for patients with acute myocardial infarction; and,

IV.A.1.c).(1).(o) use of pharmacologic agents appropriate in the post-intervention management of patients.

IV.A.1.d) Practice-Based Learning and Improvement

IV.A.1.d).(1) Fellows must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning.

IV.A.1.e) Interpersonal and Communication Skills

IV.A.1.e).(1) Fellows must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, patients' families, and health professionals.

IV.A.1.f) Systems-Based Practice

IV.A.1.f).(1) Fellows must demonstrate an awareness of and responsiveness to the larger context and system of health care, including the social determinates of health, as well as the ability to call effectively on other resources in the system to produce optimal care.

IV.B. Regularly Scheduled Educational Activities

IV.B.1. The educational program must include didactic instruction based on the core knowledge content in interventional cardiology.

IV.B.1.a) The program must ensure that fellows have an opportunity to review all knowledge content from conferences they could not attend.

IV.B.2. Fellows must have a sufficient number of didactic sessions to ensure fellow-to-fellow and fellow-to-faculty member interaction.

IV.C. Clinical Experiences

IV.C.1. Assignment of rotations must be structured to minimize the frequency of rotational transitions, and rotations must be of sufficient length to provide a quality educational experience, defined by continuity of patient care, ongoing supervision, longitudinal relationships with faculty members, and meaningful assessment and feedback.

IV.C.2. Rotations must be structured to allow fellows to function as a part of an effective interprofessional team that works together toward the shared goals of patient safety and quality improvement.

IV.C.3. Rotations must be structured to minimize conflicting inpatient and outpatient responsibilities.

IV.C.4. The program must provide educational experiences in team-based care that allow fellows to interact with and learn from other health care professionals.

IV.C.5. The educational program must provide fellows with elective experiences relevant to their future practice or to further skill/competence development.

IV.C.6. Fellows must have a structured continuity ambulatory clinic experience for the duration of the program that enables them to provide follow-up care for patients and that exposes them to the breadth and depth of interventional cardiology.

IV.C.6.a) Each fellow must see four to eight patients per week, including patients being evaluated before and after interventional procedures.

IV.C.6.b) The follow-up clinic experience should not solely consist of evaluating patients post-procedure for complications.

IV.C.7. Fellows should participate in training using simulation.

IV.D. Scholarly Activity

IV.D.1. Fellows' Scholarly Activity

IV.D.1.a) While in the program, each fellow must engage in at least one of the following scholarly activities: participation in grand

rounds; posters; workshops; quality improvement presentations; podium presentations; grant leadership; non-peer-reviewed print/electronic resources; articles or publications; book chapters; textbooks; or webinars; or service on professional committees; or service as a journal reviewer, journal editorial board member, or editor.

IV.D.2. Faculty Scholarly Activity

IV.D.2.a) At least 50 percent of the core faculty members must annually engage in a variety of scholarly activities from among the following: participation in grand rounds; posters; workshops; quality improvement presentations; podium presentations; grant leadership; non-peer-reviewed print/electronic resources; articles or publications; book chapters; textbooks; or webinars; or service on professional committees; or service as a journal reviewer, journal editorial board member, or editor.

V. Evaluation

See International Foundational Requirements, Section V.

VI. The Learning and Working Environment

VI.A. Principles

See International Foundational Requirements, Section VI.A.

VI.B. Patient Safety

See International Foundational Requirements, Section VI.B.

VI.C. Quality Improvement

See International Foundational Requirements, Section VI.C.

VI.D. Supervision and Accountability

VI.D.1. Direct supervision of procedures performed by each fellow must occur until competence has been acquired and documented by the program director.

VI.E. Professionalism

See International Foundational Requirements, Section VI.E.

VI.F. Well-being

See International Foundational Requirements, Section VI.F.

VI.G. Fatigue

See International Foundational Requirements, Section VI.G.

VI.H. Transitions of Care

See International Foundational Requirements, Section VI.H.

VI.I. Clinical Experience and Education

See International Foundational Requirements, Section VI.I.

VI.J. On-Call Activities

See International Foundational Requirements, Section VI.J.