

# **INTERVENTIONAL CARDIOLOGY FELLOWSHIP PROGRAMS FREQUENTLY ASKED QUESTIONS**

The Residency Review Committee for Internal Medicine has answered the following questions from Interventional Cardiology fellowship programs. The answers provided represent a summary of the actions previously taken by the Committee. You should not interpret the answers as a second set of standards. The RRC-IM provides these answers to give training programs insight on how the peer review process works. Each program reviewed is unique. The RRC-IM interprets substantial compliance with the Program Requirements that reflect the unique composite of a given program. The Requirements are as stated.

## **Abbreviations Used**

PR = Program Requirement  
PD = Program Director  
APD = Associate Program Director  
Sub = Internal Medicine subspecialty program  
Sub-sub = Subspecialty requiring completion of training in a parent subspecialty (i.e., clinical cardiac electrophysiology, interventional cardiology, transplant hepatology)  
RRC-IM = Residency Review Committee for Internal Medicine  
ACGME = Accreditation council of Graduate Medical Education  
DIO = Designated Institutional Official (usually serves as chair of GMCEC)  
GMCEC = Graduate Medical Education Committee, as required by the IRC  
IRC = Institutional Review Committee  
PIF = Program Information Form  
KCF = Key Clinical Faculty  
Pub = Peer-reviewed publication or other acceptable product of scholarship as defined by the RRC-IM  
IC = Interventional Cardiology

## **Section I-VII General Subspecialty Program Requirements**

### Question:

*“Do the General Subspecialty Program Requirements apply to Interventional Cardiology?”*

### Program Requirements:

For Sections I. through VIII., see:

- **ACGME Program Requirements for Fellowship Education in the Subspecialties of Internal Medicine**
- **RRC-IM Web Subspecialty FAQ**

### Answer:

Absolutely

Interventional Cardiology PDs should study carefully the General Subspecialty Program Requirements, and the FAQs related to these PRs. The requirements cover required structural elements in the program such as required institutional support, facilities and resources, key faculty and PD qualifications and responsibilities, conferences, continuity clinic, scholarship and research, evaluation, etc.

Subspecialty fellowship programs are expected to be in full compliance with both the General Subspecialty Program Requirements, and the Subspecialty Specific Program Requirements.

## Unique Aspects of Interventional Cardiology (IC) re: General Subspecialty Requirements

### 1) Fellow Scholarly Activity:

Principles:

- IC training requirements are designed as 12 months of intensive procedural training.
- IC fellows must participate in scholarly activity, but cannot be held to the same research standard as fellows in 2-year and 3-year programs where up to 50% of training may be spent in research
- Thus, IC fellows can meet the Scholarship Requirement by:
  - a. A research project (with faculty mentorship), or
  - b. Participation with the faculty in the initiation and conduct of clinical trials within the department, or
  - c. Participation in QA/QI or process improvement projects

### 2) Conferences

Principle: Fellows must be trained in their specialty through didactic (conferences) and bedside (“at the table”) education

- At least 1 (one) Clinical Case Conferences per week
  - a. There must be distinct cardiology, and IC case conferences.
    - i. The clinical case conferences are so sub-subspecialty specific that a separate conference series is necessary, and cannot be “shared” between cardiology, CCEP, and IC.
    - ii. Must include pathology reviews (i.e., autopsy, surgical pathology, biopsy specimens, etc.)
  - b. For IC, cath conferences, M&M, or CPCs are considered clinical case conferences
  - c. These must be attended by fellows and faculty in the sub-sub specialty
- At least 48 Core Curriculum Conferences per year (average 1/ week)
  - a. There must be a distinct cardiology and IC core curriculum conference series
    - i. The core curriculum conferences are so sub-subspecialty specific that a separate conference series is necessary, and cannot be “shared” between cardiology and IC.
  - b. The core curriculum is intended to be a planned course in the subspecialty that covers the major topics in the subspecialty
    - i. Include basic sciences
    - ii. Board Review lectures, or Board Review Courses “count” as core curriculum conferences
- At least 1 (one) Journal Club per month
  - a. An IC program may combine journal club with the parent cardiology program if:
    - i. All fellows attend the same conference at least monthly (not just when IC topics are discussed)
    - ii. Key faculty from the sub-subspecialty attend the same conference with the fellows
    - iii. Topics in the sub-subspecialty are discussed regularly
    - iv. IC fellows are exposed to and discuss both the recent and classic literature in the sub-subspecialty.
- At least 1 Research Conference per month
  - a. An IC program may combined research conference with the parent cardiology program if:
    - i. All fellows attend the same conference at least monthly (not just when IC topics are discussed)
    - ii. Key faculty and researchers in the sub-subspecialty attend the same conference with the fellows
    - iii. Topics in the sub-subspecialty are discussed regularly

### 3) Web-Based Learning

Principle: There are many potential advantages to e-learning venues, but two major concerns:

- What is the quality of the educational product?

- Did the learning actually take place?

- Programs may use Web-based instruction or other forms of electronic learning for some of the Core Curriculum Conferences provided the following criteria are met.
  - a. E-learning should be considered as an adjunct to Core Curriculum conferences presented by the faculty.
  - b. E-learning venues must satisfy the following criteria in order to be substituted for a traditional didactic conference:
    - i. The educational content must be reviewed and approved by the Key Faculty.
    - ii. Commercially-produced modules must be reviewed and endorsed by a professional society committed to the area under consideration, in order to assure competent and unbiased sources of educational material.
    - iii. The e-learning must be followed by a discussion (in a formal set-aside session) with key faculty in order to answer questions, provide relevance, and to demonstrate the importance of the learning venue and topic. Video-conferencing or tele-conferencing can be used for this purpose
    - iv. There must be tracking by the fellow and the program to insure that the fellow completed the prescribed module. An educational portfolio of learning, with subsequent reflection upon practice-based learning experiences, is suggested as the most appropriate measure of competency.

#### 4) **Continuity Clinic**

Principle: Simply evaluating patients post-procedure for the absence of complications is inadequate follow-up/ continuity.

- a. IC fellows are required to have an ambulatory experience at least weekly.
- b. Fellows need to participate in the pre-hospital evaluation (indication for procedure) and the post-hospital follow-up (efficacy and outcome of the procedure).
- c. Simply evaluating all of the patients post-procedure for the absence of complications is inadequate follow-up/ continuity. The CCEP fellow should have the opportunity to see 25-50% of the patients for whom they do interventions in follow up, in order to gain experience in the long term management of the patient. In addition, they should have the opportunity to evaluate and follow patients who have been proposed as candidates for the procedure, but for whom the procedure has been determined to be contraindicated or for whom other therapies have been determined to be more appropriate.
- d. Each IC fellow must see 4-8 patients per week for pre-procedure evaluation and/or post-procedure follow-up in the outpatient setting
- e. The 4-8 patients per week in the ambulatory setting need not be seen in one afternoon – they may be spread out over the week.
- f. Fellows may use clinic time to obtain F/U on patients for whom they have performed a procedure and who have been returned to the care of the referring physician. The purpose of this F/U is to obtain feedback about the patient's clinical course after the procedure. Some of the F/U contact may be by telephone, but no more than 50% on average.

#### 5) **Horizontal Disciplines**

Principle: Ethics, QA/QI, medical legal, end-of-life, etc. should be covered during residency and cardiology fellowship.

- It is not necessary for IC fellows to have separate conferences specifically devoted to ethics, end of life issues, quality improvement, etc.
- Instead, these topics should be discussed as appropriate during the case conferences, research conference, journal club, and core curriculum conference series, as well as during case-based learning (teaching rounds, during procedure supervision, clinic, etc.).

## **Section VIII - XI Interventional Cardiology Program Requirements**

### **Section VIII. Educational Program**

## **Training in Peripheral, Carotid, Renal Intervention**

### Question:

*“Are programs allowed to include non-coronary interventions in the program?”*

### Program Requirement:

Interventional cardiology encompasses the special knowledge and skill required of cardiologists to care for patients receiving cardiac interventional procedures. Interventional cardiology is the practice of techniques that improve coronary circulation and alleviate valvular stenosis, and treat valvular and structural heart disease. (Educational Program, Definition and Scope of Interventional Cardiology, Section VIII.A.)

### Answer:

Committee Standard:

Programs may also train fellows in peripheral, renal, carotid, etc. training if appropriate faculty expertise is available for training and if the fellows can achieve all required competencies for IC training, particularly competence in coronary intervention.

## **Extended Training**

### Question:

*“We have a 2-year program that includes research and non-coronary interventions. How should we structure the rotations?”*

### Program Requirement:

The interventional cardiology program must be 1 year in length. The subspecialty educational program in interventional cardiology program must function as an integral component of an accredited subspecialty fellowship in cardiovascular disease. (Educational Program, Duration of Program, Section VIII.B.)

The interventional cardiology program is accredited for 12 continuous months of clinical training. (Educational Program, Duration of Clinical Experience, Section VIII.C.)

### Answer:

All accredited training must be completed in 12 **consecutive** months. Each month must be clinical. Fellows may participate in research, but each rotation must be primarily clinical. Training must be based at the site of the parent CV program; The RRC does not allow “stand-alone” IC or CCEP programs. If the program has a second year, all accredited training must be completed during the accredited first year.

## **Applicant Eligibility**

### Question:

*“Can we have fellows complete their IC training between the second and third year of cardiology fellowship?”*

*“Can we accept IMGs without ACGME-accredited cardiology training?”*

### Program Requirement:

All applicants entering interventional cardiology must have completed a cardiovascular disease program accredited by the ACGME. (N.B.: For exceptions see Program Requirements for fellowship Education in the Subspecialties of Internal Medicine.) (Educational Program, Duration of Clinical Experience, Section VIII.C.)

### Answer:

Non-sequential training (i.e., 2 years of cardiology, followed by IC, followed by the third year of cardiology) is not acceptable to the RRC-IM. Fellows must complete three years of cardiology prior to entering an IC program.

Rationale:

- The minimum required 4 months of cardiac catheterization experience would not be adequate preparation for fellows entering an IC fellowship.
- Additional catheterization experience – in the third year of cardiology – would be necessary in order for fellows to be sufficiently proficient at catheterization techniques to complete all of the IC training requirements in the accredited 12 months.
- In addition, the Committee is concerned about fragmentation of training and peer interaction.

This requirement does not preclude programs from accepting up to 25% of fellows with foreign cardiology training without ACGME cardiology fellowship training. However, these fellows must have the equivalent of three years of cardiology training before entering the IC fellowship.

**Procedural Competency**

Question:

*“What procedures ‘count’ for the required 250 interventions?”*

Program Requirement:

[In all clinical experiences, fellows must:] perform the critical technical manipulations of the procedure. (Educational Program, Ambulatory Medicine Experience, Section VIII.D.2.)

Answer:

Fellows must act as the primary operator in order for procedures to “count” toward their procedural competency.

**Procedures**

Question:

*“What procedures does the program need to track for Interventional Cardiology fellows?”*

Answer:

<b>IC Procedures that Must be Documented In Fellow’ Procedure Log</b>	
1.	Right and left heart catheterization including coronary arteriography, ventriculography, and hemodynamic measurements
2.	Intravascular ultrasound
3.	Doppler flow, intracoronary pressure measurement and monitoring, and coronary flow reserve
4.	Coronary interventions <ul style="list-style-type: none"> <li>- Femoral and brachial/radial cannulation of normal and abnormally located coronary ostia</li> <li>- Application and usage of balloon angioplasty, stents, and other commonly used interventional devices</li> </ul>

**Section IX. Faculty**

**Minimum Key Clinical Faculty**

Question:

*“What is the minimum number of ABIM-certified KCF for our program.”*

*“How many publications are required by KCF”*

Program Requirement:

See General Subspecialty FAQ for additional details and program requirement.

Answer:

See below for calculation of minimum required key clinical faculty, and the scholarly productivity expected of the KCF.

<b>Interventional Cardiology</b>				
<b>2 KCF or 1:1.5 ratio for programs with 4 or more fellows</b>				
<b>Approved Fellow Complement</b>	<b>Minimum Certified KCF (incl PD)</b>	<b>Majority of Minimum KCF (51%)</b>	<b><u>PARTICIPATION</u> KCF with at Least 1 Pub Past 3 Years</b>	<b><u>PRODUCTIVITY</u> Pubs All KCF Past 3 Years (1/yr x 3 yrs)</b>
1	2	2	2	6
2	2	2	2	6
3	2	2	2	6
4	3	2	2	6
5	3	2	2	6
6	4	3	3	9
7	5	3	3	9
8	6	4	4	12

- Publication = Research publication, review article, or editorial in a peer review journal (PRJ), funded peer-review grant, or book chapter.
- Scholarly case reports acceptable (Sept 2007) if indexed in Pub Med, and copy submitted with PIF
- Peer review publication = indexed in Pub Med (or Medline). If not in Pub Med, PD must supply evidence of peer review
- In press or accepted for publication counts. Submitted or in preparation does not count.
- Abstract, illustration, letter to the editor, presentation, or publication in non-PRJ does not count.
- Peer-reviewed funding (NIH, NCI, or other government-funded or national-foundation funded) counts
- Industry, pharmaceutical, or other non-peer-review grant does not count.
  - Exception: Pharmaceutical studies in which the KCF is the overall PI (lead investigator) for all sites will be accepted as counting as one product of scholarship
- 1 paper = 1 paper; Do not count multi-author papers more than once.
- Count the last three calendar years prior to PIF submission. If site visit is in Sep. 2008, count publications from 2005, 2006, and 2007 as well as 2008.
- Contribute to participation: Only ABIM certified KCF
- Contribute to productivity:
  - Certified KCF
  - Additional sub-specialty KCF (above minimum required, certified or non-certified)
  - Non-physician faculty and faculty in other specialties IF:
    - Contribute to fellow education
    - Devote at least 10 hours/ week to the program

## **Faculty Requirements**

### Question:

*“Please explain the requirement that faculty perform 75 interventions at the site of supervision.”*

### Program Requirement:

All faculty involved in supervising fellows in the performance of interventional procedures must perform a minimum of 75 interventions per year at the Site where they supervise fellows. (Faculty, Section IX.B.)

[In addition to the facilities and resources outlined in the Program Requirements for Fellowship Education in the Subspecialties of Internal Medicine, each of the following must be present at the primary training site:] [Laboratories other than those located at the primary training site may participate in the educational program under the following conditions:] Fellow activities at participating sites must be supervised by a key clinical faculty member, as defined in Sections III, VIII, and IX, who conducts a minimum of 75 interventions annually. (Facilities and Resources, Other Facilities, Resources, and Support Services, Section X.D.3.b)

### Answer:

Faculty supervising fellows must perform 75 interventional procedures at the site where they supervise fellows. This insures that fellows are not supervised by low-volume operators, and that faculty are familiar with the lab, personnel, procedures, etc. at the location where they supervise fellows.

Thus, a faculty member with 25 procedures per year at three sites could NOT supervise fellows in an IC program.

All supervising faculty (at primary or other site) must maintain a minimum volume of 75 interventions at the site where they supervise fellows.

## **Section X. Facilities and Resources**

### **Minimum Cath Lab Volumes**

#### Question:

*“Please explain the rationale and interpretation for the two requirements dealing with the minimum number of procedures performed by each lab used by the training program.”*

#### Program Requirement:

##### Procedures at the Primary Site

[In addition to the facilities and resources outlined in the Program Requirements for Fellowship Education in the Subspecialties of Internal Medicine, each of the following must be present at the primary training site:] 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. (Facilities and Resources, Other Facilities, Resources, and Support Services, Section X.D.2.)

##### 400 Procedures Other Site

[In addition to the facilities and resources outlined in the Program Requirements for Fellowship Education in the Subspecialties of Internal Medicine, each of the following must be present at the primary training site:] [Laboratories other than those located at the primary training site may participate in the educational program under the following conditions:] The participating catheterization laboratory must perform a minimum of 400 interventional procedures. (Facilities and Resources, Other Facilities, Resources, and Support Services, Section X.D.3.a)

#### Answer:

At Primary Training Site, the primary lab must maintain a minimum of 400 interventions per year. If there is a “secondary lab” at the primary site, that lab must maintain a minimum of 200 interventions per year, e.g., A lab staffed by the same faculty, or a lab in an affiliated hospital that is part of the core IM residency with separate faculty

At sites other than the Primary Training Site (i.e., participating institutions), the lab must maintain at least 400 interventions per year.

### **Continuity Clinic**

Question:

*“Please explain the continuity requirement.”*

Program Requirement:

[In addition to the facilities and resources outlined in the Program Requirements for Fellowship Education in the Subspecialties of Internal Medicine, each of the following must be present at the primary training site:] An outpatient program must exist to provide follow-up care for patients. (Facilities and Resources, Other Facilities, Resources, and Support Services, Section X.D.6.)

Answer:

Interventional fellows are required to have an ambulatory experience at least weekly. Fellows need to participate in the pre-hospital evaluation (indication for procedure) and the post-hospital follow-up (efficacy and outcome of the procedure). Simply evaluating all of the patients post-procedure for the absence of complications is inadequate follow-up/ continuity.

The interventional fellow should have the opportunity to follow 25-50% of the patients in whom they do interventions longitudinally to gain the experience in the long term management of the patient. In the other patients, the fellow should follow them for complications

Each interventional fellow must see 4-8 patients per week for pre-procedure evaluation and/or post-procedure follow-up in the outpatient setting. These 4-8 patients per week in the ambulatory setting need not be seen in one afternoon – they can be spread out over the week.

Fellows may use clinic time to obtain follow-up on patients for whom they have performed a procedure and who have been returned to the care of the referring physician. The purpose of this F/U is to obtain feedback about the patient's clinical course after the procedure. Some of the F/U contact may be by telephone, but no more than 50% on average.