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IMAGING COUNCIL CHAIRMAN'S PAGE

CV Imaging for Fellows in Training: Challenges and Opportunities

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Today's trainees and early career physicians in cardiology have seen unprecedented changes in the health care landscape. Rapidly advancing imaging technology has helped clinicians take great strides in the diagnosis and management of cardiovascular disease. Diagnostic tools have augmented patients' medical histories and physical examinations in cardiology more than in most other medical fields. From the first cardiac ultrasound exams and nuclear stress testing a few decades ago to contemporary cardiac computed tomography and magnetic resonance imaging, the cardiovascular imaging toolbox has never been more robust. Imaging opportunities abound for cardiovascular fellows in training (FITs), but this richness also brings with it unique challenges.

In the nascent days of cardiovascular imaging, clinicians interested in noninvasive imaging would often learn 1 advanced technique. As the field has advanced, multimodality cardiovascular imaging has matured as a bona fide subspecialty. FITs today are interested in gaining multimodality expertise to serve a vital role in advanced diagnostics and complement cardiovascular interventional and surgical therapeutics. However, accreditation bodies do not formally recognize training programs in multimodality imaging. Unlike many other cardiovascular subspecialties, such as electrophysiology, interventional cardiology, advanced heart failure, and transplantation cardiology, multimodality imaging is not an accredited fellowship, and no true standardization of training exists. Thus, the quality of training across centers can have a greater degree of variability and may become skewed on the basis of local expertise and patient population. Lack of accreditation also makes justification of a multimodality imaging fellowship more difficult for an academic medical center and for fellows seeking recognition equal to that of their peers who have sought subspecialty training.

A generational divide augments the challenges of training in multimodality cardiovascular imaging. A dichotomy exists between the methods and expectations of training that established cardiovascular imagers experienced and what current imaging FITs need and expect. Most established cardiovascular imaging specialists today typically focused on 1 technique and built their careers around it. As the imaging fields have evolved and technologies have advanced, some have supplemented their knowledge in that 1 area with a second area. It has been rare for an established imager to be an expert in 3 or more technologies. Today, most FITs feel the pressure to train in multiple imaging modalities and enter the professional field with a diverse portfolio of skills. Medicine needs to be patient centered, and imagers need to be able to select the right study for the right patient at the appropriate time. To do this, one needs expertise in multiple imaging technologies. Furthermore, the future of diagnostic imaging payment remains uncertain, again placing pressure on trainees to carry diverse portfolios of skills.

The challenge then becomes one of mentorship and practicality. FITs are "growing up" in a fragmented imaging world in which the subspecialists are separated by imaging technique. Each technique has its own experts, its own training requirements, and its own certification process. In short, how can a previous generation of imagers trained in single imaging techniques mentor those who desire to obtain expertise across multiple imaging modalities? The current approach often ends up "piecemeal" or "disjointed," with separate months for each modality rather than a true multimodality imaging approach.

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With reimbursement increasingly tied to board certification, trainees are forced to make difficult decisions surrounding which certifications to pursue. Obtaining certification (and keeping pace with the maintenance of the certification process) in internal medicine, cardiovascular disease, and 3 or 4 different imaging subspecialties becomes next to impossible from practical and financial perspectives. The current system of certification and maintenance of certification thereby discourages trainees from pursuing multimodality imaging as a subspecialty. Along with board certification, each imaging modality has a distinct subspecialty society with its own membership dues and meetings. While each organization provides value for the profession, joining all the imaging societies and attending each one's annual meeting present further logistical and financial challenges.

For FITs interested in academic careers, securing funding for clinical research against the reality of declining government support and a dearth of industry funding for imaging-driven clinical outcomes trials remains a paramount concern. Given the growth and susceptibility of cardiac imaging to cuts in reimbursement, these pressures may be more severe than those on procedure-based subspecialties such as interventional cardiology and electrophysiology, which have traditionally enjoyed higher rates of reimbursement than cardiac imaging.

Given all these challenges, why would anyone consider a career in cardiovascular imaging? Simply stated, because cardiovascular imaging has been, is, and always will be at the heart of cardiovascular care. Admittedly, rapidly moving technology presents challenges, but opportunities also abound. Think about how far we have progressed in our ability to detect subclinical disease, identify imaging prognosticators, redefine pathophysiological mechanisms of disease, and guide complex therapeutic interventions. Now think about fusing those imaging modalities to simultaneously provide real-time anatomic and physiologic information. Few subspecialties will shape the future of cardiovascular care as imaging has and will continue to do.

That leaves us with the question of how to optimize cardiovascular imaging today while preparing for the imaging training of tomorrow. Similar to other cardiology subspecialties, an opportunity exists for the imaging community to unite under common areas of imaging training and coordinate subspecialty imaging requirements. Processes are already under way to coordinate simultaneous certification testing in several modalities. Many centers are establishing advanced imaging fellowships and sharing their experience to establish best practices. These centers are focusing on training to answer clinical questions with imaging, providing greater flexibility within imaging, and allowing trainees to adapt to unforeseen shifts in technology and the practice environment. As our current trainees and early career cardiovascular imagers gain experience, they will undoubtedly further develop multimodality imaging training to prepare for true fusion imaging in which angiography, ultrasound, nuclear imaging, computed tomography, and even magnetic resonance imaging may someday be easily turned on and off in any combination from a single machine!

The American College of Cardiology's Cardiovascular Imaging Section has the unique opportunity to lead the career development of trainee and earlier career imagers. At ACC.14, FITs will have the opportunity to interact with leaders in cardiovascular imaging at the annual FIT Mix-n-Mingle. The Fellows in Training Section and Imaging Section are currently developing mentorship and publication collaboration programs, with the goal of connecting early career imagers with those who have more experience. More details will follow in the coming months. To express your interest in becoming more involved in the Fellows in Training Section and/or the Imaging Section, e-mail fellowsintraining@acc.org or imagingsection@acc.org.

Living in a world of rapid change is never easy, but it is always exciting. FITs and early career professionals interested in cardiovascular imaging have a wonderful opportunity to shape how cardiovascular care is delivered tomorrow.