

How to Create a New non-ACGME Specialty Program

Joshua A. Beckman, MD

Director, Section of Vascular Medicine
Vanderbilt University Medical Center

From Simple Questions Arise Great Confusion



Ground Rules For This Talk

- There is no standard non-standard program.
- There are only disciplines in development seeking appropriate placement within the cardiovascular disease realm.
- Creating a fellowship training program really depends how far along the discipline is in its pathway to equivalence with ACGME-accredited programs.
- My one recommendation: don't do it alone.

Three Examples From Well-Established to Nascent

- Vascular Medicine
- Critical Care Cardiology
- Cardio-Oncology

Key Elements to Create a Fellowship Program

- An agreed upon set of knowledge that everyone in the field needs to have.
 - Requires agreement across centers
 - Renders some programs incapable of offering this training
 - May require participation of non-cardiovascular specialists to provide complete training
- Standardized metrics to determine evidence of skill-set acquisition.

How Do Our Three Examples Do?

Competency Component		Milestones (Months)			
MEDICAL KNOWLEDGE		12	24	36	Add
1	Know the anatomy of the peripheral arterial and venous systems.	I			
2	Know the causes and clinical epidemiology of atherosclerotic peripheral vascular disease, including the incidence and prevalence, sex and ethnic differences, role of genetics, and the influence of traditional risk factors and demographics on outcomes.	I			
3	Know the pathophysiology of peripheral artery disease, including atherosclerosis, thrombosis, embolism, entrapment, vasculitis, and vasospasm.		I		
4	Know the pathophysiology, causes, and clinical epidemiology of aortic aneurysms.	I			
5	Know the pathophysiology, causes, and clinical epidemiology of acute aortic syndromes such as dissection and intramural hematoma.		I		
6	Know the pathophysiology, causes, and clinical epidemiology of deep vein thrombosis and pulmonary embolism.	I			
7	Know the pathophysiology, causes, and clinical epidemiology of cerebrovascular disease.		I		
8	Know the pathophysiology, causes, and clinical epidemiology of chronic venous insufficiency and varicose veins.		I		
9	Know the pathophysiology, causes, and clinical epidemiology of lymphedema.			II	
10	Know the cardinal symptoms and physical findings of peripheral atherosclerotic vascular diseases, including peripheral artery disease, renal and mesenteric artery disease, extracranial cerebrovascular disease, and abdominal aortic aneurysm.	I			
11	Know the cardinal symptoms and physical findings of venous diseases including venous thromboembolism, chronic venous insufficiency, and varicose veins.	I			
12	Know the differentiating characteristics between arterial, venous, and neurotrophic lower extremity ulcers.			II	
13	Know the natural history and prognosis of deep vein thrombosis and pulmonary embolism.	I			
14	Know the natural history and prognosis of peripheral atherosclerotic vascular diseases including peripheral artery disease, renal and mesenteric artery disease, extracranial carotid artery disease, and abdominal aortic aneurysm.		I		
15	Know the indications for noninvasive screening for abdominal aortic aneurysm.		I		
16	Know the indications for duplex ultrasound of the peripheral veins and carotid arteries and for duplex and physiological testing of the peripheral arteries.		I		
17	Know the indications for duplex ultrasonography of the renal and mesenteric arteries, arterial bypass grafts and stents, aortic endografts, and intracranial vessels (i.e., transcranial Doppler).			II	
18	Know the indications and contraindications for computed tomographic angiography and magnetic resonance angiography in patients with suspected vascular disease.		I		
19	Know the appropriate indications and laboratory tests to assess for inherited and acquired thrombophilia.		I		
20	Know the appropriate indications and laboratory tests to assess for vasculitis.		I		
21	Know the indications, contraindications, risks, clinical pharmacology, and interactions of drugs used to treat atherosclerotic vascular diseases.		I		
22	Know the indications, contraindications, risks, clinical pharmacology, and interactions of drugs used to treat thrombotic disorders.	I			
23	Know the indications, contraindications, risks, and expected outcomes for thrombolytic therapy for venous thromboembolism (pulmonary embolism and deep vein thrombosis).	I			
24	Know the indications and risks for surgical and endovascular treatments for acute aortic syndromes and the expected outcomes.		I		
25	Know the indications and risks for surgical and endovascular treatments for aortic aneurysm and the expected outcomes.		I		
26	Know the indications and risks for surgical and endovascular treatments for peripheral atherosclerotic vascular diseases, including peripheral artery disease, renal and mesenteric artery disease, and extracranial cerebrovascular disease, and the expected outcomes.		I		

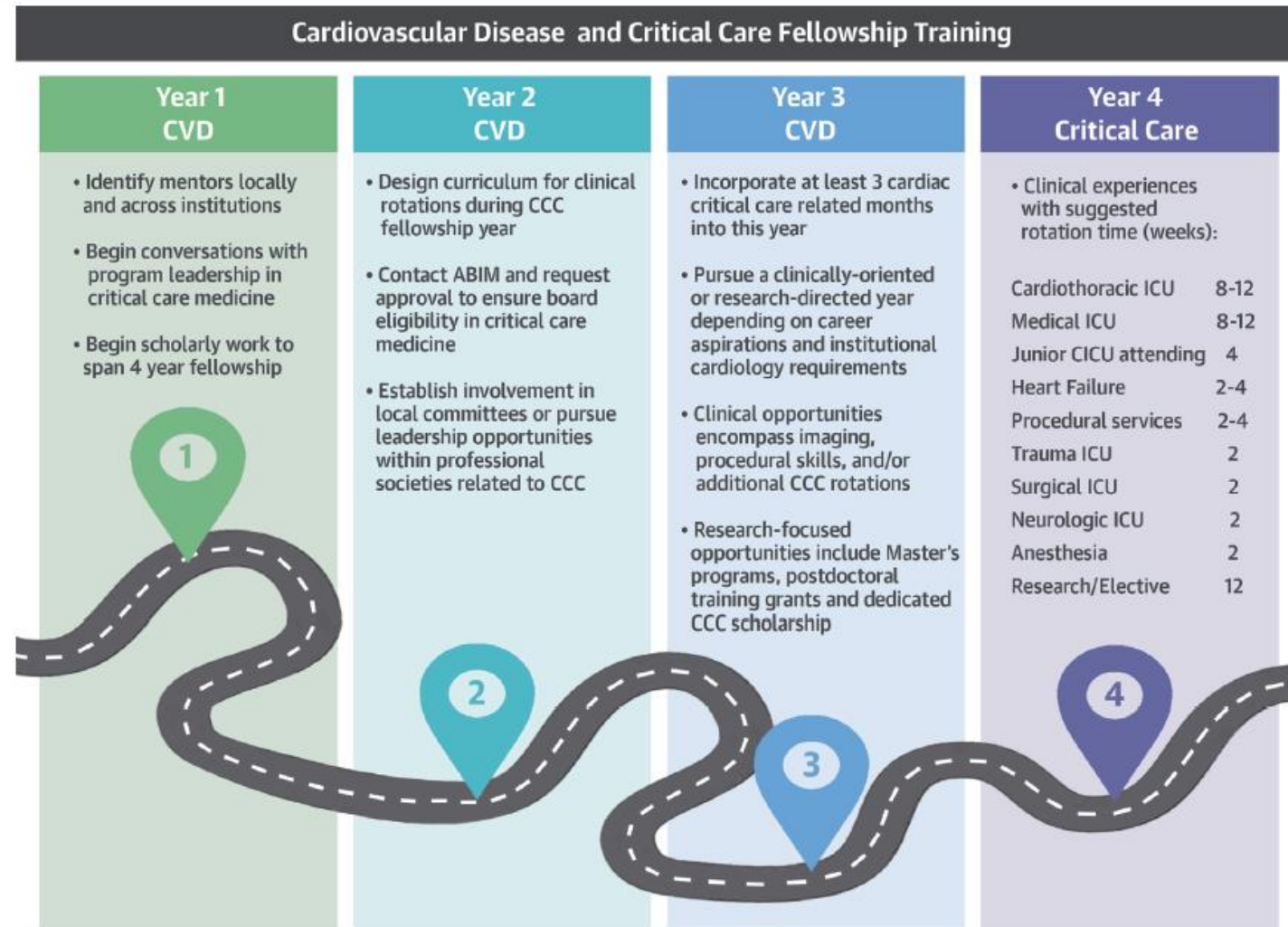
Competency Component		Milestones (Months)			
PATIENT CARE AND PROCEDURAL SKILLS		12	24	36	Add
1	Skill to perform the comprehensive physical examination of the peripheral arteries, including palpation of the abdominal aorta and peripheral pulses and auscultation for bruits.	I			
2	Skill to perform physical examination for suspected peripheral venous disorders, including deep vein thrombosis, varicose veins, and chronic venous insufficiency.		I		
3	Skill to perform and interpret an ankle-brachial index measurement.		I		
4	Skill to perform physical examination maneuvers for arterial compression syndromes (e.g., thoracic outlet, median arcuate ligament, and popliteal artery entrapment syndromes).				III
5	Skill to interpret limb segmental blood pressure measurements, pulse volume recordings and Doppler waveforms, and treadmill vascular exercise tests.			II	
6	Skill to interpret duplex ultrasound examinations of the extracranial carotid arteries, peripheral arteries, abdominal aorta, renal and mesenteric arteries, and peripheral veins.			II	
7	Skill to evaluate and manage aortic aneurysms including identification of patients for whom surgical or endovascular repair is indicated.		I		
8	Skill to evaluate and manage acute aortic syndromes including identification of patients for whom surgical or endovascular therapy is indicated.		I		
9	Skill to evaluate and manage patients with deep venous thrombosis and pulmonary embolism, including identification of patients for whom thrombolytic therapy is indicated.		I		
10	Skill to perform preoperative risk assessment and manage patients undergoing vascular surgery.		I		
11	Skill to evaluate and manage lower extremity peripheral artery disease.		I		
12	Skill to evaluate and manage extracranial carotid artery disease.		I		
13	Skill to evaluate and manage patients with chronic venous insufficiency and varicose veins, including use of compression therapy and identification of patients for whom additional venous procedures are indicated (i.e., sclerotherapy, ablation, or surgery).				III
14	Skill to evaluate lymphedema.			II	
15	Skill to manage lymphedema.				III
16	Skill to diagnose and manage arterial access complications, including arteriovenous fistula and arterial pseudoaneurysms.				III
17	Skill to evaluate and manage lower extremity wounds, including indications for adjunctive imaging and biopsy, indications and techniques for debridement, and selection of appropriate dressings.				III
18	Skill to evaluate and manage Raynaud's phenomenon.				III
19	Skill to evaluate and manage other temperature related disorders, including acrocyanosis, pernio, and erythromelalgia.				III
20	Skill to evaluate and manage uncommon vascular disorders, including vascular compression syndromes (e.g., thoracic outlet, popliteal entrapment), fibromuscular dysplasia, arteriopathies associated with inherited disorders of connective tissue, and congenital vascular malformations.				III
21	Skill to evaluate and manage peripheral and visceral artery aneurysms including identification of patients for whom surgical or endovascular repair is indicated.				III
EVALUATION TOOLS: chart-stimulated recall, direct observation, and global evaluation.					

Critical Care Cardiology

Competency Components	
MEDICAL KNOWLEDGE	
1	Know the pathophysiology, differential laboratory findings of cardiogenic, hypo inflammatory response syndrome.
2	Know the indications for, and characteri monitoring.
3	Know the indications, contraindications, in the treatment of patients with advan
4	Know the indications, contraindications, agents.
5	Know the indications for, contraindicati urgencies and emergencies.
6	Know the indications, contraindications, including intravenous, inhalational, and
7	Know the indications, contraindications, ventricular arrhythmias.
8	Know the indications for, contraindicati ventricular arrhythmias.
9	Know the characteristic clinical, electroc embolism, aortic dissection, pericardial i heart disease, and myocardial infarction
10	Know the indications for oxygen suppl patients with hypoxia and/or respiratory
11	Know the differential diagnosis and cha
12	Know the characteristic physical examin mechanical complications of myocardial ventricular infarction).
13	Know the types of, and indications for, i counterpulsation, ventricular assist (bot membrane oxygenation.
14	Know the principles of treatment of hyp hypertrophic obstructive cardiomyopath tamponade, and distributive shock.
15	Know the indications for emergency sur
16	Know the indications for emergent/urge severe valvular heart disease.
17	Know the differential diagnosis of heart
18	Know the elements of risk scoring syste heart failure, and pulmonary hypertensi electrocardiogram, biomarker testing, ar
19	Know the indications for use of hypothe
20	Know the elements of scoring systems f antithrombotic medications.

EVALUATION TOOLS: conference presen

FIGURE 1 Suggested Road Map to Fellowship Training in CVD Followed by CCC After an Internal Medicine Residency



	Milestones (Months)			
	12	24	36	Add
enous pacemakers in	I			
n with nephrology	I			
in conjunction with	I			
y.	I			
valve therapy.	I			
sturbances in unstable	I			
	I			
s.	I			
			III*	
	I			
patients, in	I			
c ventricular assist	I			
geons.	I			
	I			
th aortic dissection,	I			
ed pulmonary	I			
ntaneous bleeding.	I			
	I			
ent.	I			
			III	
counseling.	I			
e.	I			
s of the care team.	I			

Cardio-Oncology

- There is no agreed upon core set of experiences and knowledge to ensure appropriate training.

CENTRAL ILLUSTRATION: Challenges in Cardio-Oncology

Cardio vs. Oncology

- Location of practice
- Patient priorities
- Training/ancillary staff
- Cancer illness vs. cardio prevention

Lack of Formal Training/Guidelines

- Lack of ACGME training programs
- Lack of practice guidelines

Resources

- Difficulties with Insurance/care coverage
- Complexities of research funding
- Means for training

Wide-ranging Responsibilities

- New treatment modalities
- Evolving patient care plans
- Communication with oncology

Current issues

- Cardio-Oncology vs. Onco-Cardiology
- Ownership
- Patient population
- Varied Responsibilities
- Lack of guidelines
- Balance between CVD prevention and severity of cancer
- No formalized training
- Research funding

The Curriculum at VUMC

Outpatient cardio-oncology clinic (1/2 day a week)

Outpatient cardio-oncology clinics include the clinics of Dr. Moslehi, Dr. Lenihan and Dr. Slosky, which occur Monday-Friday. These clinics are located in Medical Center East with the Vanderbilt Heart and Vascular ambulatory service serving as private offices. The fellow will generally be in Dr. Moslehi's clinic, which is every Tuesday morning. This is a busy clinic that includes at least 3 new patients as well as 5-6 return patients. The fellow will be in charge of seeing all the new patients and discussing the plan with Dr. Moslehi. In addition, the fellow will rotate through the clinics of Dr. Lenihan. Dr. Lenihan's cardio-oncology clinics are Monday and Wednesday afternoon with a special emphasis on heart failure. The Wednesday afternoon patients include patients seen as part of the Vanderbilt Amyloid Multi-Disciplinary Program (VAMP), which exposes the fellow to the amyloid aspect of the cardio-oncology program. Dr. Slosky has clinics every Wednesday, Thursday and alternative Fridays. The Thursday afternoon clinic is specifically focused on the cardio-oncology clinic. A schedule will be created at the beginning of the academic year with the fellow spending ½ a week alternating between Dr. Moslehi's clinic (1/2 total time), Dr. Lenihan (3/8 total time) and Dr. Slosky (1/8 total time). The fellow will be specifically responsible for evaluating the new patients in each clinic, where he/she would see the patients initially, compose an assessment/plan before discussion with the attending.

Outpatient oncology clinic (1/2 day a week)

The fellow will also rotate through various oncology clinics ½ day each week. The purpose of this aspect of the fellowship is to expose the clinical fellow to various aspects of oncology care. This includes exposure to new cancer drugs which have revolutionized care in oncology but many of which are associated with cardiovascular complications. These clinics will include breast cancer, prostate cancer, melanoma, leukemia/lymphoma, transplant, gastrointestinal, genitourinary, and radiation oncology clinics, as well as the early drug development and survivorship oncology clinical programs. We have identified specific oncologists at Vanderbilt who have agreed to serve as the point person and whose clinics include the subspecialties above. At the beginning of the calendar year, a list of clinics will be provided for 6 months. Below are oncologist who will be directly involved in fellow teaching.

Inpatient Cardio-Oncology

As discussed in the application as well as the meeting yesterday, we don't currently have an inpatient cardio-oncology consults service. Most routine cardio-oncology cases are seen and evaluated by the inpatient general consult team (which may include one of the cardio-oncologists depending on the week). The cases that are more complicated are referred to one of the cardio-oncology attendings. (This occurs about once or twice a week and could be a curbside or the attending directly consulting on the case). The fellow will be involved with these cases especially since these cases often lead to important findings for the field. In the past year, for example, our involvement with two patients who have fulminant

Patient Care

Perform a focused history and directed physical examination for patients with cardiovascular issues in the setting of cancer treatment or cancer survivorship
Synthesize and prioritize a differential diagnosis for common cardio-oncology conditions based on the history and physical exam, laboratory data, and imaging studies.
Devise an appropriate plan for therapeutic management for common cardio-oncology conditions on the basis of the working diagnosis.
Incorporate the patient's preferences and social and religious mores into communication and treatment planning.
Identify appropriate community resources to address patient needs.
Confirm laboratory and non-invasive study results in a timely fashion.
Provide continuity of care.

Medical Knowledge

Understand basics of traditional and novel cancer therapies especially in the context of how mechanisms of action of each therapy may contribute to cardiovascular toxicity
Utilize the appropriate diagnostic studies in cardio-oncology patient population
Synthesize data to formulate an effective management/treatment plan.
Create a hierarchical plan to triage and prioritize the treatment plan.
Describe relevant vascular anatomy/physiology/natural history as they pertain to long-term management of patients with specific types of vascular disease.

Practice Learning and Improvement

Critically evaluate the current scientific literature using principles of evidence-based medicine to incorporate into outpatient diagnosis and management of vascular disease.
Solicit and actively receive feedback, and incorporate that feedback in areas identified for improvement.
Acquire knowledge through utilization of appropriate resources (e.g. texts/literature, attending, electronic sources, conferences).

Interpersonal and Communication Skills

Provide effective communication with patients and families.
Maintain accurate, timely, and complete medical records.
Work effectively with other members of the health care team, including nurses and social workers in the care of patients.
Communicate consultation and follow-up information to colleagues and Primary Care Providers in a clear, concise, and helpful way.

In Contrast to Curriculum, Do Everything the
Parent Cardiovascular Program Does

Be a Normal Part of the
Division

Other Hurdles

- Money
- Money
- Money
- Money
- Money
- Money
- Money
- Money

Other Hurdles

- Non-ACGME Programs do not get Medicare Training Funds: Money
- You will have to find creative ways to pay for your fellows: Money
- It is harder to apply for T-32 programs in nonstandard areas: Money
- Ancillary funds (for travel to a meeting) come out of the division: Money
- There is no stipend for the PD to set up and maintain program: Money
- Lack of certification may make a difficult ROI equation for trainees: Money
- You will need an admin person to help run the program: Money

Secrets

- Your best source of trainees is your own program.
- Find a donor to help with paying the trainees (a grateful patient donation works well here)
- Steal liberally from other programs, if you agree, to avoid recreating the wheel
- Consider creating a standardized examination to demonstrate qualifications (that separate trainees from people who just say they do it)

Summary

- Do not recreate the wheel for the machinery of training programs.
- Understand that the training program is determining what should be standard knowledge for an expert in this discipline...and what is not standard.
- Money is the most annoying part of this...as usual.
- Cooperation between programs is, in the long run, more important to the field than winning the battle over any fellow