Walter Reed National Military Medical Center

Incorporating Level 3 Imaging/Echo Into General Cardiology Training: *PRO*

TODD C. VILLINES, MD, FACC, FAHA, FSCCT

Colonel, U.S. Army Medical Corps

Cardiology Fellowship Program Director 2013-2019

Director, Cardiovascular Research & Cardiac CT Program

Professor of Medicine, Uniformed Services University

Chair, ACC Imaging Council and Section, 2018-2020

Immediate Past-President, Society of Cardiovascular CT

Walter Reed National Military Medical Center

Disclosures

- **The views expressed here are *mine only*, and are not to be construed as those of the Department of the Army, Department of Defense, or the United States Government**

- **No financial disclosures relevant to this presentation**

- **Volunteer activities:**
  - Chair, ACC Imaging Section and Leadership Council
  - Immediate Past-President, SCCT

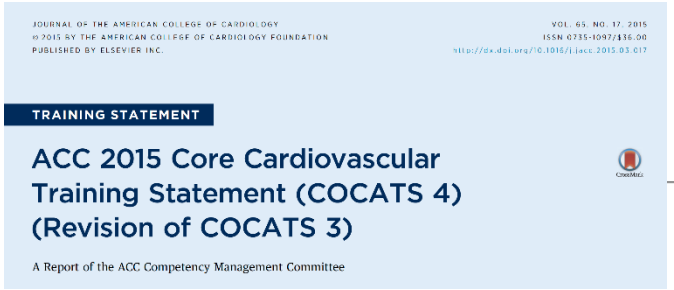
Walter Reed National Military Medical Center

I Have a Tough Assignment!

COLLEGE OF MEDICINE
The UNIVERSITY of OKLAHOMA

Class of 1999

ACC.15 – San Diego



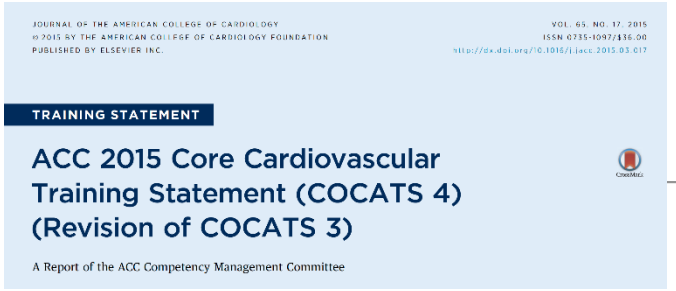
I Have a Tough Assignment!

Level III

"This level of training requires additional experience beyond the general cardiology fellowship to acquire specialized knowledge and competencies in performing, interpreting, and training others…or for the trainee to render advanced, specialized care at a high level of skill."

"Level III training cannot generally be obtained during the standard 3-year general cardiology fellowship and requires additional exposure in a program that meets requirements delineated in Advanced Training Statements."

Source: COCATS 4. *JACC* 2015



Room for Innovation?

Preserve Quality and Value But Evolve

Level III

"Level III training cannot *generally* be obtained during the *standard* 3-year general cardiology fellowship and requires additional exposure in a program that meets requirements delineated in Advanced Training Statements."

- **What is a general cardiologist?**
- **What is a "standard 3-year fellowship"?**
- **Imaging: proliferating clinically**
- **Unmet patient needs: interventional echo, CT, MR and PET**

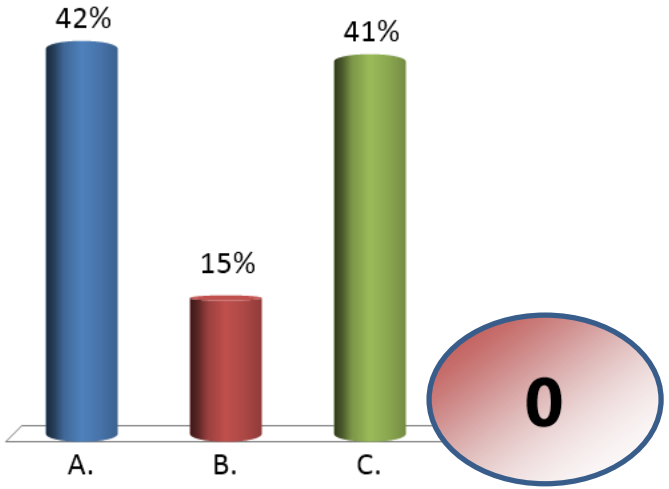
Source: COCATS 4. *JACC* 2015

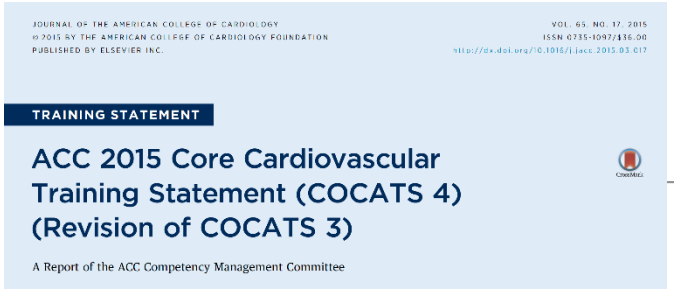
Walter Reed National Military Medical Center

ARS

How many of your general cardiology fellows currently train for more than 3 years ? (total time, including research)

A. None
B. Less than 50%
C. Greater than 50%
D. 100%





Focus on Competencies & Flexibility: *Not on Time*

Competency-based learning—which emphasizes successful graduation on the basis of articulated and rigorously evaluated competency rather than on the amount of time devoted to a particular skill or the number of procedures performed or interpreted during training—will help ensure quality.

2.2. Advanced Imaging Training for Selected Fellows (Levels II and III)

"Training should be flexible and aligned with future career goals."
"Selected fellows, depending on their career objectives and educational experiences (including elective rotations), may develop independent competency (Level II) in an additional imaging modality (nuclear, CCT, or CMR) during the standard 3-year cardiovascular fellowship. An especially adept and committed fellow…may accomplish competency in 3 modalities"

Level II in 2-3 modalities…can we offer level III in 1 modality ?

Source: COCATS 4. *JACC* 2015

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY
© 2015 BY THE AMERICAN COLLEGE OF CARDIOLOGY FOUNDATION
PUBLISHED BY ELSEVIER INC.
VOL. 65, NO. 17, 2015
ISSN 0735-1097/$36.00
http://dx.doi.org/10.1016/j.jacc.2015.03.017

TRAINING STATEMENT

ACC 2015 Core Cardiovascular Training Statement (COCATS 4) (Revision of COCATS 3)

A Report of the ACC Competency Management Committee

Level III Echo

An Option for Some Fellows ?

Competency-based learning—which emphasizes successful graduation on the basis of articulated and rigorously evaluated competency rather than on the amount of time devoted to a particular skill or the number of procedures performed or interpreted during training—will help ensure quality.

2.2. Advanced Imaging Training for Selected Fellows (Levels II and III)

TABLE 2 Summary of Training Requirements for Echocardiography

Level	Duration of Training* (Months)	Cumulative Duration* of Training (Months)	Minimal No. of TTE Examinations Performed	Minimal No. of TTE Examinations Interpreted	TEE and Special Procedures
I	3	3	75	150	Yes†
II	3	6	150 (75 Add)	300 (150 Add)	Yes‡
III	3	9	300 (150 Add)	750 (450 Add)	Yes

*Typical duration assuming acceptable progress toward milestones and demonstrated competency. †Exposure to TEE and other special procedures. ‡Completion of Level II and additional special training are needed to achieve full competence in TEE and other special procedures.

Add = additional; TEE = transesophageal echocardiography; TTE = transthoracic echocardiography.

Source: COCATS 4. *JACC* 2015

JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY
© 2015 BY THE AMERICAN COLLEGE OF CARDIOLOGY FOUNDATION
PUBLISHED BY ELSEVIER INC.
VOL. 65, NO. 17, 2015
ISSN 0735-1097/$36.00
http://dx.doi.org/10.1016/j.jacc.2015.03.017

TRAINING STATEMENT

ACC 2015 Core Cardiovascular Training Statement (COCATS 4) (Revision of COCATS 3)

A Report of the ACC Competency Management Committee

Don't Underestimate the Capacity of Today's Learners!

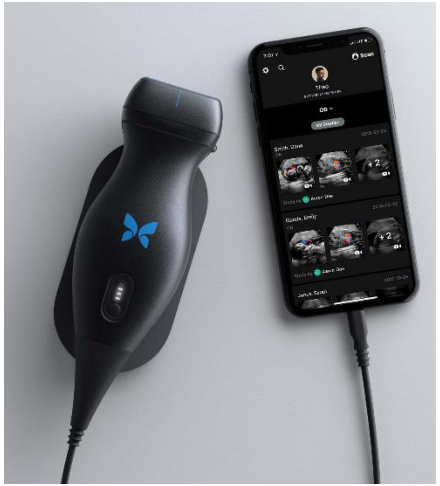


TABLE 1 Key Principles for Training in Multimodality Noninvasive Cardiovascular Imaging

14. As medical school and residency training provides more advanced imaging training and a wider array of modalities is introduced in the future, fellows in cardiology should be progressively better prepared to understand, utilize, and perform cardiac imaging"

Source: COCATS 4. *JACC* 2015

Walter Reed National Military Medical Center

Currently: Crisis and Uncertainty in Imaging Training

- **Advanced imaging is getting more complex in scope (e.g., structural heart disease)…**

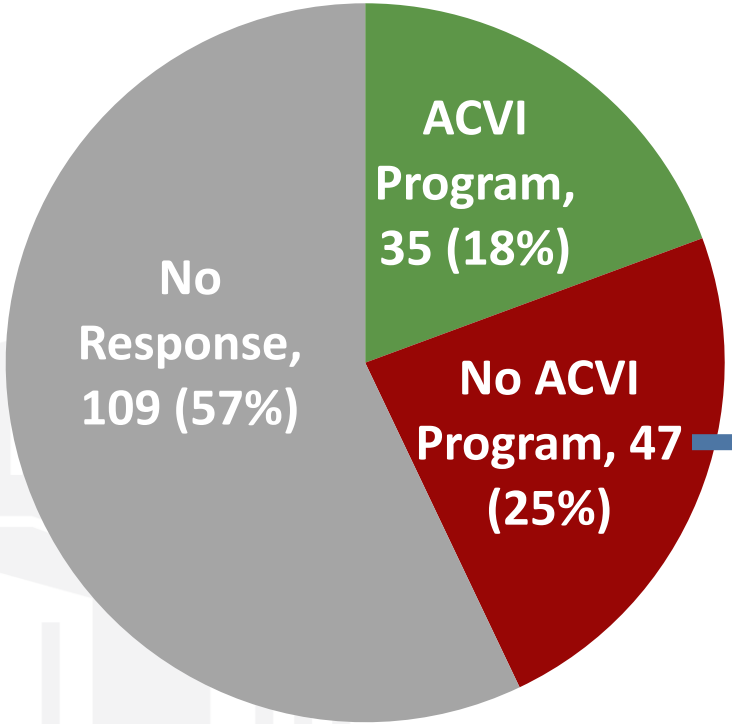
- **Operationally it is becoming much more automated to perform and interpret advanced imaging studies**
  - Machine learning, AI
  - Semi-automated image acquisition and measurements
  - Web-based instruction, videos increasingly available
  - Smaller footprint machines and training earlier (med school, residency)
  - We often make advanced imaging harder than it really needs to be

Walter Reed National Military Medical Center

Challenge: Insufficient training opportunities

CV Imaging ACC FIT Survey

191 ACGME-Accredited General Cardiology Fellowship Training Institutions Surveyed



47 Institutions Without Advanced Imaging Training Programs

Insufficient **funding** - **85%**

Insufficient **faculty** - **30%**

Insufficient **case volume** - **32%**

Source: Shah et al. JACC Cardiovasc Imaging. 2015 Dec 7. Slide courtesy of Marcelo Dicarli, MD

Walter Reed National Military Medical Center

Currently: Crisis and Uncertainty in Imaging Training

- **Level III training: not well defined for CT, Nuclear and MRI**
  - Defer to yet to be written training documents

TABLE 2 Requirements for CCT Study Performance and Interpretation to Achieve Level I and II Clinical Competence

	Minimum Number of Mentored Examinations Present During Performance	Minimum Number of Mentored Examinations Interpreted
Level I	15	50
Level II	65	250 CCT cases*

- **Advanced Imaging Fellowships: <u>mostly unfunded (or underfunded)</u>**
  - Imaging boards expensive and training is not recognized by the ABMS (Unlike: Heart Failure, Interventional, EP)
  - Results in inconsistent, poorly-funded imaging fellowships
  - Uncertainty for trainees and lack of recognition of expertise by insurers

- **<u>Room for Imaging Training</u>: Training is already long, with only 24 mandated clinical months per COCATS 4 and many fellows already training for 4 years**

Source: COCATS 4. *JACC* 2015.

Walter Reed National Military Medical Center

Conclusions

- **Guidelines: increasingly support advanced imaging - NEED FOR IMAGERS!**
  - Increased need for cardiac CT, CMR, PET Level III providers, esp. in underserved areas
  - It is okay to be Level III in only 1 modality…power in collective expertise in practices
  - Cannot be met by relying on radiology and the limited number of imaging fellowships

- **General cardiology training must evolve**
  - Make advanced imaging foundational for most general cardiology fellows
  - Provide trainees flexibility to obtain Level II and III selectively in advanced imaging modalities
    - Level III echo – not that hard to do!
    - Level II or III in an additional modality at sites with volume and expertise

- **<u>Consider adding an optional 4th year ("Imaging Year") to provide this training</u>**
  - Requires funding: ABMS & ACGME recognition; Medicare
  - Imaging quality would likely improve globally

Walter Reed National Military Medical Center

Thank you!

TODD C. VILLINES, MD, FACC, FAHA, FSCCT