

# Update on In-Training Examination

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Question 1: Does your training program participate in the ITE exam?

1) Yes

2) No

# Update and Your Feedback!

- Update on the ITE Exam
  - The what, where, when, why...
  - What we have accomplished to date
- We need your feedback:
  - How does this exam help you?
  - What are we missing?

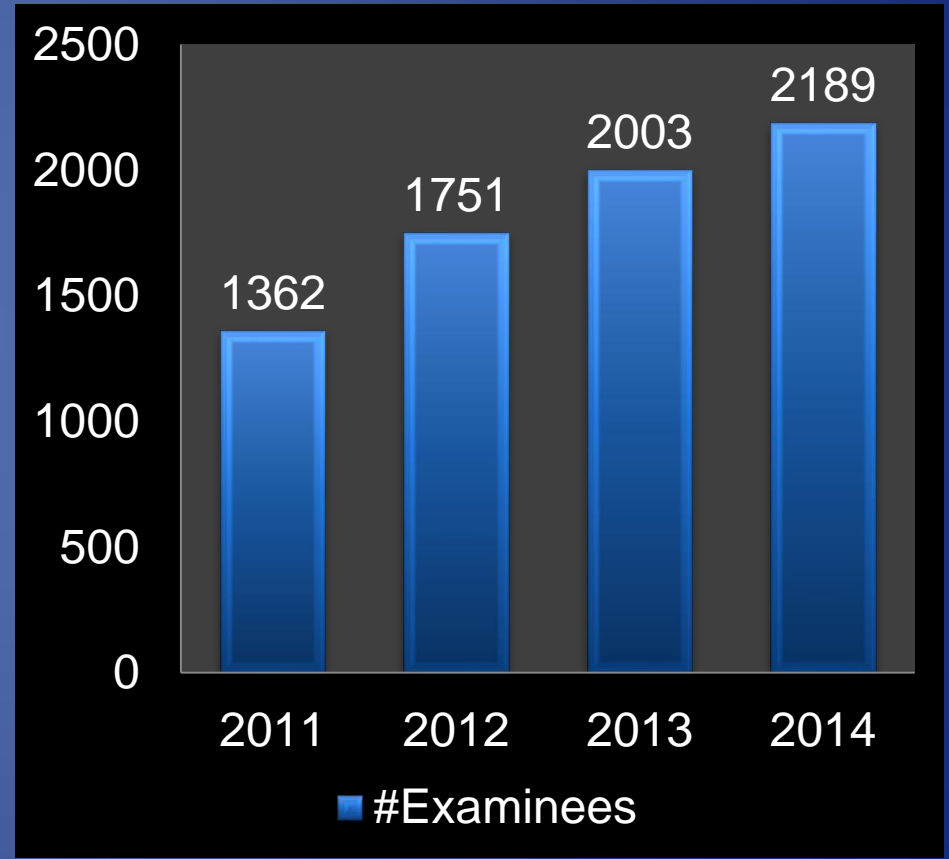
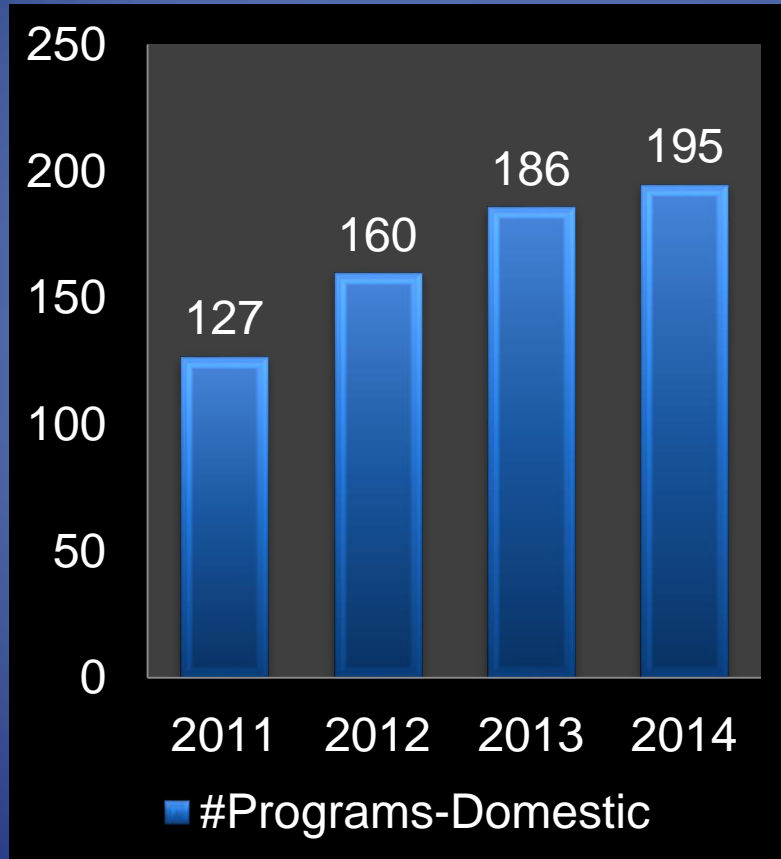
# ACC: In Training Examination

- ACC: Training Materials Development Committee
  - Initiated 2010 to create a formal, validated assessment of medical knowledge and meet the ACGME requirement for testing
  - Founding Chair: Dr. Jeffrey Kuvin
  - Committee Members – predominantly program directors
- Collaboration with NBME (National Board of Medical Examiners)
  - Prior experience developing and administering computer based ITE's in other subspecialties (nephrology, oncology)
  - Secure, web-based examination

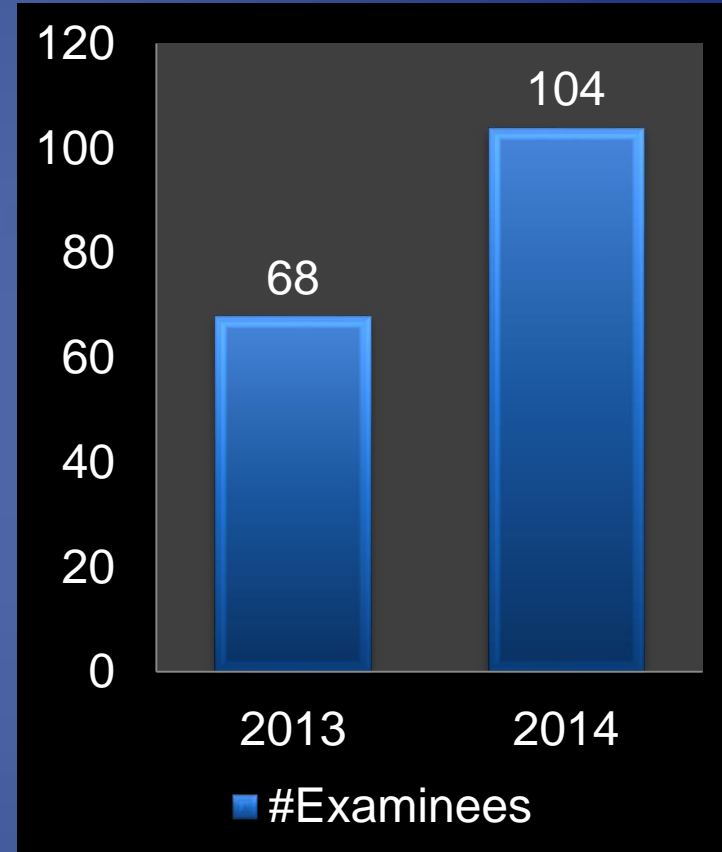
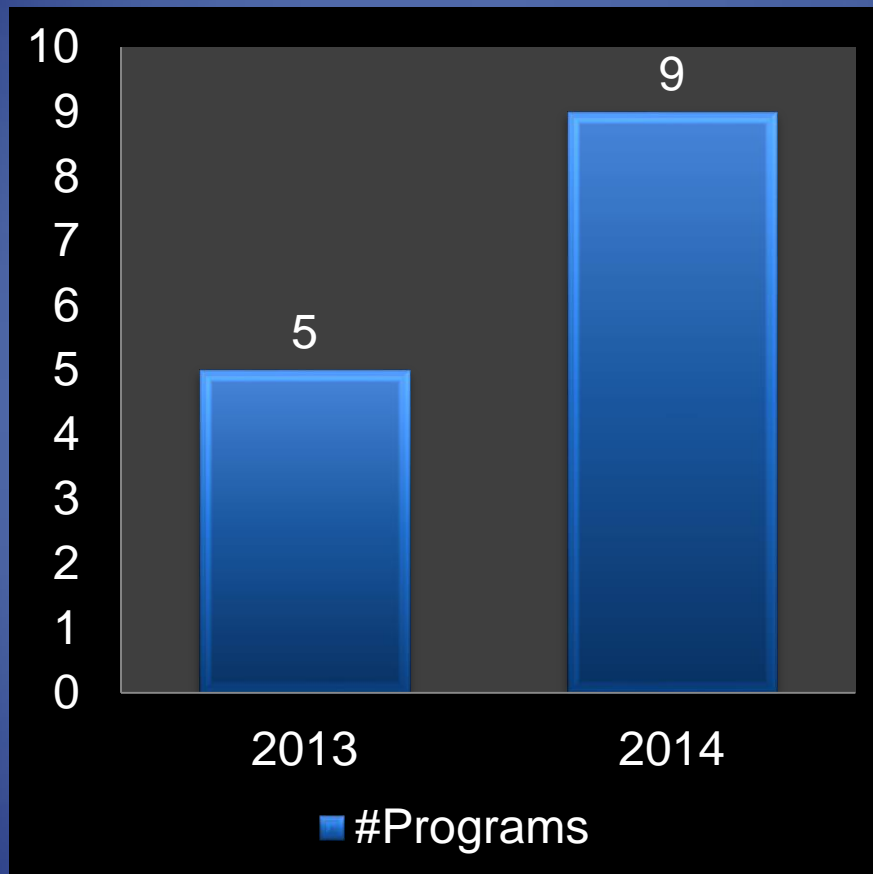
# Goals of an In-Training Examination

- Assess knowledge to prepare fellows to ultimately pass Cardiology boards (ABIM)
- Track improvement over the course of 3 years
- Provide feedback to both fellow and program directors on knowledge gaps at
  - Level of individual fellows
  - Level of the program

# Domestic Participation



# International\* Participation



\*China, Lebanon, Japan, and Canada

# Exam Format

- Single best answer: text, video, still images
  - 5 modules, each 30 questions, each 1 hour
- Questions written by committee members and reviewed in-person meetings (December, March)
- Questions analyzed by NBME for correct structure and statistically analyzed by psychometricians
- Scaled score provided with percentiles for performance

\*Set to mean of 500 and standard deviation of 100 points, allowing comparison across fellowship years



# Question Areas

ABIM Blueprint by  
medical content  
category

Each question mapped  
to an ACC competency  
[http://www.Cardiosource.Org  
/corecompetencies](http://www.Cardiosource.Org/corecompetencies)

Medical Content Category	Relative Percentage
Arrhythmias	12.0
Coronary artery disease	12.5
Acute coronary syndromes	12.0
Valvular disorders	12.0
Congenital disorders	7.0
Pericardial disease	3.0
Aorta/Peripheral vascular disease	9.0
Hypertension/Pulmonary disorders	7.0
Pharmacology	5.0
Congestive heart failure	13.0
Physiology/Biochemistry	6.0
Miscellaneous	1.5

# Feedback: Performance by Category

Feedback provided broken down by content area for:

	First-Year Fellows		Second-Year Fellows		Third-Year Fellows	
	Your Fellows (N=4)	All Fellows (N=613)	Your Fellows (N=6)	All Fellows (N=775)	Your Fellows (N=7)	All Fellows (N=793)
Total Test (Scale Score)	345 (80)	437 (115)	551 (64)	546 (119)	554 (61)	596 (121)
Total Test (Percent Correct)	50 (6)	57 (9)	66 (5)	65 (8)	66 (5)	68 (8)
<u>Content Area (%)</u>						
Arrhythmias	33 (12)	42 (13)	57 (16)	53 (15)	61 (11)	56 (15)
Coronary Artery Disease	68 (10)	62 (13)	74 (6)	69 (12)	74 (12)	72 (13)
Acute Coronary Syndromes/ Acute MI	47 (10)	62 (13)	69 (12)	69 (11)	65 (8)	72 (12)
Valvular Disorders	44 (8)	58 (14)	69 (9)	67 (13)	62 (6)	72 (12)
Congenital Disorders	36 (7)	44 (17)	59 (11)	54 (18)	64 (23)	64 (16)
Aorta/ Peripheral Vascular Disease	59 (12)	63 (14)	67 (16)	68 (13)	60 (8)	70 (13)
Hypertension/ Pulmonary Disorders	68 (10)	70 (15)	72 (12)	75 (15)	71 (12)	77 (14)
Congestive Heart Failure	53 (13)	58 (14)	58 (3)	67 (13)	68 (11)	69 (13)

Content Area	Percent Correct Score		
	Your Score	First Year Fellows	
		Mean	SD
Arrhythmias	61	62	13
Coronary Artery Disease	84	57	13
Acute Coronary Syndromes/Acute MI	88	71	11
Valvular Disorders	67	52	12
Congenital Disorders	42	47	16
Aorta/Peripheral Vascular Disease	71	61	16
Hypertension/Pulmonary Disorders	89	68	15
Congestive Heart Failure	61	56	14

All Examinees

Individual program

Individual fellow

# Feedback

- Each fellow receives a list of ACC competency statement AND diagnosis for every question answered wrong:

## Competency Statements (CS) and Diagnoses (D)

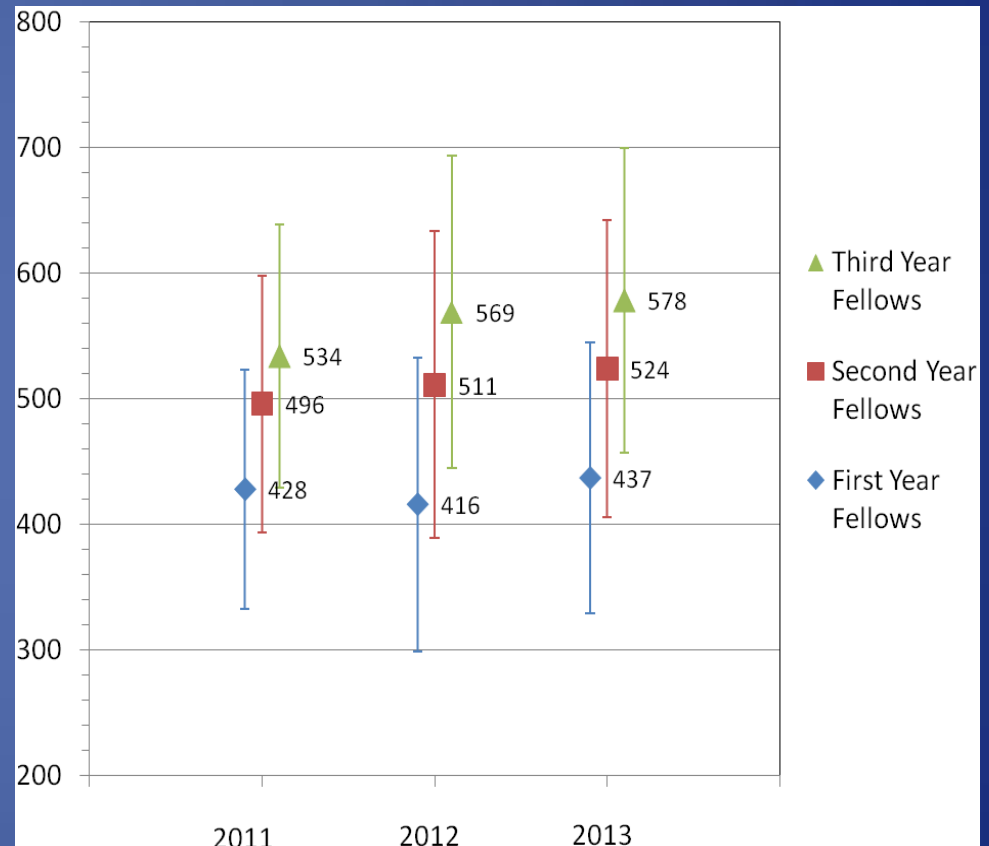
- 1) CS 01.01.09 - Know the indications, contraindication, and clinical pharmacology of antiarrhythmic medications- including drug-drug and drug-device interactions and proarrhythmia potential  
D Atrial fibrillation
- 2) CS 01.01.11 - Know the indications for, and limitations and complications of, invasive electrophysiologic testing, as well as arrhythmia ablation  
D Atrial flutter
- 3) CS 01.01.11 - Know the indications for, and limitations and complications of, invasive electrophysiologic testing, as well as arrhythmia ablation  
D Esophageal fistula, atrial fibrillation
- 4) CS 01.01.12 - Know the indications for permanent pacemaker placement, CRT, and of ICD placement  
D Ventricular fibrillation
- 5) CS 01.01.14 - Know the mechanisms, findings, and clinical significance of ventricular pre-excitation  
D Wolff-Parkinson-White syndrome

# ITE Performance

Excellent reliability  
over testing years

- Reliability coefficient  $\alpha$   
= 0.73-0.81

Excellent  
consistency  
among training  
years

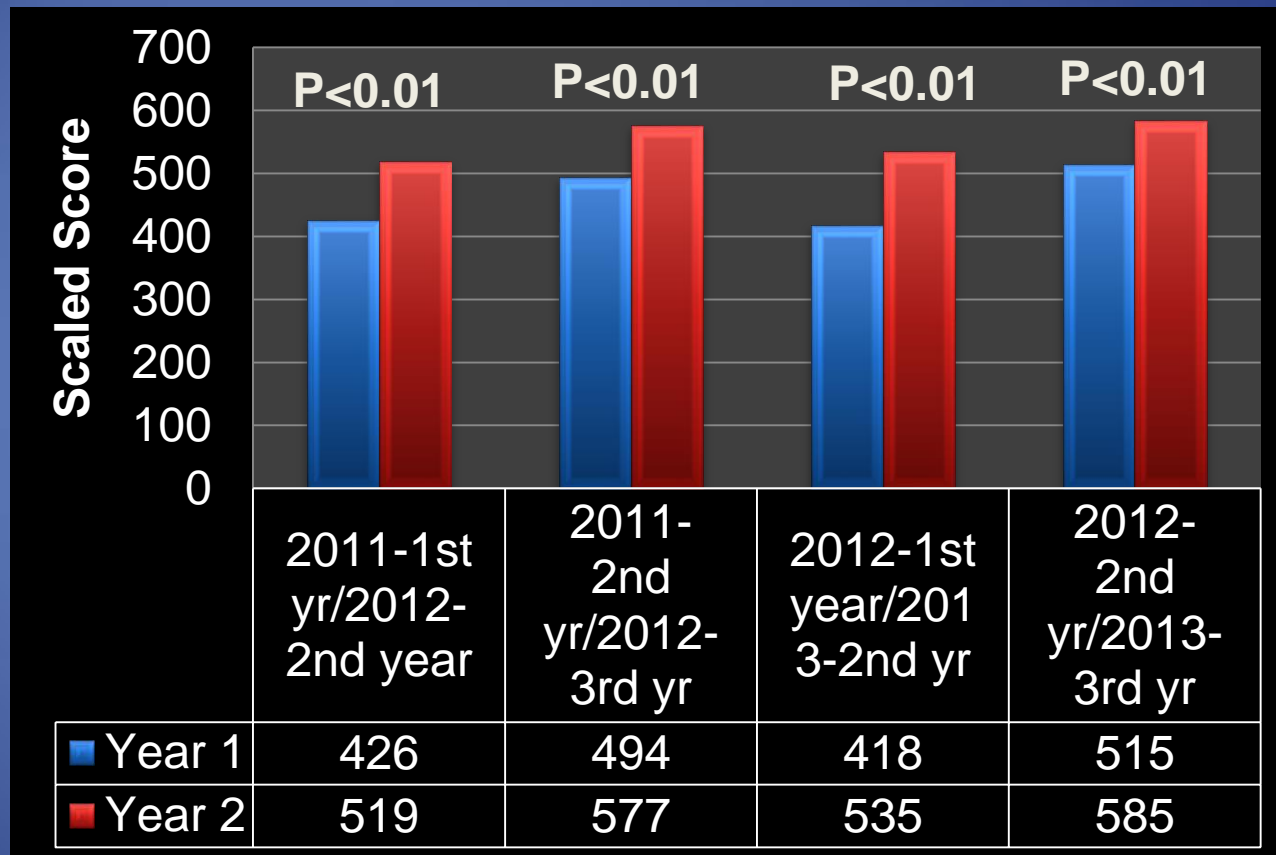


Incremental improvement as  
training progresses

Question 2: If you do participate in the ITE exam, which year fellows take the exam?

- 1) First, second and third
- 2) Second and third
- 3) Third year only
- 4) some other combination

# Demonstrated Improvement of Fellows as they Progress through training:



# Next Steps

- Statistical comparison of performance on the ITE examination to performance on the ABIM boards
  - Anticipated in 2 years
- Potential to develop cardiology subspecialty ITE examinations
- ECG/Imaging section (?)

# Summary

- ITE examination has now been given annually since 2011, reaching nearly 200 cardiology fellowship programs
- Mirrors the blueprint of the ABIM Cardiology Board examination
- Reliable and consistent performance
- Comprehensive feedback to fellows and programs



# We need your feedback!

- How does this exam help you?
- What are we missing?

Question 3: what do you think about the Competency statement/diagnoses feedback to gauge knowledge gaps in your fellows??

- 1) very helpful
- 2) somewhat helpful
- 3) not very helpful

Question 4: Do you use the ITE results to modify lecture content?

- 1) Definitely
- 2) Somewhat
- 3) Not really at all

Question 5: Do you use the ITE exam to specifically give feedback to faculty in how well they are preparing fellows in their content areas?

- 1) Yes, definitely
- 2) Yes, but not consistently
- 3) No, feedback is given to the faculty based on other metrics

Question 6: Do you use the ITE exam to identify fellows at risk to fail boards and to enact customized learning plans?

1) yes

2) no, rely principally on other methods to identify fellows at risk

# Your Comments and Suggestions