Educating CV Fellows in the Contemporary Era: Developing the Competent Cardiologist

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NO DISCLOSURES
What is a competent cardiologist?

How do you measure competency?
Training the Competent Cardiologist

- Knowledge
  - Past
  - Present
  - Future

- Skills

- Intangibles
Early 1980’s – CV fellowship
Medical Knowledge

Read Braunwald and Harrison’s
cover to cover

Know the current literature
(AJC, Circulation and NEJM)

Just pass your boards
Early 1980’s – CV fellowship Medical Knowledge

Textbooks comprehensive
Written by authorities in field
(but “single author” knowledge and opinion)

Definition severe aortic stenosis
✓ < 1.0 cm²
✓ <0.7 cm²
✓ <0.5 cm²
✓ <0.5 cm²/m²
✓ Peak to peak > 50 mmHg
✓ Mean > 40 mmHg
Early 1980’s – CV fellowship
Medical Knowledge

Textbooks comprehensive
Written by authorities in field
(but “single author” knowledge and opinion)

Asymptomatic patient with severe aortic stenosis
✓ Never operate
✓ Consider TMET
✓ Never TMET
✓ Look at wall stress, then consider operation
Early 1980’s – CV fellowship
Procedural Skills

6 months cath
6 months echo

Learn by doing

If you have time
read Grossman
Early 1980’s – CV fellowship
Procedural Skills

Do it my way
Training the Competent Cardiologist

Knowledge
- Past: You’re on your own, kid
- Present: 
- Future: 

Skills
- Past: “Do it my way”
- Present: 
- Future: 

Intangibles
- Past: 
- Present: 
- Future: 
ACC 2015 Core Cardiovascular Training Statement (COCATS 4): A New Era in Cardiovascular Training

The COCATS initiative began with an ACC Core Cardiology Training Symposium held at Heart House in Bethesda, Maryland, in 1994. The seminal 1995 COCATS document went beyond the minimum ACGME training requirements for cardiovascular training to incorporate broader input from leaders of the various subspecialties of cardiology, medicine (Task Forces) to define the knowledge, skills, abilities, and delineate progressive levels of experience necessary to meet the needs and varied patient populations served, paralleled evolution of the field. The next step was a 2-year process that led to the broader, more refined and comprehensive curriculum that the American Board of Internal Medicine (ABIM) and the American Board of Medical Specialties (ABMS) agreed on true outcomes assessments, rather than time and volume of training with defined evaluation tools. For the first time, the profession has defined the specific competencies expected of clinical cardiologists.
Full core curriculum in a competency based format

- Delineate components of competencies necessary for a competent cardiologist
- Define tools for assessment during training
- Establish milestones to meet during training
COCATS 4

15 different task forces
> 160 “experts” in education

- Ambulatory, consultative
- Preventive cardiology
- EKG, Holter, stress testing
- Multimodality imaging
- Echocardiography
- Nuclear cardiology
- CV CT imaging
- CV MRI

- Vascular
- Cardiac Catheterization
- Arrhythmia and EP
- Heart Failure
- Critical Care
- ACHD
- CV Research and scholarly
Current–CV fellowship
Core Competencies: Invasive Cardiology

Medical Knowledge

Procedure skills

System based practice
Practice based learning
Professionalism
Communication
Current – CV fellowship
Core Competencies: Invasive Cardiology

Know the hemodynamic findings in patients with valvular and myocardial disease
### Current– CV fellowship

#### Core Competencies: Invasive Cardiology

<table>
<thead>
<tr>
<th>Medical Knowledge</th>
<th>Milestones (Months)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

### Skill to perform right heart catheterization
Interact respectfully with patients, families and all members of the health care team
Current– CV fellowship
Core Competencies: Invasive Cardiology

Level I: 4 months
100 diagnostic catheterizations
50 coronary angiography
25 hemodynamics

Level II: 6 months
300 diagnostic angiograms
Current– CV fellowship
Core Competencies: Invasive Cardiology

- Competent
- Mastery

Level of competency

Time training

Procedure numbers

Level of competence

Time training
Know the indications for, and characteristic findings with, cardiac catheterization in patients with valve disease.
**Current – CV fellowship**

**Core competency: Valve Disease**

**Skill to determine candidacy and optimal timing of cardiac surgical treatments for patients with valve disease**

<table>
<thead>
<tr>
<th>Core Competency Component</th>
<th>Curriculum Milestone for Training in Valvular Heart Disease</th>
<th>Skill to Identify Causes</th>
<th>Skill to Distinguish</th>
<th>Patient Care and Procedural Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Knowledge</td>
<td>Medical Knowledge</td>
<td>Identify causes</td>
<td>Distinguish</td>
<td>Patient Care and Procedural Skills</td>
</tr>
<tr>
<td>1. Know the characteristic features and natural history of congenital bicuspid aortic valve disease</td>
<td>2. Know the etiology, natural history, pathophysiology, and differential diagnosis of acquired aortic, mitral, pulmonary, and tricuspid valve disease</td>
<td>Evaluate causes</td>
<td>Distinguish</td>
<td>Evaluate causes</td>
</tr>
<tr>
<td>2. Know the etiology, natural history, pathophysiology, and differential diagnosis of acquired aortic, mitral, pulmonary, and tricuspid valve disease</td>
<td>3. Know the characteristic features and natural history of rheumatic valve heart disease</td>
<td>Evaluate causes</td>
<td>Distinguish</td>
<td>Evaluate causes</td>
</tr>
<tr>
<td>3. Know the characteristic features and natural history of rheumatic valve heart disease</td>
<td>4. Know the clinical symptoms and physical findings of mitral and aortic diseases and their role in management decisions</td>
<td>Evaluate causes</td>
<td>Distinguish</td>
<td>Evaluate causes</td>
</tr>
<tr>
<td>4. Know the clinical symptoms and physical findings of mitral and aortic diseases and their role in management decisions</td>
<td>5. Know the clinical symptoms and physical findings of chronic aortic and chronic mitral</td>
<td>Evaluate causes</td>
<td>Distinguish</td>
<td>Evaluate causes</td>
</tr>
</tbody>
</table>

Skills include:
- Identify causes and etiologies of valvular heart disease
- Evaluate and distinguish between various valvular diseases
- Manage patients with valvular heart disease and coronary artery disease
- Perform appropriate testing and integrative analysis of clinical findings in the evaluation and management of patients with valvular heart disease.
Current – CV fellowship
Medical Knowledge

Evidence based medicine
Consensus of Experts
ACC/AHA Guidelines
Vetted by many
Free of industry bias

The gold standard for medical knowledge – pt care, boards
Clinical algorithms put together by the experts in the field
Current – CV fellowship
Medical Knowledge

Training institutions: Core curriculum
Weekly lectures
Comprehensive overviews
Given by local “experts”

Board Review Courses
Cover all aspects of CV diseases
Learning objectives related to core competencies
Live courses (dedicated intense exposure)
On-line portals (self-directed learning)
On-line self evaluation
Know your “gaps”
Training the Competent Cardiologist

Knowledge
- Past: You’re on your own, kid
- Present: Well-defined core curriculum
- Future: 

Skills
- Past: “Do it my way”
- Present: Competency based training
- Future: 

Intangibles
Training the Competent Cardiologist

At last

- Well defined core competencies
- Agreed upon by all – program directors, national societies, national boards
- Fellows have a “roadmap” to follow throughout training

Present

- Well-defined core curriculum
- Competency based training

Challenges

- Knowledge Overload
- The Teacher
Training the Competent Cardiologist
Challenges in 2016

The “core curriculum” is the basic foundation of knowledge that a competent cardiologist should have
“Knowledge Overload”

Cardiovascular Diseases

22 “top” journals
3 “major” meetings
8 textbooks
92 CME meetings
6 subspecialties

Wall Street Journal
1,500 new journal articles and 55 new clinical trials are indexed in the National Library of Medicine Medline database.

Clinically relevant knowledge in cardiovascular disease will triple over the next 3-5 years.

<1% percent of published clinical information is likely to be relevant to a particular clinical case—but that one percent may offer lifesaving information.
A 32 y/o woman just walked into your office who had a mechanical St Jude MVR 5 years ago. Her INR has been 3.0 on 3 mg warfarin per day. Guess what?

She is 8 weeks pregnant
Do you know what to do?

1. Continue warfarin
2. Switch to LMWH
3. Switch to subq UFH
4. I don’t know
Where do we go for knowledge? - quickly

- Up to Date
- Google
- Textbooks
- Med-line
- Call the expert
ACC/AHA Practice Guidelines
The “flagship” of US cardiology

Evidence-based
Synthesis by our experts
Unbiased
Highly vetted
ACC/AHA Practice Guideline
procedures, only 45% of patients were free of symptomatic autograft deterioration, but 99% had a mean or integral jet dimension greater than 2%. However, dilation did not always successfully normalize for moderate or severe AS (27), and the use of a bypass graft procedure results in stable jet dimensions (144,145).

6.1. Recommendations for Key Issues to Evaluate and Follow-Up

1. Limiting catheterization is recommended for all patients with aortic valve disease risk or at expiration or unexpected deficit factor (T3). A recommendation for the evaluation of the somewhat modest benefit is warranted (T3).

2. Serial imaging assessment of aortic root anatomy is recommended for all patients with intact native valves. The frequency of imaging would depend on the size of the aorta at baseline assessment. If less than 6 cm, I should be obtained every 5 years; if larger than 6 cm, I should be obtained every year or every 2 years. For patients at high risk for aortic dissection, aortic root dimensions should be monitored closely.

3. Propagation syndrome is recommended in women with AS who are undergoing pregnancy. Level of Evidence: A

4. Patient selection for surgical treatment is critical. Indications for surgery are based on the clinical symptoms of the patient and the presence of other cardiovascular conditions. Level of Evidence: A

5. Aortic root aneurysm is not an exclusion criterion for aortic valve surgery, but it is an exclusion criterion for aortic valve surgery in patients with AS who are at high risk of aortic dissection. Level of Evidence: D

Progressive or severe AS, AR, or aortic enlargement may occur in the presence of a BAV. Patients with or without intervention should be followed up at least yearly for symptoms and findings of progression (AS, AR, ventricular dysfunction, and aortic enlargement). This includes testing and even echo-DT to look for aortic changes or aortic, echocardiography, Doppler, and stress testing. AR is associated with aortic valve function, aortic root size, and availability of agonistic angiography. With or without intervention, both AS and AR can progress to severe AS or AR, which may require surgical intervention. Prosthetic valve complications include aneurysm, valve-related structural failure, and valve-related bacterial endocarditis. In patients with severe AS, AR, or aortic enlargement, the use of a bypass graft procedure is not recommended unless the native valve is not amenable to repair.

6.2. Reproduction

Most procedures with complete AS are uncomplicated, but patients with severe AS may have more severe complications, and patients with complete AS may have more severe complications, and patients with severe AS may have more severe complications.
Information Overload

“Press” of the practice

What the practicing physician needs

The “Gist”
Concise relevant bytes of knowledge that answer a specific question, synthesized by an expert(s)
Unstructured text
Document interchange

Structured data
Knowledge Management
Write guidelines differently

Organize guidelines differently

Knowledge “chunks”
Create taxonomy
Based upon how clinicians think

Create evidence tables
Based upon taxonomy

Create knowledge chunks
(concise, relevant, practical)
Based upon taxonomy and evidence

Class Ila: Continuation of warfarin during the first trimester is reasonable for pregnant patients with a mechanical prosthesis if the dose of warfarin to achieve a therapeutic INR is less than or equal to 5 mg per day
Create taxonomy
Based upon how clinicians think
Create knowledge chunks
(concise, relevant, practical)
Based upon taxonomy and evidence

Class IIa: Continuation of warfarin during the first trimester is reasonable for pregnant patients with a mechanical prosthesis if the dose of warfarin to achieve a therapeutic INR is less than or equal to 5 mg per day

Supporting text for each chunk (concise)
Link to References
Link to Figures
The optimal anticoagulant used for pregnant patients with mechanical prosthetic valves during the first trimester remains controversial. Oral anticoagulation with warfarin is overall the safest regimen for the mother, but there is an increased risk of embryopathy. Anticoagulation with UFH or LMWH has been recommended to avoid the risk of embryopathy, but is not as effective as warfarin in preventing thromboembolic events. It has been shown that the risk of embryopathy is dose-dependent, with a low risk (<3%) if the dose of warfarin is ≤5 mg per day. The risk of abortion and fetal loss are increased with any anticoagulant regimen, but may be similar in women exposed to oral anticoagulants versus heparin in the first trimester, especially at low doses of warfarin. Continuation of warfarin during the first trimester is reasonable after a full discussion with the patient and family regarding the risks and benefits when a therapeutic INR can be maintained with a daily warfarin dose of ≤5 mg.

Supporting References: (811, 812, 817, 818, 821, 824-827)
Type in “anticoagulation for mechanical valves during pregnancy”
Goes directly to the “knowledge byte” that is answers the question

Class Recommendation

Read “more” for supporting text and references
Class IIa

1. Continuation of warfarin during the first trimester is reasonable for pregnant patients with a mechanical prosthesis if the dose of warfarin is less than or equal to 5 mg per day to achieve a therapeutic INR after full discussion with the patient regarding risks and benefits (804, 805, 810, 811, 814, 817). (Level of Evidence: B)

The optimal anticoagulant used for pregnant patients with mechanical prosthetic valves during the first trimester remains controversial. Oral anticoagulation with warfarin is overall the safest regimen for the mother, but there is an increased risk of embryopathy. Anticoagulation with UFH or LMWH has been recommended to avoid the risk of embryopathy, but it is not as effective as warfarin in preventing thromboembolic events. It has been shown that the risk of embryopathy is dose-dependent, with a low risk (<3%) if the dose of warfarin is ≤5 mg per day. The risk of abortion and fetal loss is increased with any anticoagulant regimen, but may be similar in women exposed to oral anticoagulants versus heparin in the first trimester, especially at low doses of warfarin. Continuation of warfarin during the first trimester is reasonable after a full discussion with the patient and family regarding the risks and benefits when a therapeutic INR can be maintained with a daily warfarin dose of ≤5 mg (804, 805, 810, 811, 814, 817-820).

See Online Data Supplements 25 and 26 for more information on pregnancy.
Class Ila: Continuation of warfarin during the first trimester is reasonable for pregnant patients with a mechanical prosthesis if the dose of warfarin to achieve a therapeutic INR is less than or equal to 5 mg per day.

The optimal anticoagulant used for pregnant patients with mechanical prosthetic valves during the first trimester remains controversial. Oral anticoagulation with warfarin is overall the safest for both mother and child. Anticoagulation with LMWH has been associated with lower rates of fetal loss, but data regarding the efficacy and safety of LMWH in pregnant women are limited. LMWH has been shown to be more effective (20%) if the dose of warfarin is 5 mg per day. The risk of abortion and fetal loss are increased with any anticoagulant regimen, but may be similar in women exposed to oral anticoagulants versus heparin in the first trimester, especially at low doses. Continuation of warfarin during the first trimester is reasonable after a full discussion of the risks and benefits when a therapeutic INR is achieved and the warfarin dose of ≤5 mg.

Supporting References: (811, 812, 817, 818, 821, 824-827)
Knowledge Byte

Knowledge when you need it

Complete ACC/AHA Guideline

On-line Education

Stored in centralized knowledge content management system
New Knowledge

Knowledge Byte

Complete ACC/AHA Guideline

Stored in centralized knowledge content management system

Point of Care Knowledge when you need it

On-line Education

2013 AHA/ACC Guideline for Valvular Heart Disease

A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines

Developed in Collaboration With the American Association for Thoracic Surgery; American Society of Echocardiography; Society of Cardiovascular Anesthesiologists; Society for Cardiovascular Angiography and Interventions; and Society of Thoracic Surgeons

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Training the Competent Cardiologist

Knowledge Overload

The modern cardiologist cannot be expected to retain all relevant knowledge to use for patient care.

Create new knowledge for "knowledge management" – easily retrievable, current and "gisty"

The modern cardiologist should be expected to rapidly obtain new knowledge at the point of care.
Training the Competent Cardiologist
Embrace the future

Data from millions of patients

Genomics
Proteomics
Metabolomics

Vastly growing medical literature

Data crunch

N-of-1 trials
Precision medicine

Time for one-person trials
Training the Competent Cardiologist Challenges in 2015

Knowledge Overload

The Teacher
Our best teachers

They

Have decades of experience – admired for their academic productivity

are generous in sharing knowledge – “state of the art lectures”

are THE masters, the leaders, the holder of wisdom

Our best teachers
Our best teachers

And they are frustrated

“I see young doctors having to access knowledge - they don’t know it”

“They don’t remember what they have been taught”

“80% of the questions they ask me I’ve written about – they are not listening to me”

“I’m afraid my knowledge will be lost”
This is Dr. Walker.

She’s talented.

competitive.

passionate about her education and patient care

Courtesy of Mary Ellen Beliveau
CEO Knowledge-to-practice
And She’s Frustrated

“This place is filled with knowledge, but it’s hard to get at what I need when I need it…”

“80% of content is already at my finger tips and I can get it instantly”

“They lecture to me – but that is not that helpful to me”

“I can access the science…I need help accessing the art”
The current and future generation

They don’t need us to lecture them anymore – knowledge is at their fingertips

They have their COCATs
They have their guidelines
They have their algorithms
They have their smart phones
The current and future generation

They don’t need us to lecture them anymore – knowledge is at their fingertips

They need more important things from us
Three clinical cases
(from our fellow’s clinics)
Case 1

- 44 y/o woman comes to you for MR
  - Asymptomatic – does Zumba 3x/wk
  - Murmur heard by LMD
- Cardiology workup – severe MVP and MR
  - Bileaflet prolapse – no calcium – “repairable”
- Cardiologist told her to get valve repaired before the onset of LV failure
- What would you do next?
ACC/AHA Valve Guidelines – MR algorithm

Severe MR
ERO > .4

Asymptomatic (does Zumba)

High likelihood of repair

Class IIa
Early repair (before LV dysfunction)
Case 1

- BP 105/70  P 72
- JVP normal  Carotid normal
- Lungs clear
- LV quiet
LVEDD 48
LVESD 22
EF 66%

ERD 0.6 cm²
Case 1 - discrepancies

- Exam – soft late systolic murmur
- Echo – normal LV size
- Doppler – late systolic MR

There cannot be “severe” chronic MR with normal LV size
Case 2

• 66 y/o man – progressive SOB, edema and ascites over the past year

• Workup at home
  • Echo EF 62% - no valve disease
  • PA systolic pressure 50 mmHg
  • Mitral inflow – restrictive
  • Put on beta blockers and ACE inhibitors

• Sent to you for treatment of HFpEF

• What do you do next?
### Table 21. Recommendations for Treatment of HFpEF

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>COR</th>
<th>LOE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic and diastolic blood pressure should be controlled according to published clinical practice guidelines</td>
<td>I</td>
<td>B (6, 91)</td>
</tr>
<tr>
<td>Diuretics should be used for relief of symptoms due to volume overload</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>Coronary revascularization for patients with CAD in whom demonstrable myocardial ischemia is present does not change these considerations</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>Management of AF according to guidelines</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>Use of beta blockers in HFpEF to improve symptoms</td>
<td></td>
<td>C</td>
</tr>
<tr>
<td>ARBs may be considered for patients with persistently elevated BNP levels in HFpEF</td>
<td></td>
<td>IIa</td>
</tr>
<tr>
<td>ARBs may be considered for patients with persistently elevated BNP levels in HFpEF</td>
<td></td>
<td>IIb</td>
</tr>
<tr>
<td>Nutritionally supplemented diets; not recommended in HFpEF</td>
<td></td>
<td>III: No Benefit</td>
</tr>
</tbody>
</table>

New emerging data on LCZ696 (ARB neprilysin inhibitor)
Case 2

BP 90/66  HR 80
Lungs clear
No murmur
Early diastolic sound
Case 2 - discrepancies

- History of right heart failure
- Elevated JVP with rapid Y descent
- Low BP

HFpEF usually does not result in marked elevation venous pressure
Think – constrictive pericarditis
If you follow the guidelines 100% of the time, you are not doing your job correctly

Blase Carabello
Clinical Experience → Clinical Judgement

✓ Patients frequently fall “outside the boxes”
✓ Recognize when this occurs - “unsettling”
✓ Keep an open mind to the exceptions

Takes experience through continual patient care and mentorship from our role models
Case 3

- 77 y/o/ man comes for follow-up 6 weeks after a large anterior MI treated with PCI (late due to delay in recognition)
- Had right sided CVA post cath – recovering slowly
- Sent out on GDMT of beta blocker, ACE inhibitor, dual antiplatelet therapy
- Followup – no angina and no CHF on exam
  - Creat 2.1, K+ 5.2
  - EF 28% QRS complex 110 msec
- What would you do now?
2013 ACCF/AHA Guideline for the Management of Heart Failure

Table 22. Recommendations for Device Therapy for HFrEF

<table>
<thead>
<tr>
<th>Recommendations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ICD therapy is recommended for primary prevention of SCD in selected patients with HFrEF at least 40 days post-MI with LVEF ≤35%, and NYHA class II or III symptoms on chronic GDMT, who are expected to live ≥1 year*</td>
<td></td>
</tr>
<tr>
<td>CRT is indicated for patients who have LVEF ≤35% sinus rhythm LBBB with a QRS ≥150 ms</td>
<td></td>
</tr>
<tr>
<td>ICD therapy is recommended for primary prevention of SCD in selected patients with HFrEF at least 40 days post-MI with LVEF ≤30%, and NYHA class I symptoms while receiving GDMT, who are expected to live ≥1 year*</td>
<td></td>
</tr>
</tbody>
</table>

**Class I indication**

- **ICD**
  - 40 days after MI
  - EF 28%
  - NYHA Class I

<p>| | |</p>
<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>B</td>
</tr>
<tr>
<td>(NYHA class II)</td>
<td></td>
</tr>
</tbody>
</table>

©2014 MFMER | Slide 71
Case 3

• But when you listen to him
  • He is in nursing home recovering
    • Improving but beloved piano playing days are over
  • Wife died last year from cancer
  • Children and grandchildren far away

“I don’t care about statistics – if it is my time, I have had a good life…”
I will remember that there is art to medicine as well as science, and that warmth, sympathy, and understanding may outweigh the surgeon's knife or the chemist's drug.
I will remember that I do not treat a fever chart, a cancerous growth, but a sick human being, whose illness may affect the person's family and economic stability. My responsibility includes these related problems, if I am to care adequately for the sick.
Fellows – learn from your role models
Clinical judgement and the art of medicine

- History (what the patient tells you)
- Patient Preference
- Physical Exam
- Testing
Attendings – they need your wisdom
Clinical judgement and the art of medicine

We cannot teach people anything
– we can only help them discover
it within themselves.

Galileo
Attendings – they need your wisdom
Clinical judgement and the art of medicine

This cannot be taught with simulation centers nor during the most well-prepared web-ex

It takes your time and explanation “at the bedside” – but will be forever remembered
What my fellows say they learned from my outpatient clinics

✓ Ask the patient what they have come for – then LISTEN to the patient
✓ Always correlate the exam and testing
✓ Look at all data yourself
✓ Learn to recognize being “unsettled”
✓ Reflect on what you learned – and what you will do differently
What my fellows say they learned from the cath lab (“bedside” is not just the clinical care)

✓ Know the patient (creat, grafts, etc.)
✓ Plan out your approach – be prepared
✓ Watch the monitor (EKG and pressures)
✓ Know when you are in over your head
✓ Keep cool – and think
✓ Reflect on what you learned – and what you will do differently
Fellows - at the end of the day you have your core competencies, milestones, rapid access to current and new knowledge...

But experiential training with patients and your role models will be irreplaceable
Training the Competent Cardiologist

Knowledge
- Past: You’re on your own, kid
- Present: Well-defined core curriculum
- Future: Embrace the new evolving knowledge and technology but learn clinical judgement

Skills
- Past: “Do it my way”
- Present: Competency based training

Intangibles
Practice the art of medicine
The Future of the Competent Cardiologist?

We can’t know it all
Knowledge will be rapidly accessed
The application will be essential

We can’t do it all
Team-based care is needed
Need to train your team
What is a competent cardiologist?

How do you measure competency?
A competent cardiologist is able to apply his or her *skills* and current *medical knowledge* to provide optimal care through a *patient-centered* approach.