Creating an Integrated 6 Year Cardiothoracic Curriculum – 264 Weeks

John S. Ikonomidis, MD, PhD, FRCS(C), FACS, FAHA, FACC
Horace G. Smithy Professor and Chief, Cardiothoracic Surgery
Medical University of South Carolina

MUSC
MEDICAL UNIVERSITY of SOUTH CAROLINA

Society of Thoracic Surgeons
Implementation of a Surgical Curriculum in Cardiothoracic Surgery
January 27, 2014

Creating an Integrated 6 Year Cardiothoracic Curriculum – 264 Weeks

John S. Ikonomidis, MD, PhD, FRCS(C), FACS, FAHA, FACC
Horace G. Smithy Professor and Chief, Cardiothoracic Surgery
Medical University of South Carolina

No Disclosures

Scope of Thoracic Surgery

Endoscopy

Lung surgery

Esophageal surgery

Simple congenital

1948: Board of Thoracic Surgery – 2-3 years training

Scope of Thoracic Surgery

Endoscopy*

Lung surgery*

Esophageal surgery*

Simple congenital*

Valve repair/replacement

Pacemakers/ICD

Coronary artery bypass

Complex congenital

Arrhythmia surgery (AF)

Heart transplant

Lung transplant

Ventricular assist devices

VATS/minimally invasive cardiac surgery

Robotics

*** 1948: Board of Thoracic Surgery**

2-3 years of training?

MILESTONES IN THORACIC SURGERY EDUCATION

1928	First thoracic surgery residency-- Univ.of Michigan
1948	Board of Thoracic Surgery
1967	Thoracic Surgery Residency Review Committee
1971	American Board of Thoracic Surgery
1977	Thoracic Surgery Directors Association
1982	Resident Matching Program
1983	Resident In-Training Examination
1996	Joint Council on Thoracic Surgery Education

Joint Council on Thoracic Surgery Education

American Board of Thoracic Surgery

Thoracic Surgery Residency Review Committee

American Association for Thoracic Surgery

Society of Thoracic Surgeons

Thoracic Surgery Directors Association

American College of Surgeons

Thoracic Surgery Residents Association

Pathways to ABTS Certification

1. Traditional – 5 year GS + 2-3 year CT
2. Hybrid – 4 year GS + 3 year CT
3. New – 6 year integrated CT residency

I-6 CT Program Requirements

- **Commitment**

I-6 CT Program Requirements

- **Commitment**
- **Abandon Traditional Pathways?**

I-6 CT Program Requirements

- Commitment
- Abandon Traditional Pathways?
- Buy in from GS, Other Depts/Divisions

I-6 CT Program Requirements

- Commitment
- Abandon Traditional Pathways?
- Buy in from GS, Other Depts/Divisions
- Variable curriculum

MUSC SIX-YEAR INTEGRATED PROGRAM IN CARDIOTHORACIC SURGERY BLOCK DIAGRAM

As of July 1, 2012	PG1	PG2	PG3	PG4	PG5	PG6
JULY	Surgical Oncology	Perfusion 1-15	AWAY TRIDENT GENERAL SURGERY	Adult Cardiac	VA CT Surgery	MUSC CT Surgery
		CT Anesthesia 16-31				
AUG	VA General Surgery	Transplant				
SEPT	MUSC Thoracic	Vascular Surgery				
OCT	MUSC CT	VA CT		General Thoracic	MUSC CT Surgery	VA CT Surgery
NOV	Imaging & Echo	CTICU				
DEC	Heart Transplant & CHF					
JAN	Transplant	GI (Lap)	MUSC Thoracic	VA CT	PEDS CT	MUSC CT Surgery
FEB	GI (Lap)	Peds CT				
MAR	Pediatric Surgery	MUSC Thoracic				
APR	GI (Panc/Bili)	Interventional Radiology	MUSC Adult Cardiac	MUSC CT	Endovascular	VA CT Surgery
MAY	Vascular Surgery	Endoscopy		Adult Cardiac	MUSC Thoracic	
JUNE	NET	VA General Surgery	VA CT			

I-6 CT Program Requirements

- Commitment
- Abandon Traditional Pathways?
- Buy in from GS, Other Depts/Divisions
- Variable curriculum
- Monitoring

I-6 CT Program Requirements

- Commitment
- Abandon Traditional Pathways?
- Buy in from GS, Other Depts/Divisions
- Variable curriculum
- Monitoring
- Case Requirements

AMERICAN BOARD OF THORACIC SURGERY
OPERATIVE REQUIREMENTS

- **For Residents who started their training before July 1, 2011: 125 major cardiothoracic operations for the last three years of training (PGY 4-6), for a total of 375 major cases; For Residents who start their training on or after July 1, 2011:**

- **PGY 1-3: 375 operations averaged over 3 years of which 125 must be cardiothoracic operations, up to 50 which may be component cases that include sternotomy and closure, thoracotomy and closure, LIMA takedown, saphenous vein harvest, aortic and venous cannulation, proximal and distal anastomosis, other vascular anastomosis, gastric/esophageal mobilization.**

- **PGY 4-6: 125 major cardiothoracic operations for each year, for a total of 375 major cases;**

- **PGY 1-6: 150 ABS index cases (see below).**

- **Vascular 25**
- **Skin/soft tissue/breast 10**
- **Head/neck 5**
- **Alimentary tract 20**
- **Abdomen 30**
- **Operative trauma 5**
- **Pediatric 10**
- **Plastic 5**
- **Lap-basic 30**
- **Lap-advanced 10**

I-6 CT Program Challenges

- **Negativity and Push Back from other Disciplines**

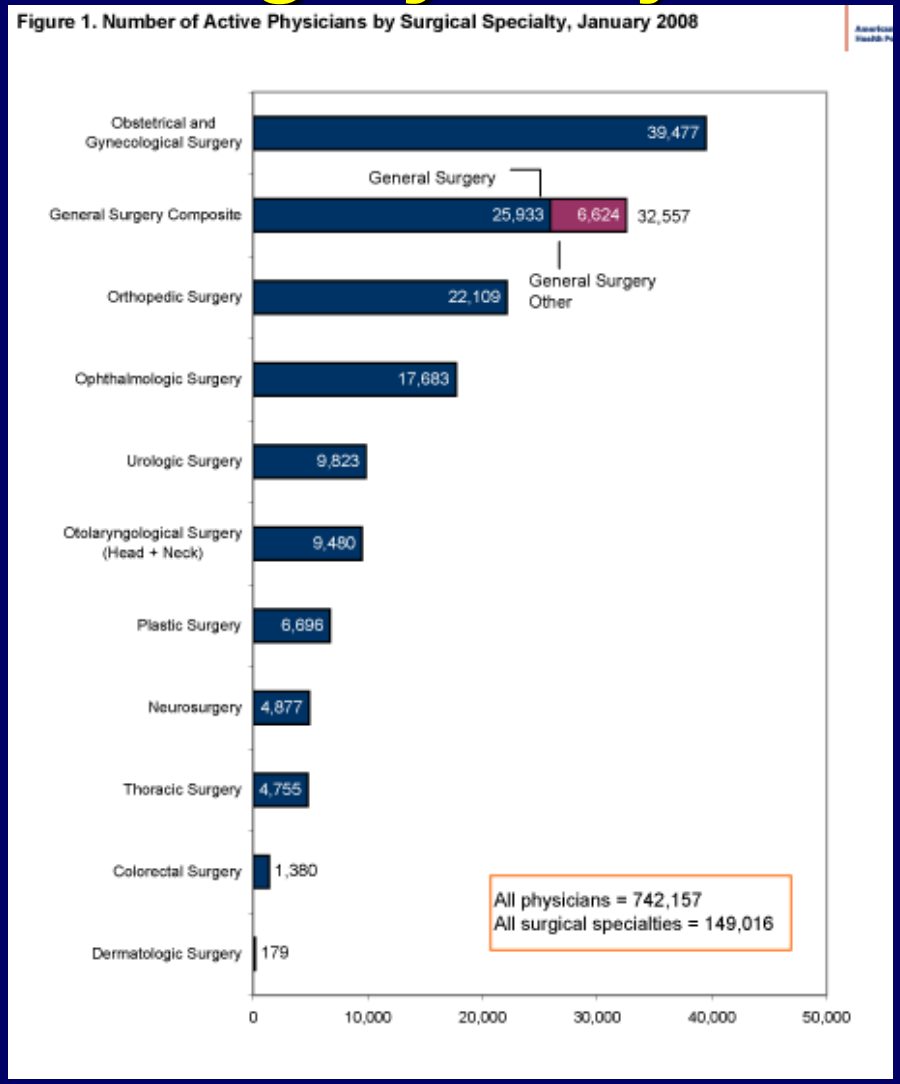
I-6 CT Program Challenges

- Negativity and Push Back from other Disciplines
- Technical Skills and Clinical Acumen

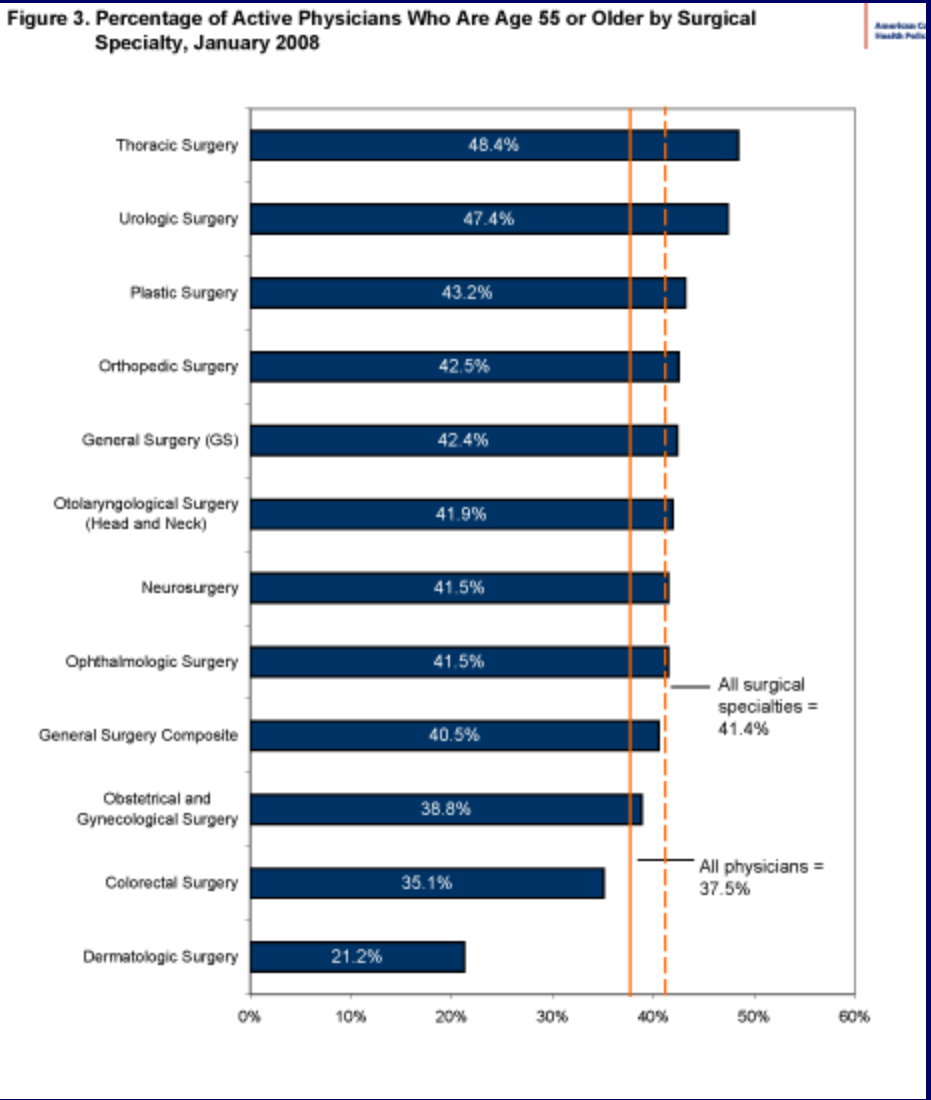
I-6 CT Program Challenges

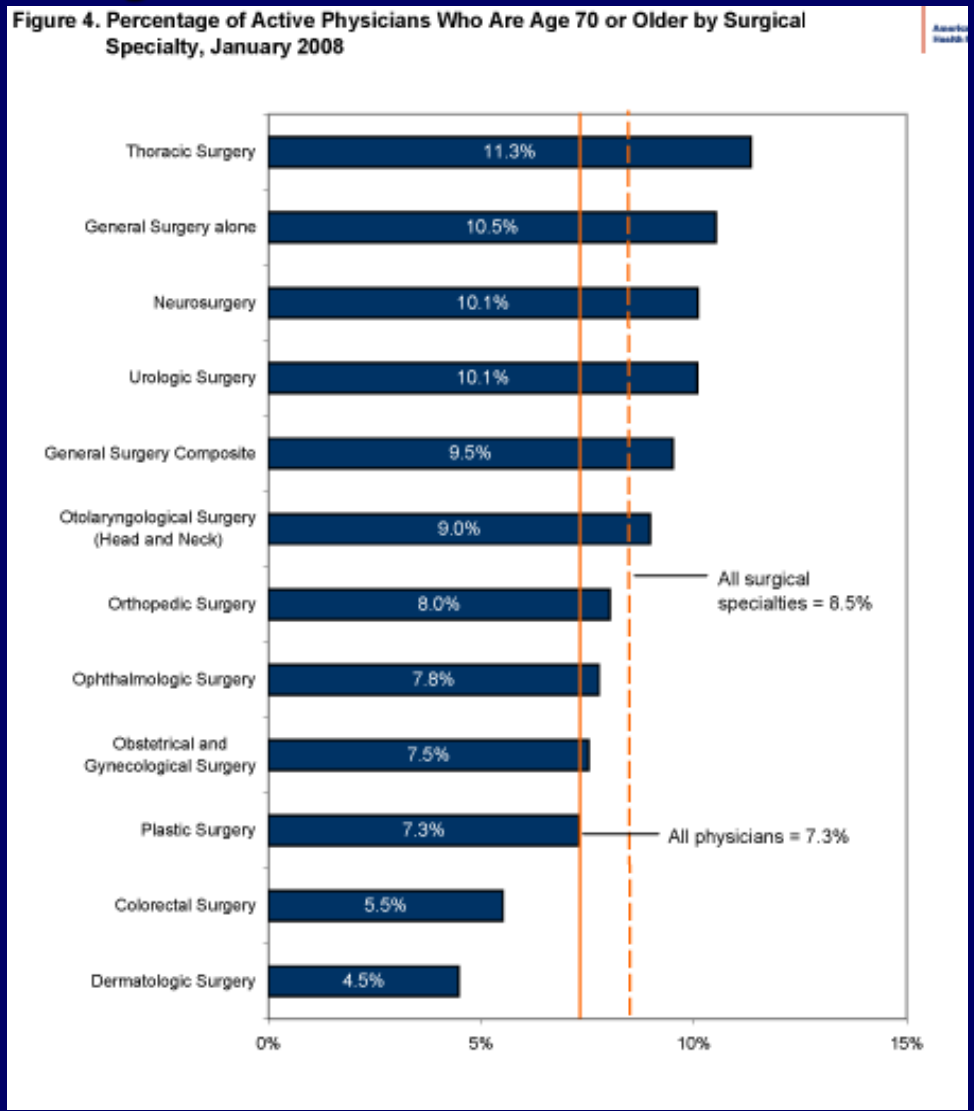
- Negativity and Push Back from other Disciplines
- Technical Skills and Clinical Acumen
- Research

CT Surgery Projections



CT Surgery Projections





CT Surgery Projections

Table 48. Trend Profile of Active Thoracic Surgeons in the United States[1]

Demographics	Jan 2005	Jan 2006	Jan 2007	Jan 2008	% Change 2005-2008
Total active thoracic surgeons[2]	4,811	4,764	4,731	4,755	-1.2
Active female thoracic surgeons[2]	152	158	170	179	17.8
Active USMD thoracic surgeons[2]	3,601	3,573	3,535	3,562	-1.1
Active IMG thoracic surgeons[2]	1,070	1,048	1,050	1,042	-2.6
Active DO thoracic surgeons[2]	62	64	64	65	4.8
Active thoracic surgeons age 55 or older[2]	2,285	2,255	2,235	2,303	0.8
Physicians per Population	**Jan 2005**	**Jan 2006**	**Jan 2007**	**Jan 2008**	**% Change 2005-2008**
Active thoracic surgeons per 100,000 population[2,3]	1.64	1.61	1.59	1.58	-3.9
Number of people per active thoracic surgeon[2,3]	60,880	62,040	63,066	63,363	4.1
Patient care thoracic surgeons per 100,000 population[2,3]	1.51	1.50	1.46	1.44	-4.9
Number of people per patient care thoracic surgeon[2,3]	66,265	66,478	68,400	69,663	5.1
Type of Practice	**Jan 2005**	**Jan 2006**	**Jan 2007**	**Jan 2008**	**% Change 2005-2008**
Active thoracic surgeons in patient care[2]	4,420	4,446	4,362	4,325	-2.1
Active thoracic surgeons in administration[2]	55	58	54	53	-3.6
Active thoracic surgeons in medical teaching[2]	49	49	46	50	2.0
Active thoracic surgeons in medical research[2]	67	65	66	66	-1.5
Active thoracic surgeons in non-patient care[2]	16	13	12	11	-31.3
New Entrants	**2004**	**2005**	**2006**	**2007**	**% Change 2004-2007**
Total number of applicants to residency/fellowship[4]	161	134	104	91	-43.5
Number of USMD applicants to residency/fellowship[4]	124	99	73	66	-46.8
Match rate of USMDs to residency/fellowship[4]	86.3%	92.9%	94.5%	90.9%	5.4
Total number of residents and fellows[5]	315	311	281	255	-19.0
Total number of female residents and fellows[5]	25	32	33	38	52.0
Total number of USMD residents and fellows[5]	248	244	211	181	-27.0
Total number of IMG residents and fellows[5]	59	57	62	67	13.6
Total number of DO residents and fellows[5]	5	5	<5	<5	n/a
Total number of residents and fellows completing training[5]	292	250	121	n/a	n/a
Retention	**Jan 2005**	**Jan 2006**	**Jan 2007**	**Jan 2008**	**% Change 2005-2008**
Active thoracic surgeons practicing in same state as GME training[2]	1,546	1,522	1,501	1,494	-3.4
Active thoracic surgeons practicing in same state as medical school[2]	1,050	1,030	1,012	1,010	-3.8

1 Active Thoracic Surgeons refers to physicians whose self-designated primary specialty is Thoracic Surgery, Pediatric Cardiothoracic

Prediction –

Significant shortage of CT surgeons will develop over next two decades.