

Wylie Dinner 2013

TRAINING SPECIALIST SURGEONS

UC_{SF}

TRAINING SURGICAL SPECIALISTS

THE FUTURE

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UCSF

PREDICTING THE FUTURE

It's tough to make predictions, especially about the future.

Yogi Berra

FACTORS DRIVING CHANGE

DISCIPLINE RELATED

- **Divergence of skill sets**
- **Expansion of the body of knowledge**
- **Diseased – based focus**
- **Volume – outcome relationships**
- **Hours restrictions require efficiency**

FACTORS DRIVING CHANGE

INDIVIDUAL TRAINEE

➤ Economic

- High debt
- Adverse repayment schedules
(too early, lengthy)
- Decreased compensation

➤ The Time Factor

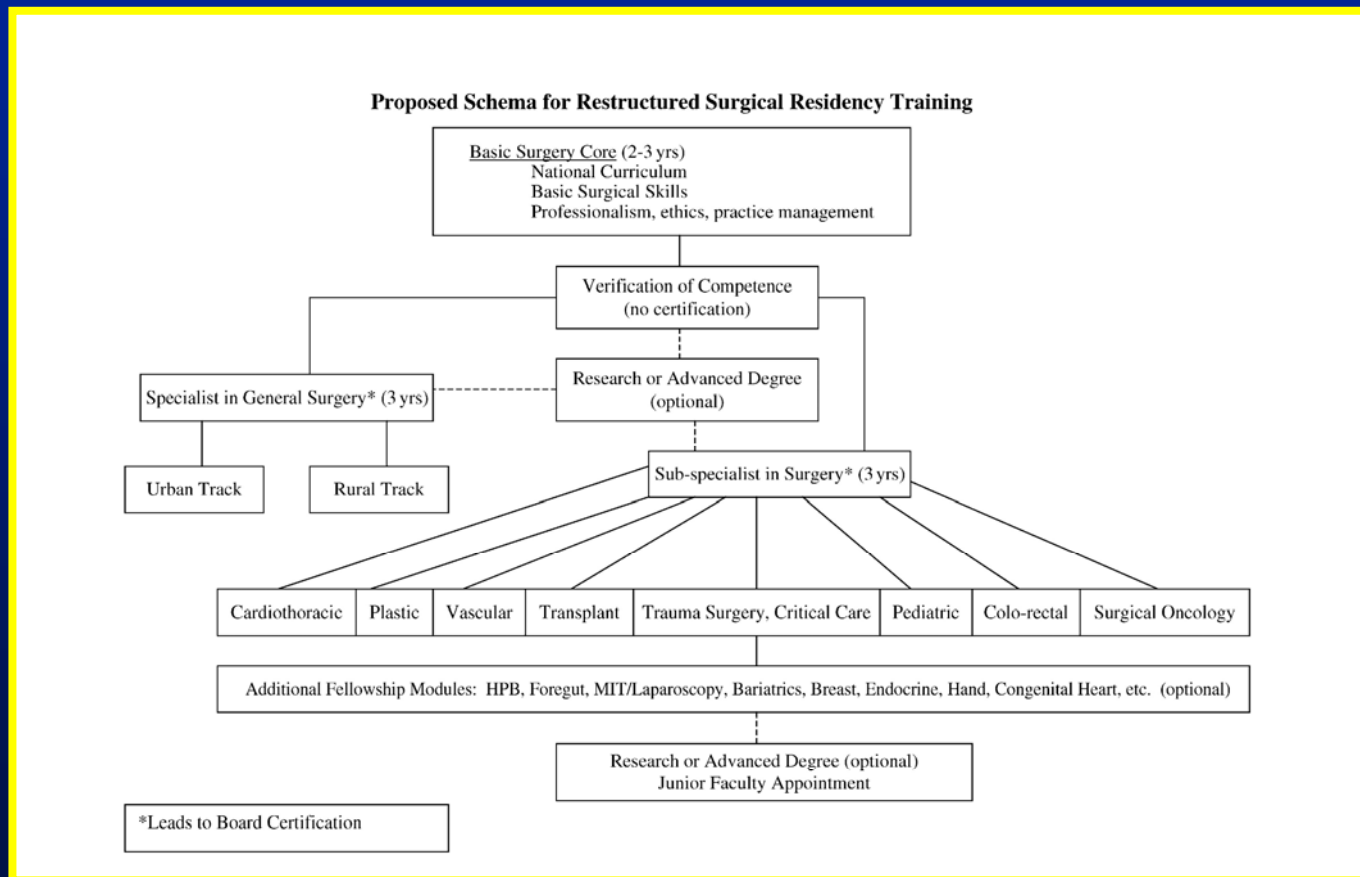
- Entering training older
- Lifestyle issues (Gen X, Y, Z, Next)

FACTORS DRIVING CHANGE

SOCIETAL ISSUES

- Cost
- Quality
- Societal tolerance of care by trainees

FUTURE SURGICAL TRAINING



REQUIREMENTS

- **General surgery**
 - core knowledge—a new definition of a general surgeon
 - technical skills
 - general surgeon certificate
 - cannot claim to be specialists
- **Speciality surgery definition**
 - core knowledge
 - technical skills
 - Specialist surgeon certificate
 - cannot claim to be generalists

REQUIREMENTS

- **General surgery**
 - **core knowledge—a new definition of a general surgeon**
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TRAINING GENERAL SURGEONS

“The most difficult issue is to provide and alter the current curriculum of medical school and residency....”

“The challenge is to retain sufficient breadth of experience in residency to allow building on that experience in.....practice.....”

“A new concept of generalism is needed.....It is unrealistic to expect a single physician to be knowledgeable of the expanse of medical information.”

Sheldon, Am Surg, 2007

CURRENT OPERATIVE TRAINING

Table 1 ACGME national case log data for overall number of cases (average per graduating resident) and breakdown in key major open case categories

Variable	1999 (n = 985)	2008 (n = 1,020)
Total cases	966 ± 204	914 ± 164*
Chief resident cases	251 ± 67	238 ± 64*
Operative trauma	41 ± 22	40 ± 24
Liver	7.6 ± 5	4.7 ± 4*
Open abdominal aortic aneurysm	9.3 ± 5	3.5 ± 4*
Open colon	67	44 [†]
Open inguinal hernia	51 ± 22	45 ± 19*

Data are expressed as mean ± SD.

*P < .05.

†SD not available.

Table 2 ACGME national case log data for overall number of cases (average per graduating resident) and breakdown in key laparoscopic and minimally invasive case categories

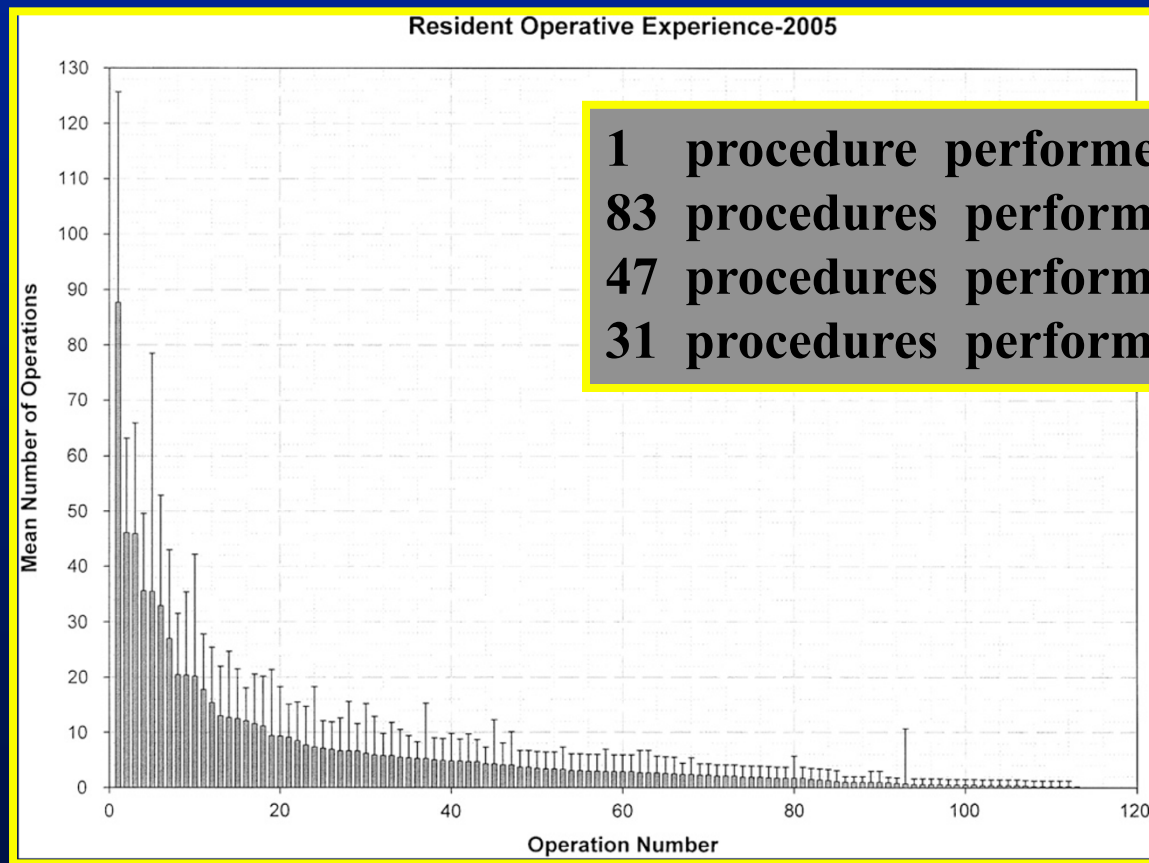
Procedure	1999 (n = 985)	2008 (n = 1,020)
Laparoscopic inguinal hernia	8 ± 9	15 ± 11*
Laparoscopic colon	2 ± 3	13 ± 10*
Laparoscopic appendectomy	8 ± 8	32 ± 18*
Diagnostic laparoscopy	4 ± 4	7 ± 5*
Endovascular abdominal aneurysm repair	0	4 [†]

Data are expressed as mean ± SD.

*P < .05.

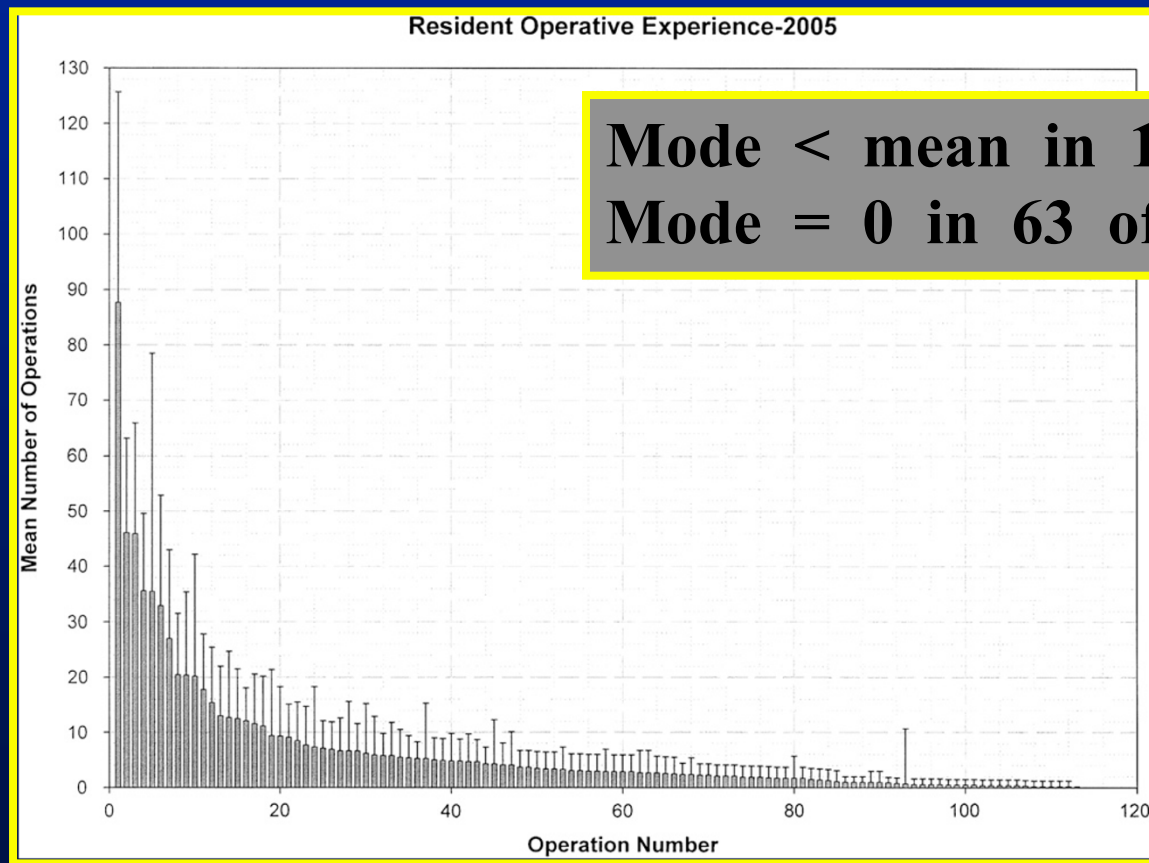
†SD not available.

CURRENT OPERATIVE TRAINING



1 procedure performed ≥ 50 times
83 procedures performed ≤ 5 times
47 procedures performed < 2
31 procedures performed < 1

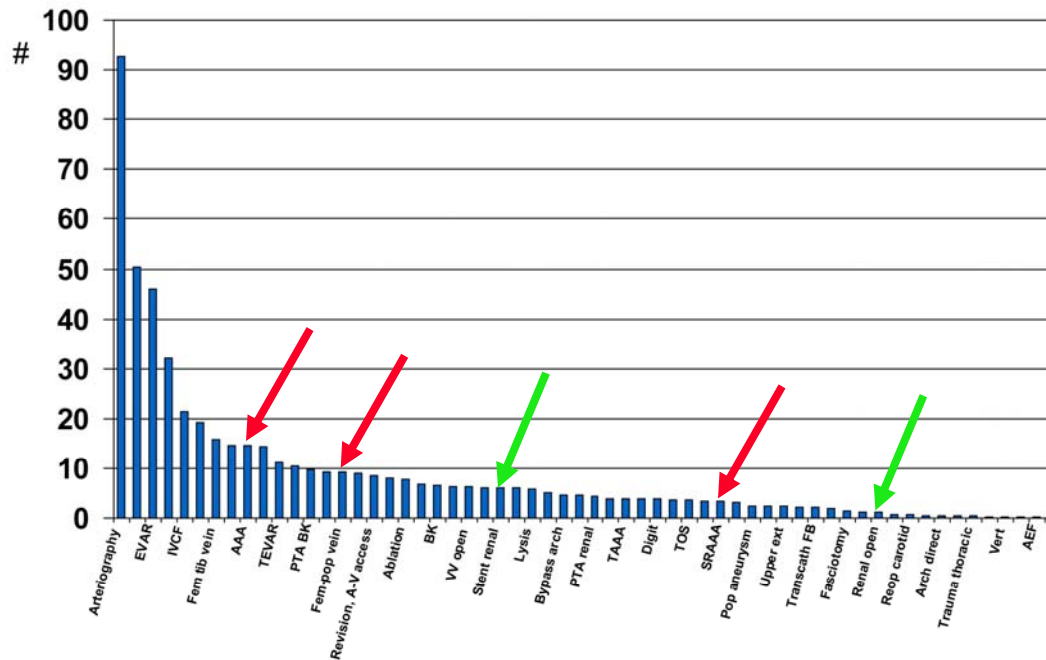
CURRENT OPERATIVE TRAINING



Mode < mean in 119 of 121
Mode = 0 in 63 of 121

CURRENT OPERATIVE TRAINING

QE applicants 2009: number of primary cases (mean #)



CURRENT TECHNICAL SKILLS TRAINING

- Insufficient time spent operating
- Perform fewer procedures
- Spectrum of procedures much narrower
- Fewer open procedures

DECLINE OF OPEN SURGERY

One related challenge that academic surgeons will meet in the coming decade is one that is neither necessarily intuitively apparent....nor one which incremental change will likely solve. It too will require innovative approaches....Surgeons still must perform open procedures....**How do clinical faculty teach surgical trainees to perform a rare, complex open procedure in a competent fashion, if the trainee completes only 5....** during his or her entire residency training period?

Smythe, Acad Med, 2010

SOLUTIONS

➤ SIMULATION

➤ OPEN SURGERY FELLOWSHIPS

➤

SIMULATION

- **A 3-wk course of vascular anastomosis (1 hr / wk) improved junior trainees to senior level of performance**
- **Carotid CEA & patch model (pulsatile flow) improved performance after 3 days of training (6 hours / day)**
- **SFA angioplasty model significantly improved performance level**
- **Patient – specific procedure rehearsal more effective in improving performance than a generic “warm-up”**
- **Carotid CEA with and without crisis accurately mimics OR stress**
- **Carotid stenting VR simulator accurately simulated the specific procedure in 67% of cases (equipment used, imaging angles)**

SIMULATION

- **Endovascular**
 - Easily simulated
 - Costly
- **Open**
 - Not easily simulated
 - Costly
 - Need much better technology

SOLUTIONS

- **SIMULATION**
- **OPEN SURGERY FELLOWSHIPS**
-

SOLUTIONS

- **SIMULATION**
- **OPEN SURGERY FELLOWSHIPS**
- **PROCEDURAL MINI-FELLOWSHIPS**

FUTURE SURGICAL TRAINING

- **Medical school will be 3.5 years**
- **Pre-surgery 6 months**
 - Procedural training
 - Team training
 - Mentored on – call
 - Milestones
- **3 years of core surgery training**
 - Simulation each year
- **3 years of specialty surgery training**
 - Simulation each year
- **Research between year 3 and year 4 (optional)**

FUTURE SURGICAL TRAINING

- **Complex open surgery fellowships**
 - standing
 - 12 months
 - Discipline driven
 - Disease based
 - Performed at any time
- **Emerging technology mini-fellowships**
 - Ad hoc
 - 3 to 6 months
 - Specific skill driven
 - Performed at any time
- **The 5 + 2 and 0 + 5 training pathways will disappear**

PREDICTING THE FUTURE

This telephone has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value to us.

Western Union, Internal memo, 1876

Who the hell wants to hear actors talk?

Henry M. Warner, Warner Bros, 1927

I think there is a world market for maybe five computers.

Thomas Watson, Chairman IBM, 1943

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