Disclaimers

No commercial interests.

No off-label uses recommended for pharmaceuticals or devices.

No original ideas.

No base pair substitutions or p values.

Non-linear and a bit hyperkinetic.



Omnibus per artem fidemque prodesse. "To serve all with skill and fidelity."

Epitaph

What do you want written on your tombstone?



H. James Fox Lectureship

11 January 2010

Teaching in the OR: \$1000/hour Or Priceless?



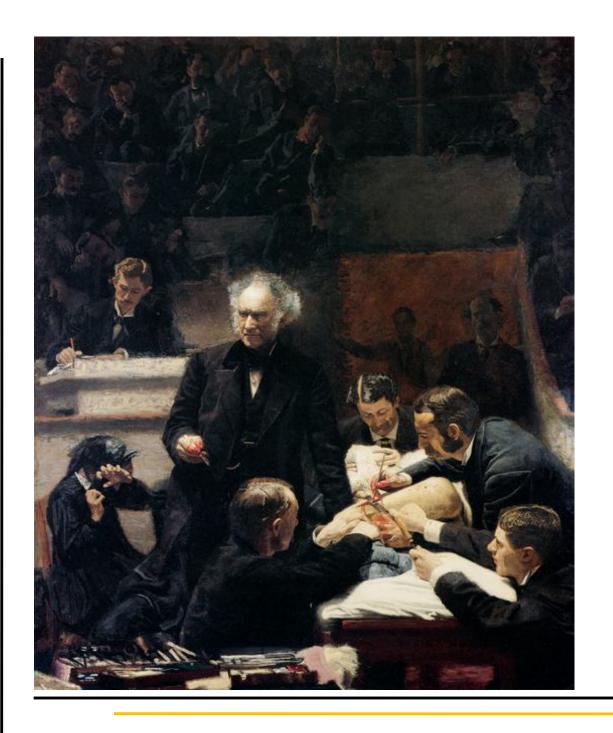




"People need to be reminded more often than they need to be instructed."

Dr. Samuel Johnson

Teaching in the OR— From the 19th Century Into the 21st Century



The Gross Clinic—

Jefferson

Thomas Eakins, 1875



The Agnew Clinic—U Penn Thomas Eakins, 1889

20th Century Surgical Education

"The times are changing....the problem of the education of our surgeons is still unsolved. Our present methods do not by any means suffice for their training."

The Training of the Surgeon

William Stewart Halsted (1852-1922)

The Annual Address in Medicine, Yale 27 June 1904

Johns Hopkins Hosp Bull 15:267-275, 1904



Why Johnny Can't Operate

—The crisis of medical training in America

Arnold S. Relman. *New Republic*. 10.2.2000, pages 37-43. Book Review of:

Time to Heal: American Medical Education from the Turn of the Century to the Managed Care Era. Kenneth M. Ludmerer, Oxford University Press, 1999

American Medical Education 100 Years after the Flexner Report

- "...health care as a business may threaten medicine as a calling."
- "The purpose of medical education is to transmit the knowledge, impart the skills, and inculcate the values of the profession in an appropriately balanced and integrated manner."
- "Good teaching, whether...in classroom, clinic, or hospital, requires time."
- "....assessment drives learning."
- "....must reach beyond knowledge to rigorously assess procedural skills, judgment, and commitment to patients."
- "Our approach to education is inadequate to meet the needs of medicine."

Cooke, Irby, Sullivan, Ludmerer N Engl J Med 355:1339—1344, 2006

AIG Scapegoats

"It is easy to forget, amid the outrage at these executives, that they were doing what their directors and stockholders wanted them to do—maximize short-term profit."

Christian Century, April 21, 2009, page 7.

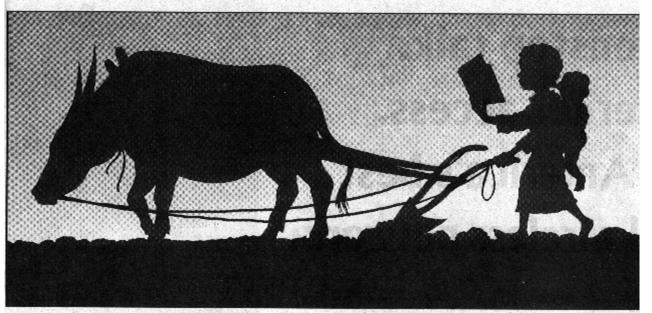
If you plan for a year, plant seeds.

If you plan for ten years, plant trees.

If you plan for 100 years, educate the people.

Chinese Proverb

To Build a Country, Build a Schoolhouse



By Amartya Sen

CAMBRIDGE, England Berlin has argued: "Men do not live only by fighting evils. They live by positive goals." The advice was not aimed at the leaders of the war on terror: Berlin was speaking more than 40 years ago. But his idea is worth the attention of current world leaders. And one of the most important positive goals has already been identified by the United Nations: universal primary education by 2015.

I am aware that when I argue that basic education for all can transformthe miserable world in which we live. the public commitment to make sure that there must be "no community with an illiterate family, nor a family with an illiterate person." Kido Takayoshi, one of the leaders of Japanese reform, explained the basic idea: "Our people are no different from the Americans or Europeans of

A global goal of education for all children by 2015. to make good use of the global market economy, and rightly so. But that process was greatly helped by the emphasis all of these countries placed on basic education. Widespread participation in a global economy would have been hard to accomplish if people could not read or write - or produce according to specifications or instructions.

The contribution of basic education to development is not, however, confined to economic progress. Education has intrinsic importance; the capability to read and write can deepty influence one's quality of life. Also, an educated population can make better use of democratic opportunities than an illiterate one. birth rates sharply. For example, th fertility rates in the different dis tricts that make up India vary ex tremely widely, from almost (roughly, five children per couple) i some districts to less than 1.7 I some others. Empirical investiga tions by Mamta Murthi and Jea Drèze indicate that only two genera variables significantly help to explain these differences; female liter acy and female economic participa

In sub-Saharan Africa, 40 percer of primary-age children have no or portunity for schooling. Around th world, there are currently 125 mi lion children who have never, at an Further, an ability to read docu- time, seen the inside of a classroon

Topics that will not be addressed

Simulation-skill training, theory, options, validity, and education

OSATS: Observed Structured Assessment of Technical Skills

Validity and Reliability of "instruments" and their iterations

High performance simulators and virtual reality systems

Some Current Thoughts/Ideas

McGreevy: Briefing and Debriefing in the OR Fighter Pilot Crew Resource Management Krummel and Stanford—OR Time, Thoughts SIU Team: BID Model for Teaching in the Operating Room

Ericsson: Deliberate Practice

Reznick & MacRae: Teaching Surgical Skills—Changes in the Wind

Briefing and Debriefing in the Operating Room Using Fighter Pilot Crew Resource Management

The "R" Word, Reflection and Its Cognates,

is mentioned nine times.

McGreevy and Otten JACS 205:169—176, 2007

"the rank comes off"

"The most senior pilot or surgeon might not be the best pilot or surgeon."

"The goal is improvement of future performance..."

"Good pilots are good learners."

McGreevy and Otten: *JACS* 205:169—176, 2007

Reflection

"....the habit of regular reflection on performance, which is one of the essential principles of adult learning."

From John Dewey. *How We Think*. London: DC Heath; 1933 in

McGreevy and Otten: *JACS* 205:169—176, 2007

Feedback

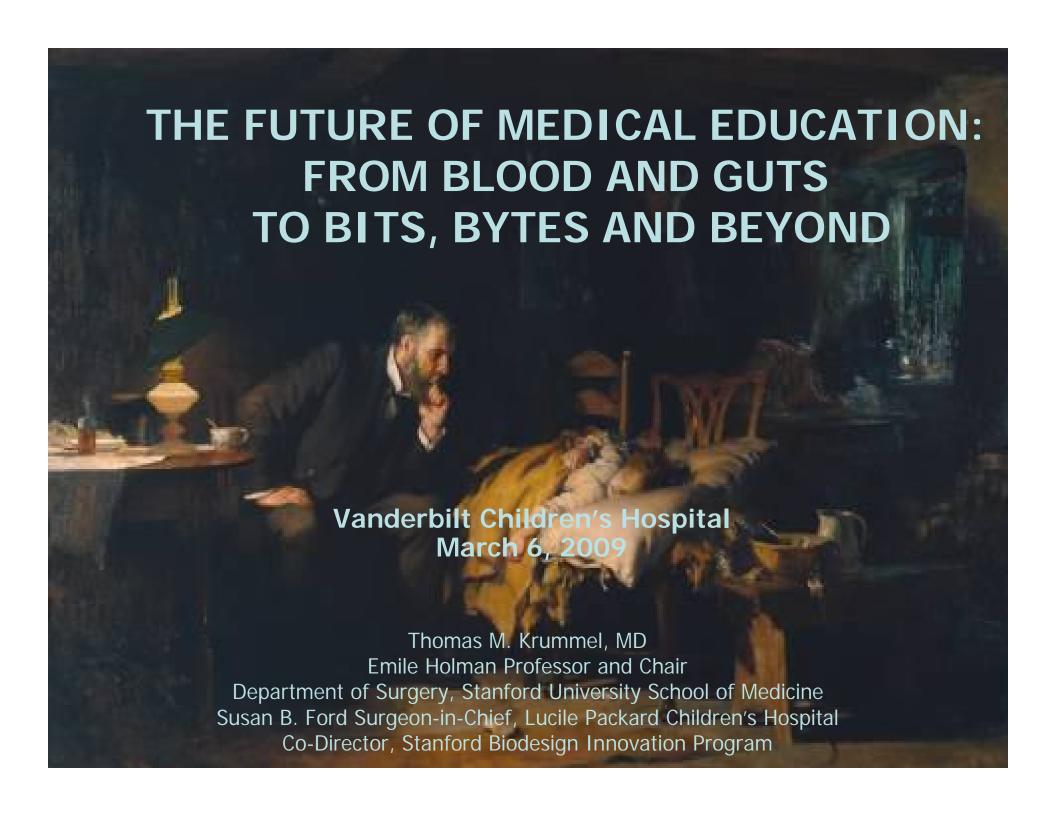
Essential

Timely

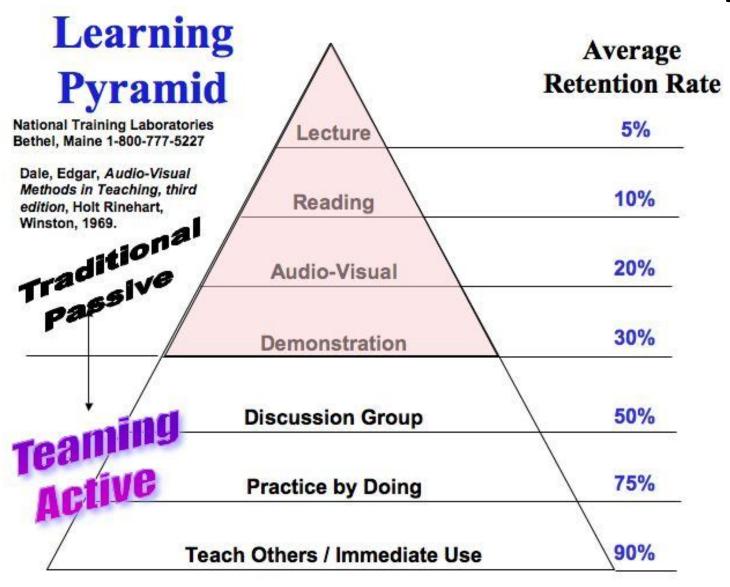
"....without feedback, learning and improvement do not occur."

McGreevy and Otten

JACS 205:169—176, 2007



Modern Educational Theory



Modern Educational Theory

I hear, I forget.

I see, I remember.

I do, I understand.

Lao-Tsu 604-531 BCE

Stanford ORs

35 k Operations per year OR Cost ~ \$1k/ hour

1 hour of Teaching in a case over the year = \$3.5 million/year at Stanford

126 Academic Health Centers ~\$4.4 billion/year

US Health \$2.2 trillion/yr 5-10% Teaching up to ~\$200 billion/year Tom Krummel March 09

Tom Krummel of Stanford

Relocate as much early learning as possible out of the OR, even out of the medical center

Define the curriculum with clear goals & objectives

Learn to tie knots, trouble shoot the tower outside the hospital, outside the OR

Only after good performance demonstrated, then refine skills and judgement in the OR

BID at SIU

"The Briefing, Intraoperative Teaching, Debriefing Model for Teaching in the Operating Room."

Intentional, Focused, Reflective

Roberts, Williams, Kim, Dunnington *JACS* 208:299—303, 2009

Practice makes..... Permanent.

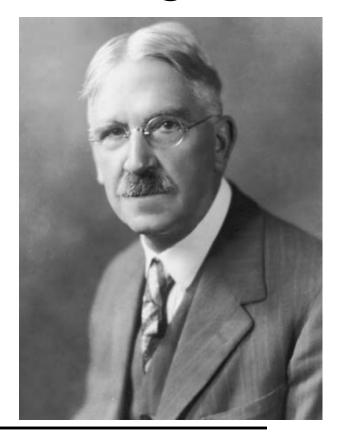
Three buckets of balls per week at the driving range without critical feedback and correction helps one groove a slice.

"We don't learn from experience;

We learn from reflecting on

experience."

John Dewey



Socioeconomics: Timing

Decreases in reimbursements
Increased financial competition
The Leapfrog initiative
Era of benchmarking
Institute of Medicine:

"Quality Chasm"

Patient Safety

Access

Disparities of Care

Emerging Trends this Decade

New Technologies:

Robotic Surgery

Endovascular developments

Focus on "efficiency" to remain competitive in a "tough market" for "customers" and "market share"

"Medicine as business"

Dollars per OR minute

HICFA, Billing guidelines, Attending documentation

Veterans Affairs changes, mandates

Old—20th Century

See one, do one, teach one.

Learn by osmosis:

"Follow me around for five years, watch me, you will learn something."

The curriculum is what walks in the ER door.

Tim Flynn, UFla.

New, Emerging—21st Century

Intentional

Standardized

Work hours compliant

Out of OR technical skills acquisition:

Skills Labs, Simulation

Curriculum based objectives

Competency based goals and expectations

Surgical Formation: Intentional and Reflective

Industrial Model

Show up on time

Pay attention

Hierarchy

Teacher > Student

Fixed Period

Cantaloupe: Grape

Formation Model

Ongoing, continuous acquiring

Journey, not a destination

Team sport

Co-learners

Lifetime process

Process, not an event

Aschenbrener

Ericsson et al: The Role of Deliberate Practice in the Acquisition of Expert Performance.

Psychological Review 100:363-406, 1993

Ericsson KA: Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains.

Acad Med 79 (10 Suppl): S70-S81, 2004

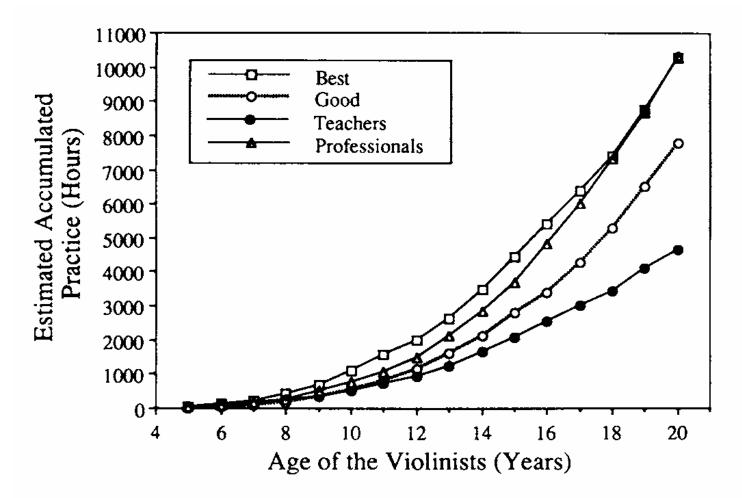


Figure 9. Accumulated amount of practice alone (on the basis of estimates of weekly practice) as a function of age for the middle-aged violinists (\triangle), the best violinists (\square), the good violinists (\bigcirc), and the music teachers (\blacksquare).

Ericsson et al: The Role of Deliberate Practice in the Acquisition of Expert Performance. *Psychological Review* 100:363-406. 1993

The Making of an Expert

Outstanding performance is the product of years of deliberate practice and coaching, not of any innate talent or skill.

Consistently and overwhelmingly, the evidence showed that experts were always made, not born.

It takes time to become an expert. Even the most gifted performers need a minimum of ten years of intense training before they win international competitions.

Real experts seek out constructive, even painful feedback.

Ericsson, Prietula, Cokely

Harvard Business Review July-August 2007

Is there a difference between education and training? Peter J. Fabri, MD, PhD, USF

Bloom's Taxonomy: Competency is attributable to three domains:

Knowledge

Skills

Attitudes

How do we create the environment to foster intrinsic motivation for learning?

Our own enthusiasm.

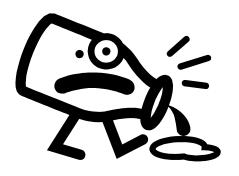
A love for our field.

Intellectual vitality.

Curiosity

Show respect, not just good manners, for students

Communicate with, not to, our students.



Failure Happens

- "If you want to double your success rate, double your failure rate." Thomas Watson, IBM
- "If at first you don't succeed, you're running about average." -- M. H. Alderson
- "80% of success is showing up." Woody Allen
- Baseball players earn millions to fail 2 times out of 3

Comparing Resident Measurements to Attending Surgeon Self-perception of Surgical Education

"Many faculty members' self-assessment differed significantly from resident assessment."

Claridge, Callard, Chandrasekhara, et al Am J Surg 185:323-327, 2003

Teaching Surgical Skills— Changes in the Wind

Richard Reznick, Helen MacRae (Toronto) N Engl J Med 355:2664-2669, 2006

The World We Live In: 78 rpm

Shorter workweek
Emphasis on OR efficiency
Patients sicker, more complex
Safety/Quality: mitigation of medical error

Teaching Surgical Skills—Changes in the Wind Richard Reznick, Helen MacRae (Toronto) N Engl J Med 355:2664-2669, 2006

Three-Stage Theory of Motor Skill Acquisition (Fitts and Posner): CIA

Cognitive Stage: intellectualizing the task
Integrative Stage: translation into the motor task
Autonomous Stage: no longer thinking of
execution, rather concentrates on other aspects

Should not the earlier stages of teaching technical skills take place out of the expensive, high-stakes OR environment?

Fitts, Posner: *Human Performance*. Belmont, CA: Brooks/Cole, 1967 in Teaching Surgical Skills—Changes in the Wind Reznick, MacRae, *N Engl J Med* 355:2664-2669, 2006

All Roads Lead to Faculty Development

Management: Getting folks to do what you need for them to do.

Appeal to self-interest, not idealism.

Answer: "Why should I?"

"What's in it for me?"

"Faculty development is the 800 # gorilla in the room." M. Tarpley, Vanderbilt

Learning Styles: VARK

- Visual
- Auditory
- Reading/writing
- Kinesthetic, tactile, or exploratory

Fleming and Mills, 1992 in Ke Zhang, Curtis J. Bonk. Canadian Journal of Learning and Technology / La revue canadienne de l'apprentissage et de la technologie, V34(2) Spring / printemps, 2008

Effectiveness of *ex vivo* Surgical Skills Training

"To date, the evidence for transfer to the operating room is stronger for minimally invasive surgery than for more traditional open procedures."

But is the learning durable? Unclear.

Volume factor. Value from simulator learning may be limited to early procedural experiences.

Richard Reznick, Helen MacRae (Toronto) N Engl J Med 355:2664-2669, 2006

How to teach and evaluate learners in the operating room

Establishing mutual, clear goals and expectations with residents or fellows before each case and reviewing their performance immediately after the case maximizes learning in the operating room.

Feedback

Kenton, Obstet Gynecol Clin North Am 33:325-332, 2006

How to Teach and Evaluate Learners in the Operating Room

"You cannot learn to play the piano by going to concerts."

K Kenton, Obstet Gynecol Clin North Am 33:325-332, 2006

"Forward Motion"

Cognitive Skills and Decision Making

Technical Skills

Practical aspects of intraoperative management

K Kenton, Obstet Gynecol Clin North Am 33:325-332, 2006

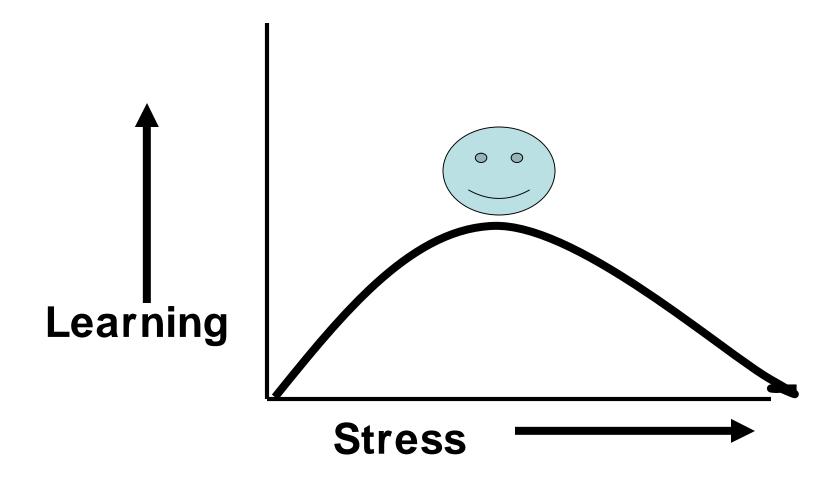
Avoiding Pitfalls: Lessons in Surgical Teaching

Residents must come to the OR prepared.

Using a surgical skills lab can help in preparation but is only effective when feedback is given regarding performance.

While in the operating room, the attending must constantly direct, critique, and actively teach.

DE Fenner. Obstet Gynecol Clin North Am 33:333-342, 2006



DE Fenner. Obstet Gynecol Clin North Am 33:333-342, 2006

Teaching in the OR— 21th Century



APDS = Association of Program Directors in Surgery

ASE= Association for Surgical Education

SEW = Surgical Education Week

What Topics are on the Surg Ed Week Programs and in Their Literature?

APDS in J Surg Ed & ASE in Am J Surg:

- OD on simulation, competencies, measuring (check-list vs. global), surveys, opinions
- Case numbers/volume >
 Competency, skills, quality
- RW Hours effects on case numbers
- Evaluation >> Instruction
- Minimal "how to" presentations/articles

Reflection

"I remember with incredulity the way we were taught on the Halsted Service. I believe the days of throwing residents off docks into deep water to teach them to swim are gone, even if the instructors were ready to rescue them if the drowning risk seemed to be significant"

David Bouwman, PD, Wayne State

The Charge-I

So how should we be teaching, especially if ORs become increasingly off-limits for education?

The Charges-II

Address the ethical issue involved when a challenged resident finds herself/himself progressively marginalized in the OR and we fail to offer any effective remediation.

"For the most part, the level of technical skills cannot be predicted before a surgical resident starts a program"

Reznick, "Teaching and Testing Technical Skills", *Am J Surg* 165:358-361, 1993

"The most important ingredient in teaching technical skills is an appreciation of the importance of such a skill acquisition accompanied by the access to a knowledgeable patient faculty."

Robert Baker, CSA Presidential Address, 1989 Surgery 106:581-588, 1989

Relationship

Desire

Energy

Time

Sister Margaret O'Dwyer

Reality Check

"Not everyone who wants to be a surgeon should be a surgeon."

Joe Cofer, Program Director U T Chattanooga



Head: Cognitive, Judgement

Hands: Technical

Heart: People Skills, Respect

Health: Lifestyle

Predictors of Surgery Resident Satisfaction with Teaching by Attendings: A National Survey

67 Questions for 756 PGY V and IV General Surgical Residents

Clifford Ko et al.

Annals Surg 241:373-380, 2005

Decreased Satisfaction

- 1. Being inadequately supervised in the OR
- 2. Being overly supervised in the OR
- Attending overruling decision regarding patient care in the clinic
- 4. Attending teaching interrupted too much
- Attending too busy to discuss problems with residents in a timely manner
- 6. Attending rushed & too eager to finish rounds
- 7. Amount of time spent performing "scut" work

Ko et al, Ann Surg 241:373-380, 2005

Increased Satisfaction

- 1. Being the operating surgeon in major cases
- 2. Attendings citing the literature to support decisions regarding patient care
- Attendings giving spontaneous or unplanned presentations
- Continuity of care for patient operated on by the resident
- 5. Clinical teaching aimed at the chief resident
- 6. Important postop patient management decisions made by the attending and resident Ko et al, Ann Surg 241:373-380, 2005

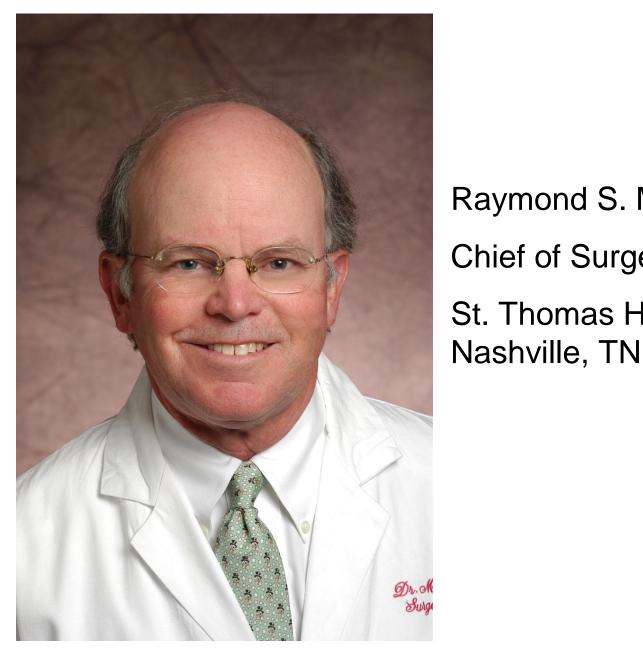
Resident Input from a Current Resident

- 1. The program is five years. Use all five.
- 2. The first step is to see the tissue planes.
- 3. Do the same case many times, develop a routine, a "way".
- See the case as a whole. Anticipate the next step. Approach each case as if you are THE surgeon. Think. Anticipate. Observe. Remember.
- 5. Take someone junior through a case. That is how you really learn.
- 6. Volume helps. Doing similar cases several times. Reps.
- 7. Laparoscopy: Go to the skills lab and practice, practice, practice—with supervision. Same principles—longer sticks. To skills lab when on the SICU rotation.
- 8. Still to work on: creating good exposure, gentle handling of tissue, learning to take others through a case.
- 9. Summary: recognize planes, same procedure multiply (volume), be prepared every time to do the case, develop patience as you take someone through.
- 10. Having some difficulty has taught humility and tolerance.
- 11. Frustrating part: you are told to work on your technical skills, but where or how or when or with whom?

Resident Thoughts on the Good Teacher in the OR

- Refuses to let you do something incorrectly, but also refuses to do it for you.
- 2. Explains the thought process at critical points during the case.
- 3. Solicits the resident's opinions, educating the resident on WHY this would or would not be a good plan.
- 4. Has limitless patience. (PEPÆ = Patience, Endurance, Perseverance, Æquanimity.)
- 5. Always talks. Thinks out loud. Comments on "small" things: how to hold the instruments, how to cut the suture and when, whether the bite was "too thin" or "too fat", how to improve exposure, etc.
- 6. Rephrases, shows, or models what needs doing, rather than stating: "Here, let me show you how I do it." And then taking over.

Resident Input from Drs. Jay Isbell and Kyla Terhune



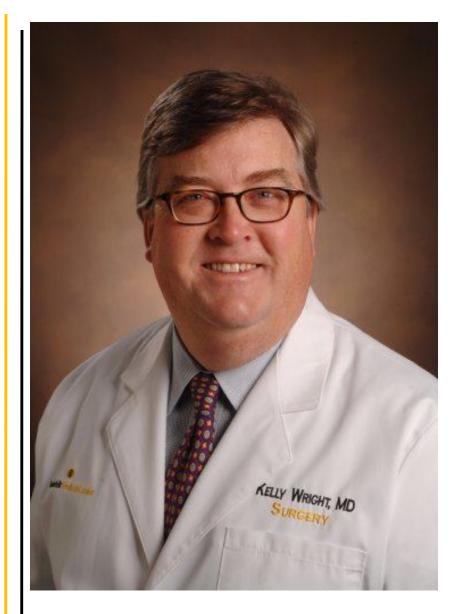
Raymond S. Martin III, MD Chief of Surgery, St. Thomas Hospital,

Buz Martin's Ten Points

- The youngest trainee scrubbed opens—whether resident, intern, or student.
- Always have the resident explore the entire abdomen or to observe the operative field and comment. (Observe, integrate, articulate)
- 3. After opening and identifying the target organ, stop and remind all what a privilege it is to be trusted by the patient to invade his body—and what a responsibility.
- Never forget what a privilege it is to teach and what a responsibility.
- 5. Hold residents accountable for knowing the patient's history, the reason for the intervention, the involved anatomy (including blood supply), and something about the steps of the operation BEFORE turning over the scalpel.

Martin's Ten Points, cont'd

- 6. Do not neglect the basics. If a chief resident does not square the knots, or scrub hands appropriately, or neglects the elements of "time out", correct him or her.
- Don't be in such a hurry that you cannot relinquish the instruments to allow each resident, regardless of level, to take the next step.
- 8. Be quick to praise technique, slow to criticize.
- Never blame a resident for a complication following a procedure done under your direction.
- 10. The respect with which you treat the operative team may be a more important example to the resident than your operative technique.



J. Kelly Wright, Jr., M.D., Professor of Surgery, Chief of the Division of Hepatobiliary Surgery and Liver Transplantation and Surgical Director of the Liver Transplant Program

Kelly Wright's Five Points

- 1. Repetition of a standard technique/operation
- 2. Allow independent mistakes to be made by your junior; then correct the error.
- 3. Expect excellence; do not reward the average.
- 4. Don't overdo treatment; know the limits; 'perfect' is the enemy of 'good'.
- 5. You don't learn to operate independently until you take a junior resident through a procedure on your own.



Jeff Dattilo, MD

Chief Vascular Surgery Nashville VA

Associate
Program
Director Surgery
Vanderbilt

Dattilo's Ten Points

- 1. You have to have confidence. Residents, like animals, can smell fear or uncertainty. You are not more clever than they are; so do not try hiding uncertainty; avoid it. Be prepared and know every technical trick in the book.
- 2. Ambulance-ecnalubmA. You have to be able to teach through a rear view mirror, i.e., left is right and right is left.
- 3. "I'm watching you." Don't miss ANYTHING. Critique all moves positive and negative.
- 4. Avoid loving to hear yourself talk. (AKA, "the Charlie Brown Teacher Principle"). Don't drone on. It's tiring.
- 5. Teach everything. If you look up at the monitor just prior to clamping the carotid artery, explain why.
- 6. My way or the highway (mostly). Teach them your way to be efficient and insist they do it your way. They will glean some things from you, some from others, but show them "your way" and why.

Dattilo's Ten Points, cont'd

- 7. "to OPERATE": to work, perform, or function as a machine does. An operation has STEPS and these STEPS are repeated. Test them on their ability to remember the steps. "What's next..."
- 8. Three strikes and you are out—but not out of the game. If they are having trouble, verbally talk them through it no more than three times before "taking it away". Then once you do, give them back the instruments for them to continue.
- 9. Tough love. Do not be afraid to say: "No, you are wrong. No, that is not correct." Be firm.
- 10. Understand the Feng Shui of surgery. Everything in its proper place. Adjust the lights PRIOR to beginning the operation. Know where to place the table. Teach them to view the operating room prior to starting the case; make sure that everything needed is present and available.

Tarp's Ten Points

- 1. You teach because you must. (Bob Collins). Professional First Assistant: "They must increase, I must decrease."
- 2. The technique or style is not key; the passion, enthusiasm, and energy are.
- 3. Teach even when you do not feel like it or have the time. An opportunity lost will not be regained. Create the tradition/expectation that the resident must be prepared.
- 4. Involve every scrubbed member of the team; teach those looking on.
 - Ask: "What would you do next?" "Why?"
 - "What are our options?" "What is the present danger?"
- 5. "Fit your suit to your cloth." Have appropriate-for-level instruction and expectations.
- 6. Major on the major: gentle handling of tissue, minimization of trauma. Stress principles. Think biologically.

Tarp's Ten Points, cont'd

- "You got to know the territory." Where are the tigers?
 Know the anatomy. "Variability is the norm."
- 8. In real estate it's "location, location, location". In operative procedures it is "selection, selection, selection". (Mike Holzman)
 - "Select well, sew well, get well."
- 9. It not always that complicated:
 - >well vascularized tissue to well vascularized tissue,
 - >technically correctly,
 - >without tension.
- 10. Ron Schlitz/Kenny Rogers: "You got to know when to hold them, know when to fold them."

And Nike: "Just Do It."

Pearl Book by Procedure & Attending

Positioning

Anesthesia

Incision(s): one long one or multiple small ones?

Exposure

Conduct of the operation

Critical steps—Where are the tigers?

Branch points for decision making; algorithm

Drains or not, type, duration

Dressings

Aftercare, Follow-up

David Shaffer, MD John L. Sawyers Awardee 2008



Principles of Adult Literacy

It takes 27 times of repetition for an adult to "learn" a new item of knowledge.

"Each One Teach One" –The model for adult literacy since Laubach and for surgical education since Halsted

Repetition: The Branding Iron of Knowledge

Reading, Learning, Thinking:

Reflection is the key.

Integrate the information.

Seek to see the whole, the relationships, not just the isolated facts.

Insight. Judgement. Wisdom.

"The primary purpose of residency is the education of the resident, not service to the hospital."



Frank Spencer, NYU. 1992.

vms 1947

Surgical Education

Education is not something you go to do; Education is something you do as you go.

Seize the "teachable moment".

Co-learners together. Paulo Freire.

"Iron sharpens iron." Proverbs 27:17

Get in the Habit of Having Good Habits

Adversity Can Crush You Can Motivate You

Pressure and Stress

The difference between graphite and diamond.

Responsibility

High Expectations: Resident

Program

Surgical Education Team

"We each are responsible for our own education.

The resident brings the appetite.

The program provides the smorgasbord."



"Curiosity is one of the permanent and certain characteristics of a vigorous intellect."

Samuel Johnson

Professionalism and Interpersonal Communication Skills

"...we have a public greatly influenced by our technical achievements but disgruntled by what they regard as our careless, thoughtless, or even absent psychosocial sensitivities."

Alexander J. Walt

in K A Anderson, "Crisis in humanity", Bulletin ACS 90:10-16, 2005

"Never operate on a stranger."

Ray Lee Mayo Clinic

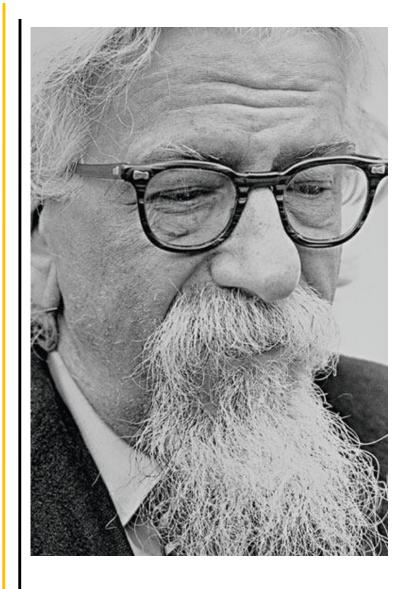


Luke Fildes, "The Doctor", 1889, The Tate Gallery

"Everybody, sick or well, is affected...by the material and spiritual forces that bear on his life... for the secret of the care of the patient is in caring for the patient."



Francis Weld Peabody JAMA 88:877-882, 1927



To heal a person, one must first be a person.

Abraham Joshua Heschel "The Patient as a Person" *The Insecurity of Freedom.* Farrar, Strauss & Giroux. 1966.

Education: from "to lead"

Indoctrination vs. Illumination

Training vs. Education



www.wwnorton.com

"Education is not filling pails; it is lighting fires."

William Butler Yeats 1865-1939, Irish Poet and Dramatist 1923 Nobel Prize for Literature (Poetry) "Time is the most valuable thing that one can spend."

Theophrastus (d. 287 BCE)

What Mentors Do

- Motivate
- Empower and encourage
- Nurture self-confidence
- Teach by example
- Offer wise counsel
- Raise the performance bar
- Shine in the reflected light

"Mentoring young academic surgeons, our most precious assets."

W.W. Souba, J Surg Res 82:113-120, 1999.

Teachers open the door; You enter yourself.

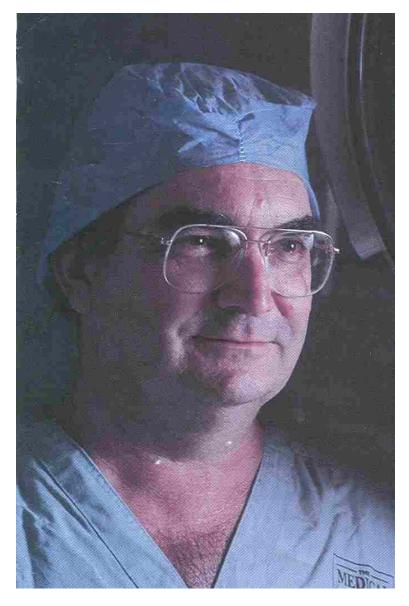
Chinese proverb

Epitaph

What do you want written on your tombstone?



Loch Raven VA, Baltimore, mid-1970s



Thomas Roman Gadacz, MD



Richard F. Kieffer, Jr., MD 1921-2008

"He taught us all how to operate." John L. Cameron

Teaching in the OR? And on the Wards, in the Clinics?

Priceless



Omnibus per artem fidemque prodesse. "To serve all with skill and fidelity."