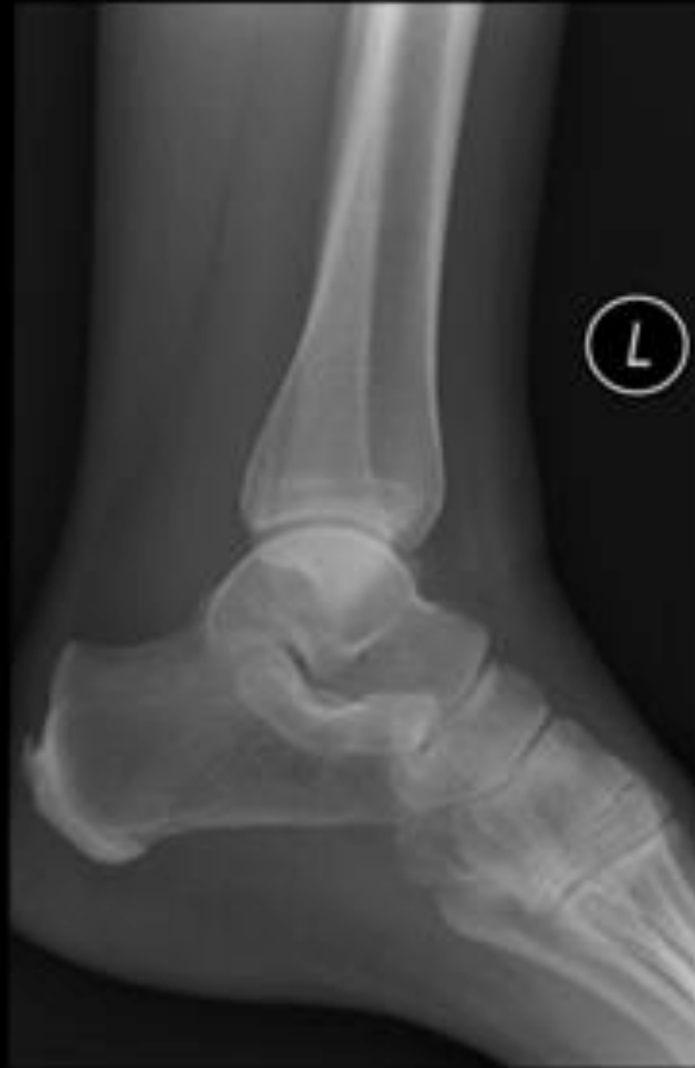
FLOOR
5

From Technician to Clinician:

Critical Thinking in Patient Care

Raymond L. Fowler, MD, FACEP
Jeff Beeson, DO, RN, EMT-P

…to get to the subject of thinking critically…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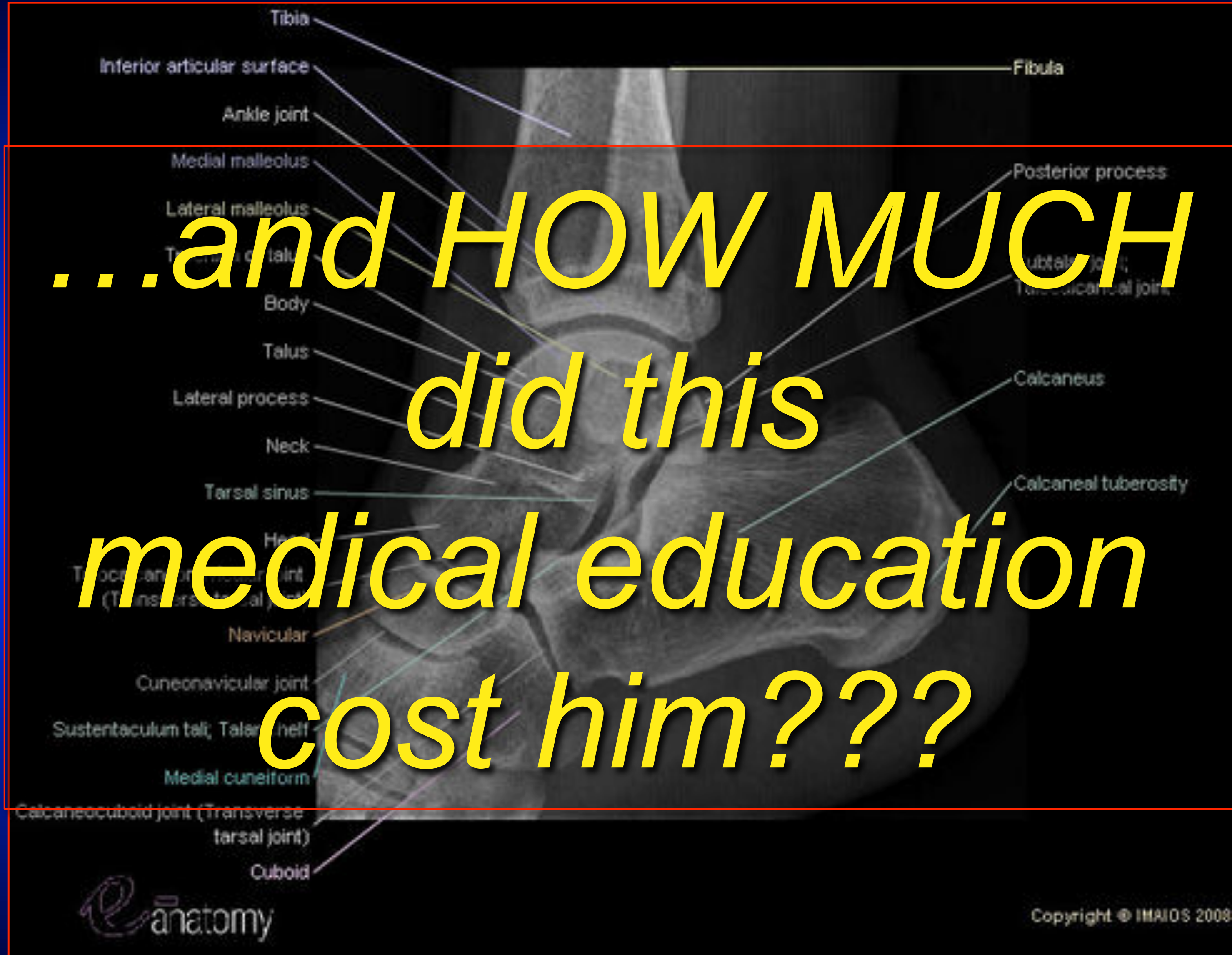


…and HOW MUCH did this medical education cost him???

Education

Information

Experience

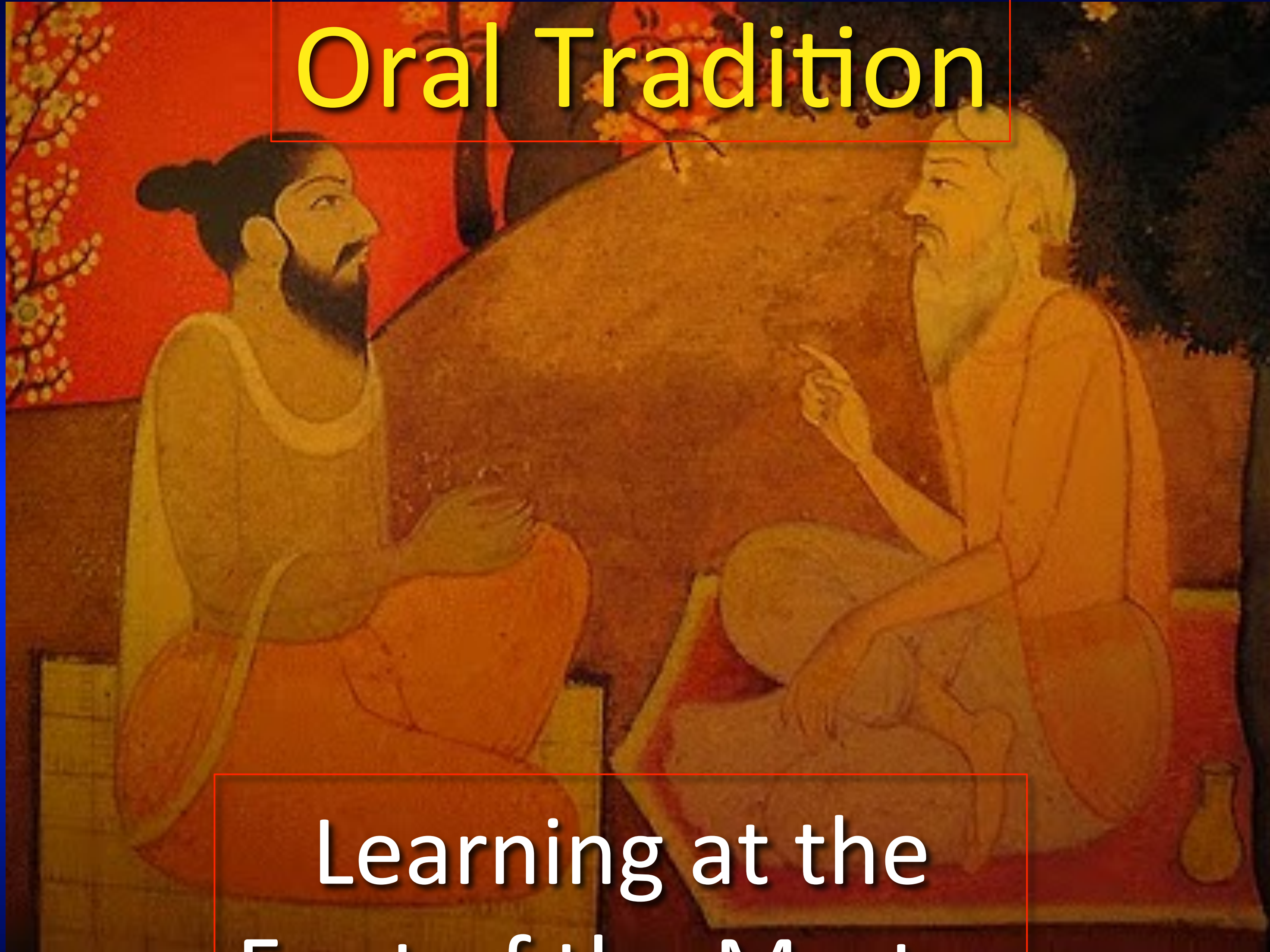
Skills

Experience

Years of P

Tradition

Oral Tradition



Learning at the
Foot of the Master

Oral Tradition in 1921

OXFORD MEDICAL PUBLICATIONS

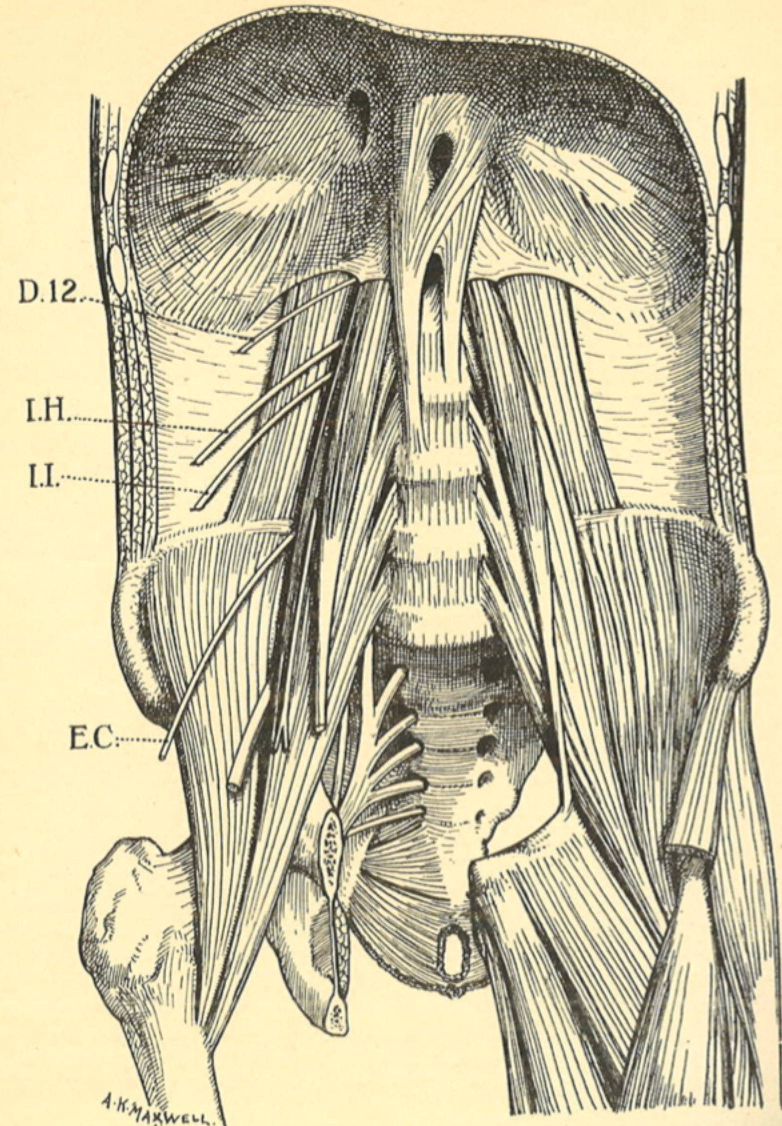
THE EARLY DIAGNOSIS OF THE ACUTE ABDOMEN

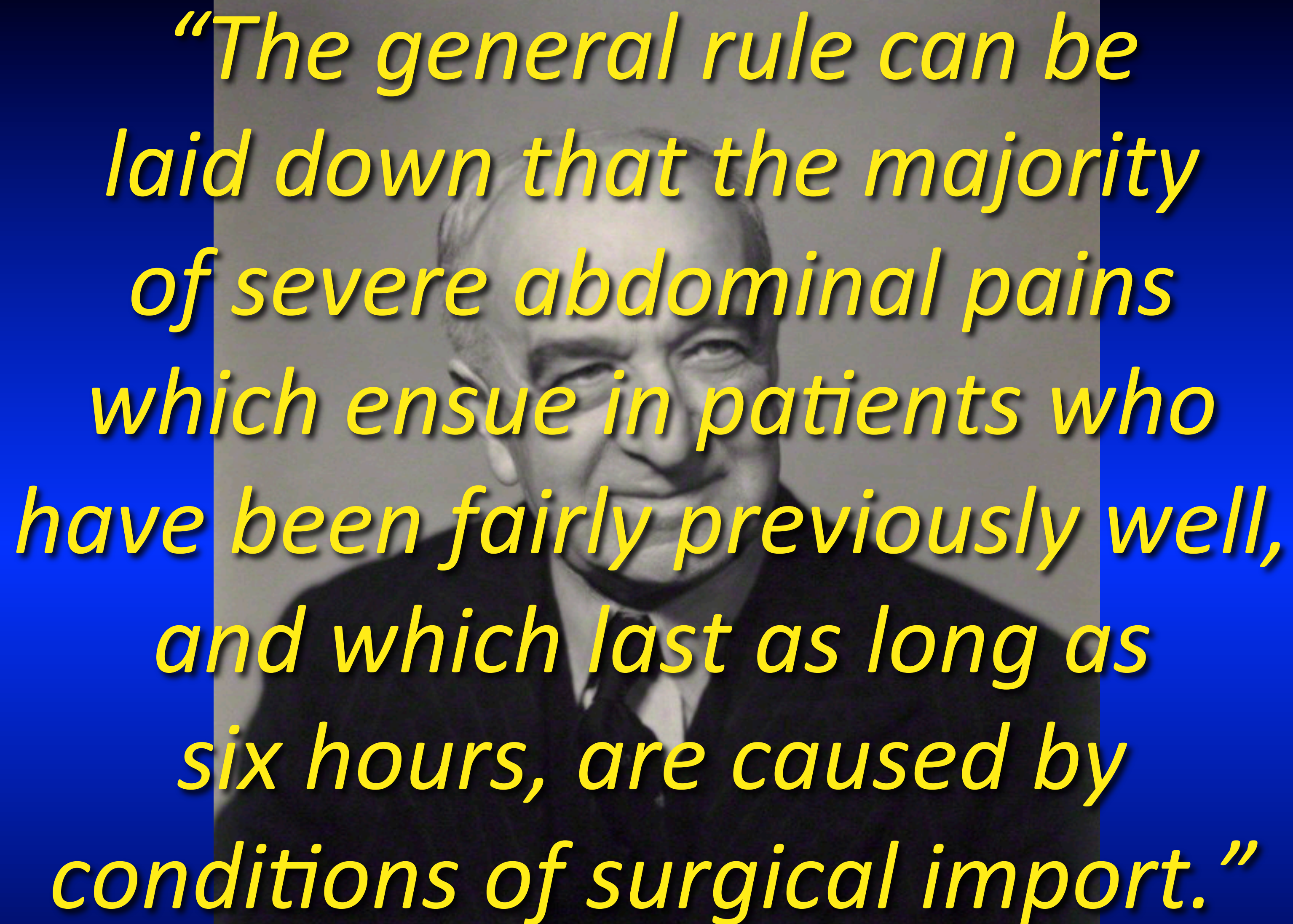
BY

ZACHARY COPE

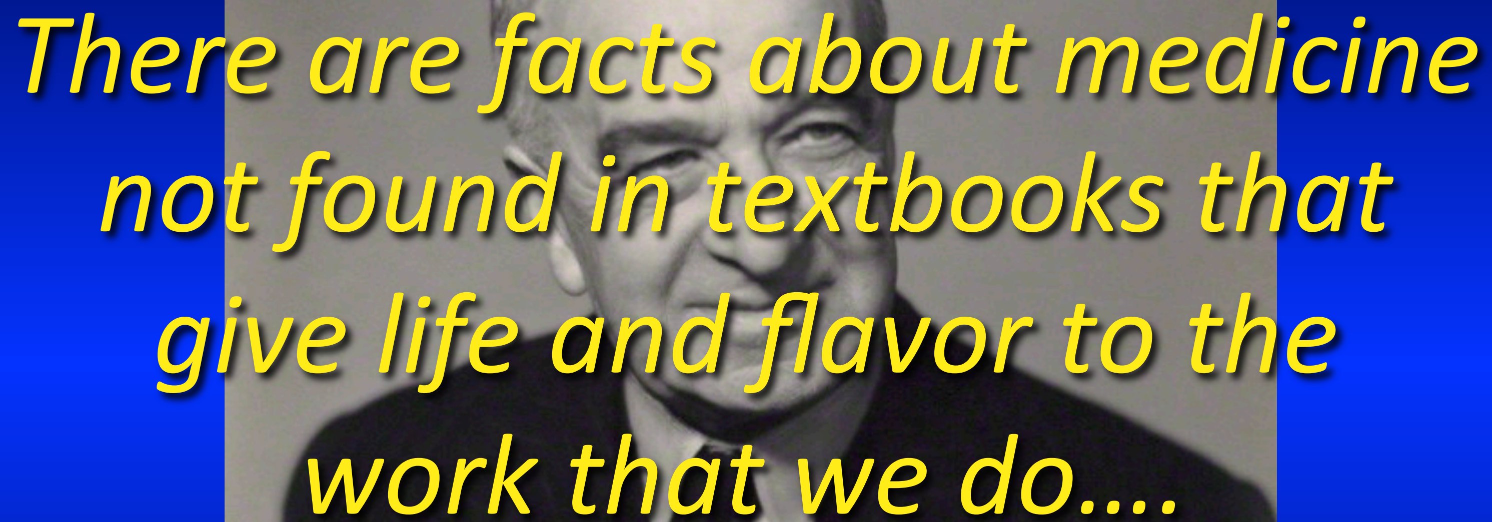
B.A., M.D., M.S. Lond., F.R.C.S. Eng.

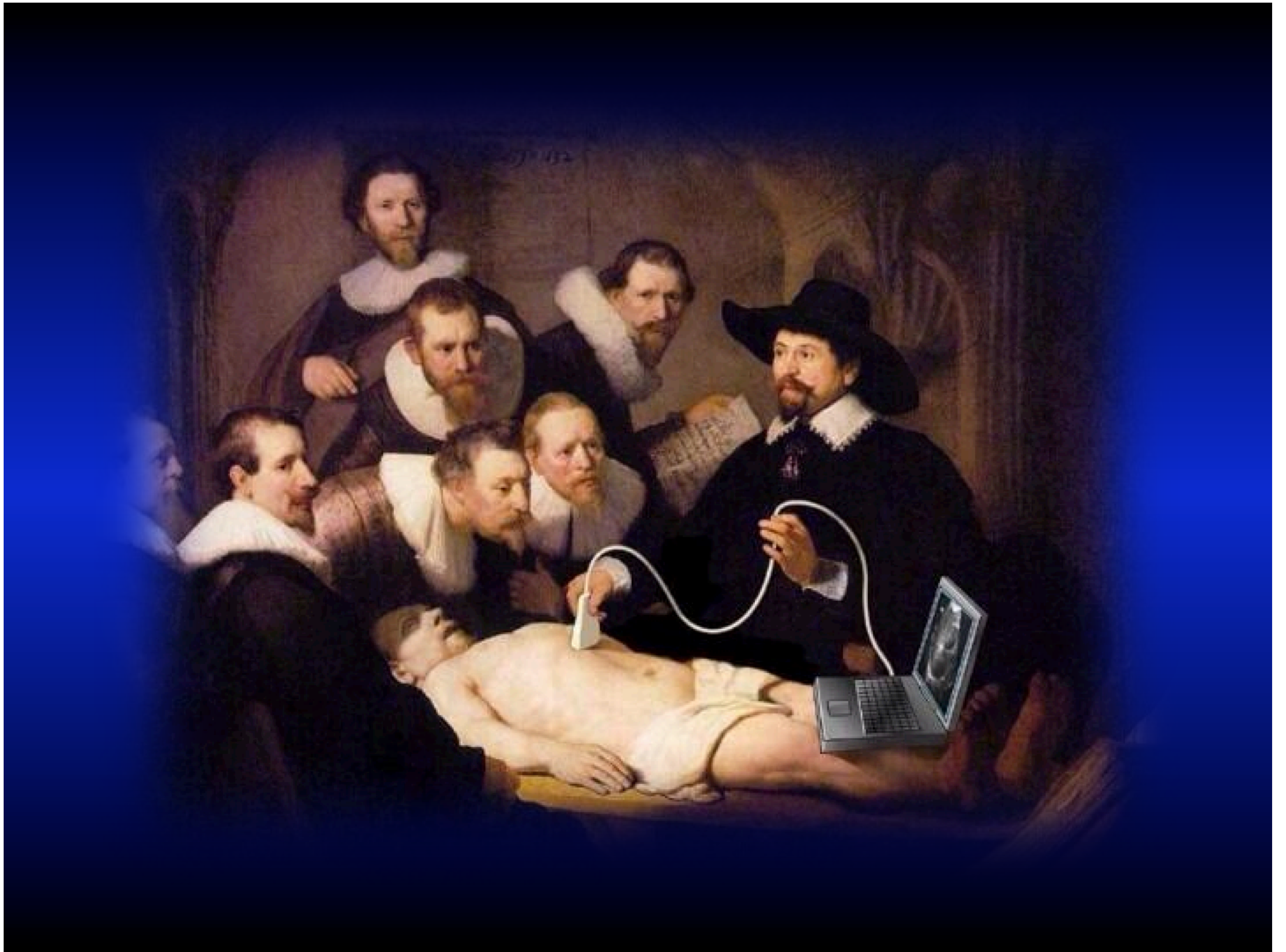
SURGEON TO ST. MARY'S HOSPITAL, PADDINGTON; SENIOR SURGEON TO THE BOLINGBROKE HOSPITAL, WANDSWORTH COMMON; LATE HUNTERIAN PROFESSOR, AND ARRIS AND GALE LECTURER, ROYAL COLLEGE OF SURGEONS





Z. Cope, "The Early Diagnosis of the Acute Abdomen", 1921, p. 5


There are facts about medicine
not found in textbooks that
give life and flavor to the
work that we do….
…and make us better providers…



“When in doubt…
take more history!”

B. Walley, MD, FACS, ca 1975

Education through Providing Great Examples

- *Committed*
- *Concerned*
- *Connected*

Critical Thinking

Sick patient with a tachycardia

Understanding Tachycardia

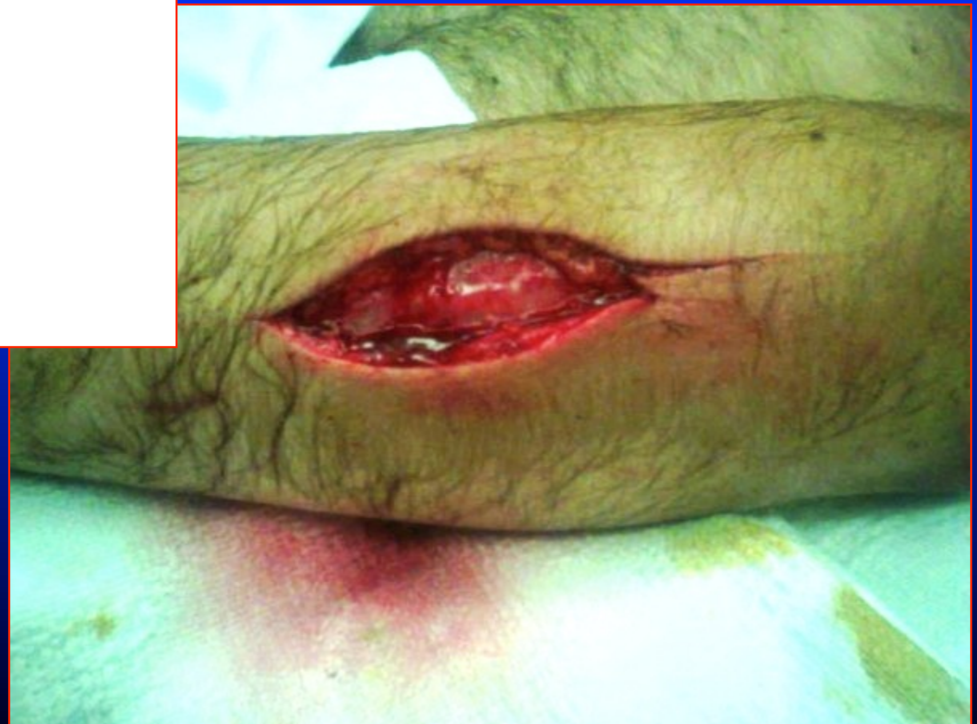
Maximum Sinus Tach = 220 - age

Sweet Sue is 20 with a rate of 180

Aunt Minnie is 80 with a rate of 180

…or, understanding drug dosages…

30 mL Single-dose
Preservative-Free
℞ only
1%
LIDOCAINE HCl
Injection, USP
HOSPIRA, INC., LAKE FOREST, IL 60045 USA
LOT 93-621-DK



Hmmmm….

te … as
a to … ne?

Lidocaine “1%" does NOT mean 1% strength.

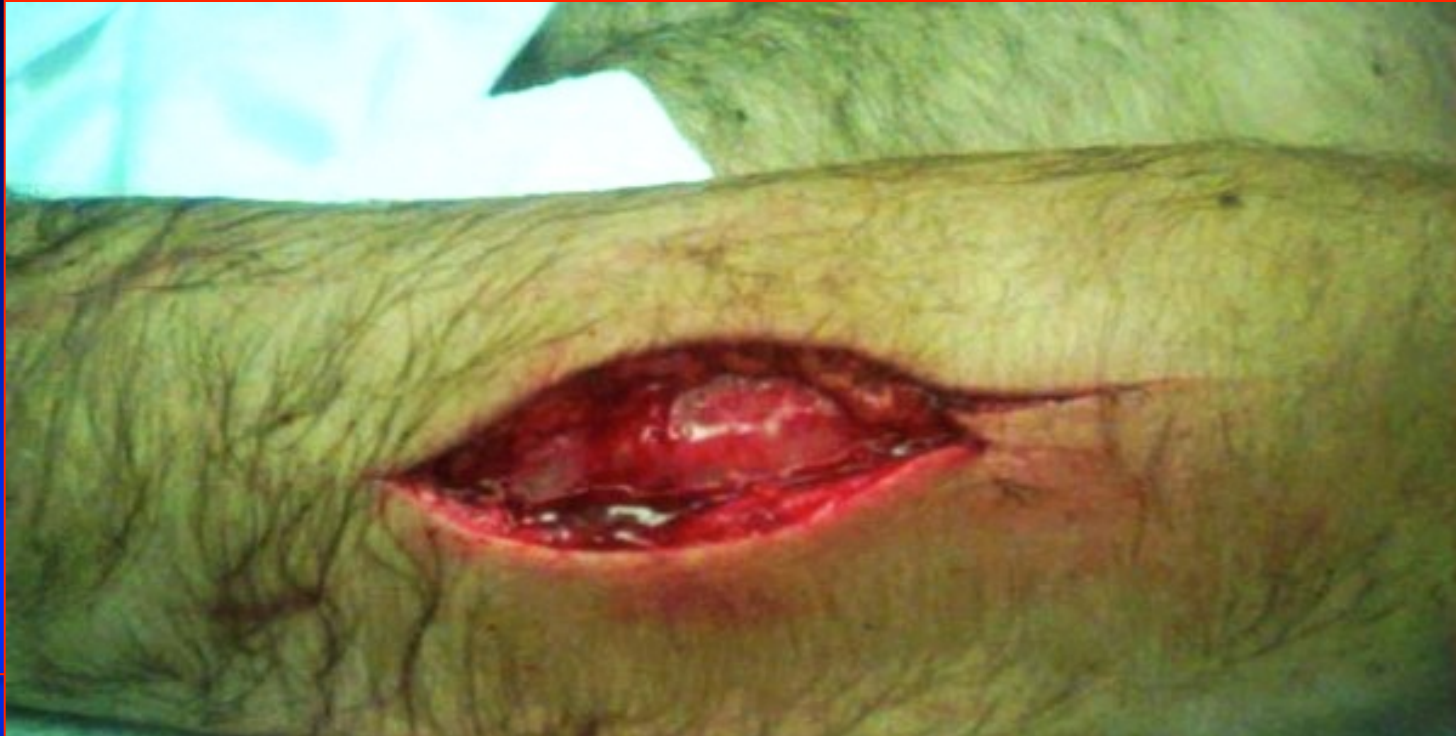
"Percent" actually means "grams per 100 cc of fluid”

“1%” means “1 gram per 100 cc of fluid”

“% x 10 = mg/cc”
(So, 1% = 10 mg/cc)

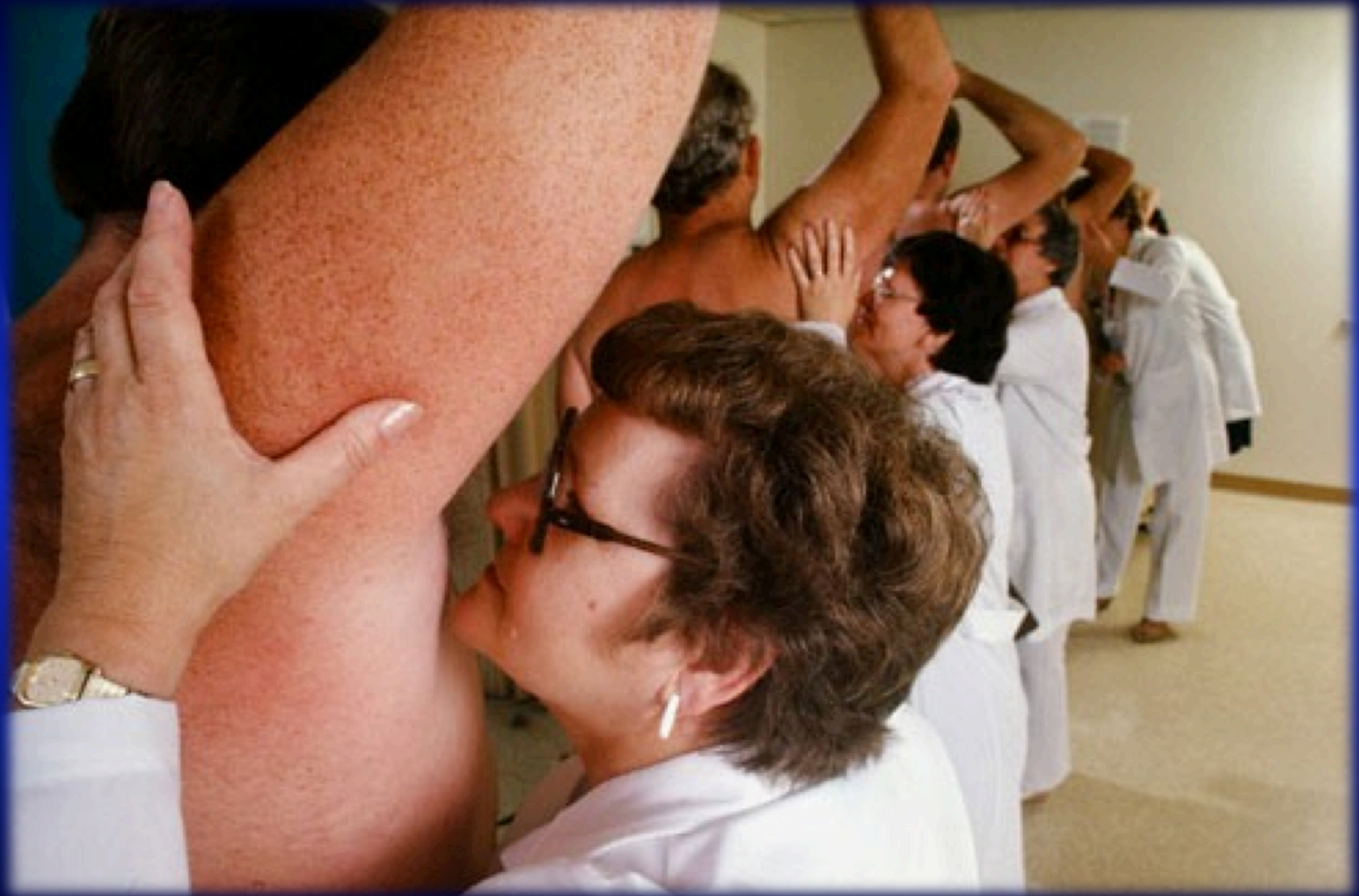
----

10 cc of fluid would have 100 mg of Lidocaine



THINK BEFORE YOU START SEWING!!!

The Medical and Ethical performance of clinical professionals has never been more important than it is today



We are a "Profession"

The Practice of Medicine

ABEM MAINTENANCE OF CERTIFICATION (MOC)

Raymond Logan Fowler, M.D. You are here: **Personal Page**

- **Personal Page**
- **View Requirements And Status**
- **LLSA Activities**
- **Attest/View PI Activity**
- **Attest/View CP Activity**
- **Register For ConCert**
- **View Examination Score History**
- **View Payment History**

The ABEM MOC Personal Page of Raymond Logan Fowler, M.D.

Use this secure page to track your ABEM MOC requirements and status, register for LLSA t

Requirements and Status

ALERT! – You have ABEM MOC requirements you must complete this year. Click here.

View Your ABEM MOC Requirements and Status

ABEM MOC general requirements:

LLSA

- LLSA readings and open-book, online tests based on the readings see reading lists

Personal Information

Name:
Raymond Logan Fowler, M.D.

Certification Status:
Diplomate

Date Current EM Certification Expires:
12/31/2014

Date Current EMS Certification Expires:
12/31/2023

Certificate Number:
00841273

The End of the Beginning

- *Innocence is over*
- *We are COMPLETELY accountable for what we do*
- *Being a professional requires you to always be able to explain your actions*
- *Medicine is ONLY and ALWAYS about patient care*

The Fundamentals of Good Evaluation and Management

The Essence of what makes a Clinician "Think Critically"

The Fundamentals of Good Evaluation and Management

…and not just a "technician"

The Key to Excellence:

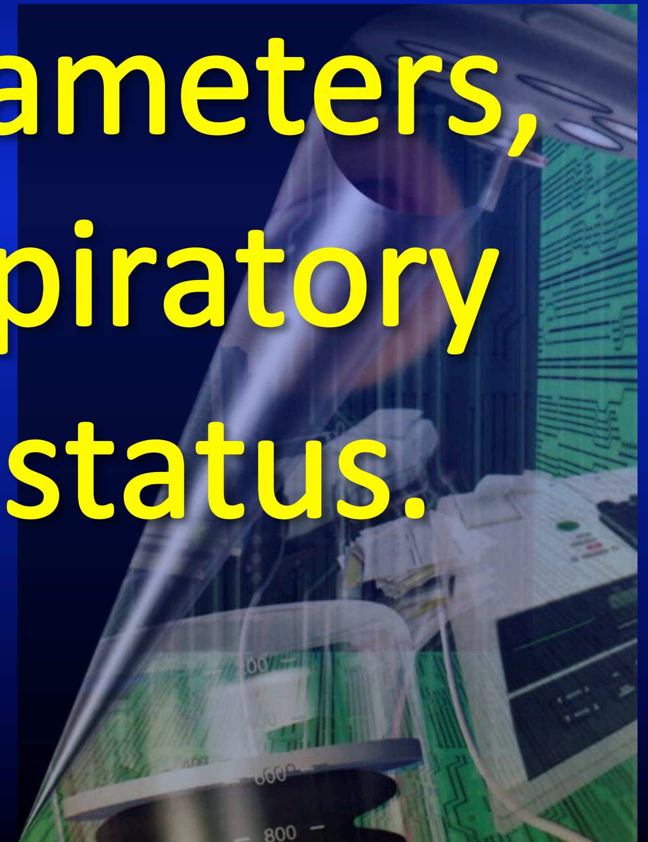
Performing Superior Medical Histories and Physical Exams

You See What You Look For
…the prepared mind

"People look, but they don't see"

…A. Fowler, Jr.

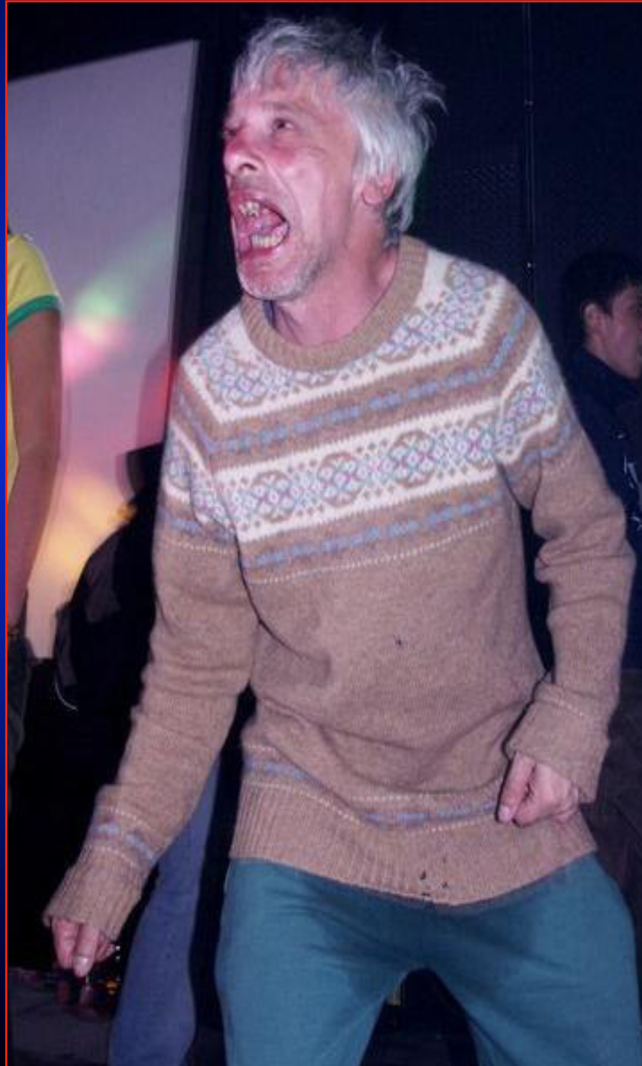
As we assess patients,
we must quickly determine
fundamental parameters,
such as their respiratory
and circulatory status.



"I Can't Catch My Breath"

Injured Person?

Psychiatric Problem?



We learn from our
Experiences:
Good…and Bad

Professionalism:

The practice of a professional…

…as distinguished from an amateur

The Art of Critical
Thinking

What Makes a Student Become a Great Clinician?

- *A solid foundation of knowledge*
- *The willingness to apply it*
- *A commitment to excellence*

Critical Thinking

The process of determining the authenticity, accuracy and value of something

Characterized by the ability to seek reasons and alternatives, perceive the total situation, and change one's view based on evidence.

Critical Thinking

involves clinical decision-making using medical inquiry and clinical reasoning

How do we figure things out?

Inductive Reasoning

Deductive Reasoning

Induce:

Use specific observations to form general conclusions

Deduce:

Develop specific conclusions from general propositions

Inductive Reasoning

The "Bottom Up" Approach

Deductive Reasoning

The "Top Down" Approach

Confirmation

We do both during diagnosis

Through observation we "induce" that a patient has a general condition, such as respiratory distress

We then "deduce" what caused that problem (respiratory distress) by getting further information (swollen tender calf, stabbing chest pain, hemoptysis, and forgot to take Coumadin)

"Entia non sunt multiplicanda...

...praeter necessitatem."

OCCAM'S RAZOR

IT'S NOT FOR SHAVING

Issues in Critical Thinking

"Pre-Loss" Strategies

Things we can do before a loss occurs

What Causes Errors?

Most result from incomplete or poorly performed patient assessments

The goal is to unmask our errors in the patient assessment process through the development of *"debiasing"* techniques

The Culture of Safety

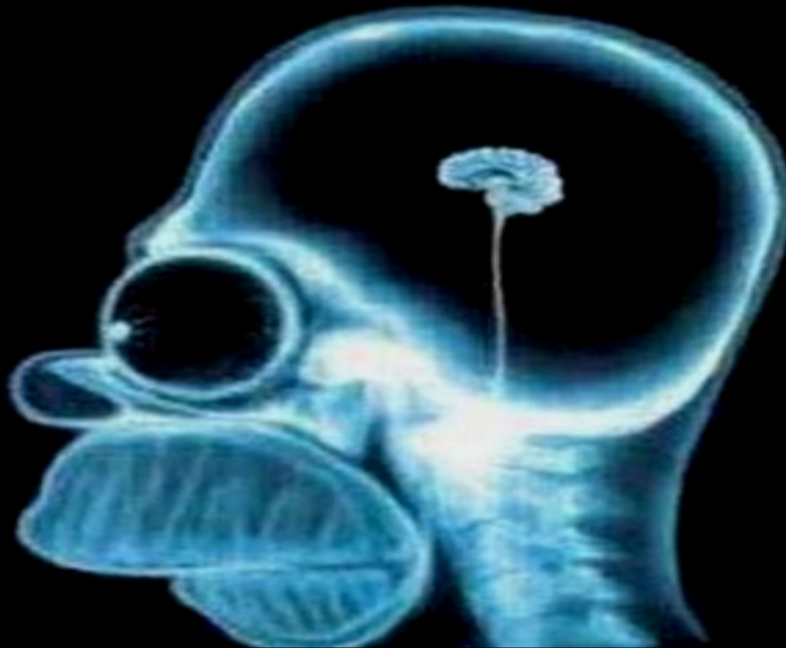
- Checklists: be familiar first, but then USE THEM!!!

- Partner checks: Read aloud, never point a dose at someone that is more than they need

Glucagon

Heuristics

- *Rules that explain how people make decisions, come to judgments, and solve problem*
- *Can predispose a specific response to certain situations*



Confirmation Bias

- “Cherry Picking”
- Look for evidence that confirms the assessment we’ ve made
- ***<u>Fowler’ s Law: Never try to explain away a result…</u>***
- We fail to consider persuasive evidence that changes that assessment

Diagnosis Momentum

The attached label tends to stick—

EVEN IF IT'S WRONG

Attribution Error

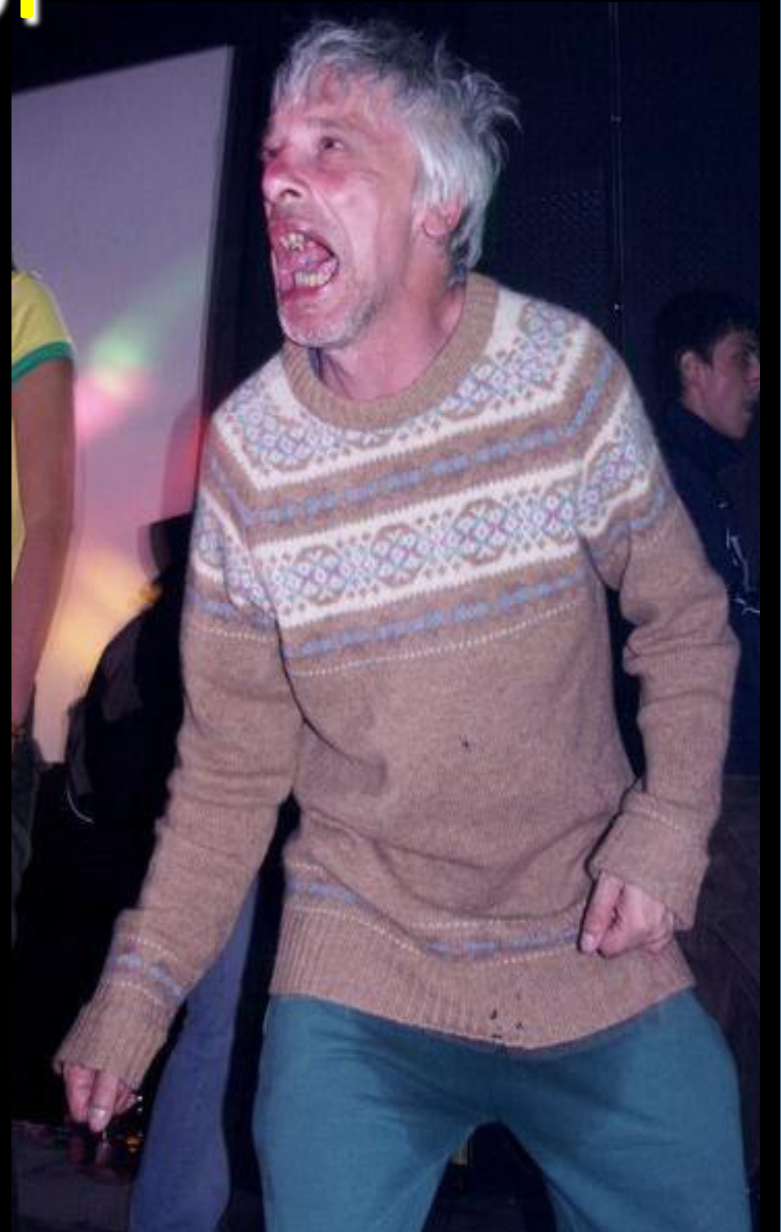
Becoming judgmental and blaming patients for their illnesses rather than fully examining the circumstances

Psych-Out Error

We may overlook serious co-morbid medical conditions in psychiatric patients

…and…

WE GET ANGRY



Psychiatric Problem

- *Medical Problem First Until Proved Otherwise*
- *Most Common Cause of AMS*
- *Excited Delirium*

Psychiatric Problem

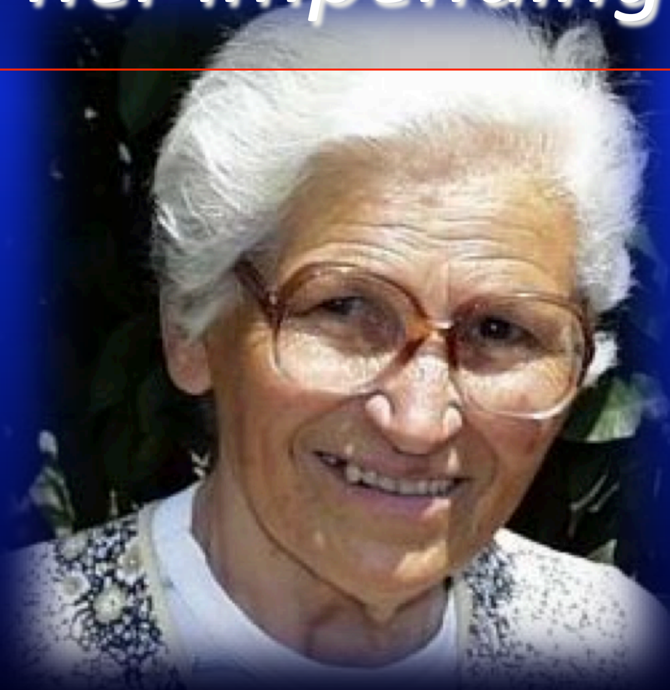
- *Hyperthermic*
- *Hyperkalemic*
- *Hypoglycemic*
- *Underlying CAD*
- *Sympathomimetic on board*
- ↑ *Risk of C.A.*

Gender Bias

The belief that gender is a determining factor in the probability of a disease

Gender Bias

Women DO have M.I.'s!
But, the older female may have shown D.O.E. as her impending symptom



Anchoring

The tendency to lock onto the patient's initial presentation and not adjust for (or look for) new information

After all…
It takes "mental work"
to let go of an initial
impression and keep looking
for causes to the problem

The Fatigue Factor of Decision-Making in Dealing with Human Lives

"Of 519 patients aged 65 years or older, 117 cases were under-triaged, according to the study. A quarter of those cases occurred when a patient reported nonspecific complaints such as generalized weakness."

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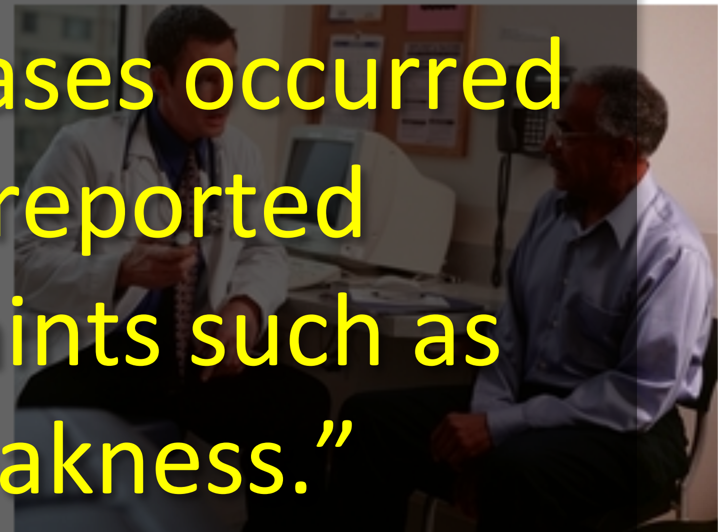
Healthcare Business News

Study notes risk of under-triage for elderly

By Jaimy Lee
Posted: March 8, 2012
Tags: Patient Care, Patient Safety

About 23% of elderly patients who visit the emergency room were assessed as less critically ill, or under-triaged, than they actually were, according to a new study.

The study, which was published March 7 in the **Annals of Emergency Medicine (PDF)**, evaluated the records of patients at a hospital in Switzerland using the emergency severity index, according to an e-mailed news release.



A quarter of under-triaged cases occurred when a patient reported nonspecific complaints such as generalized weakness.

Critical thinking

means

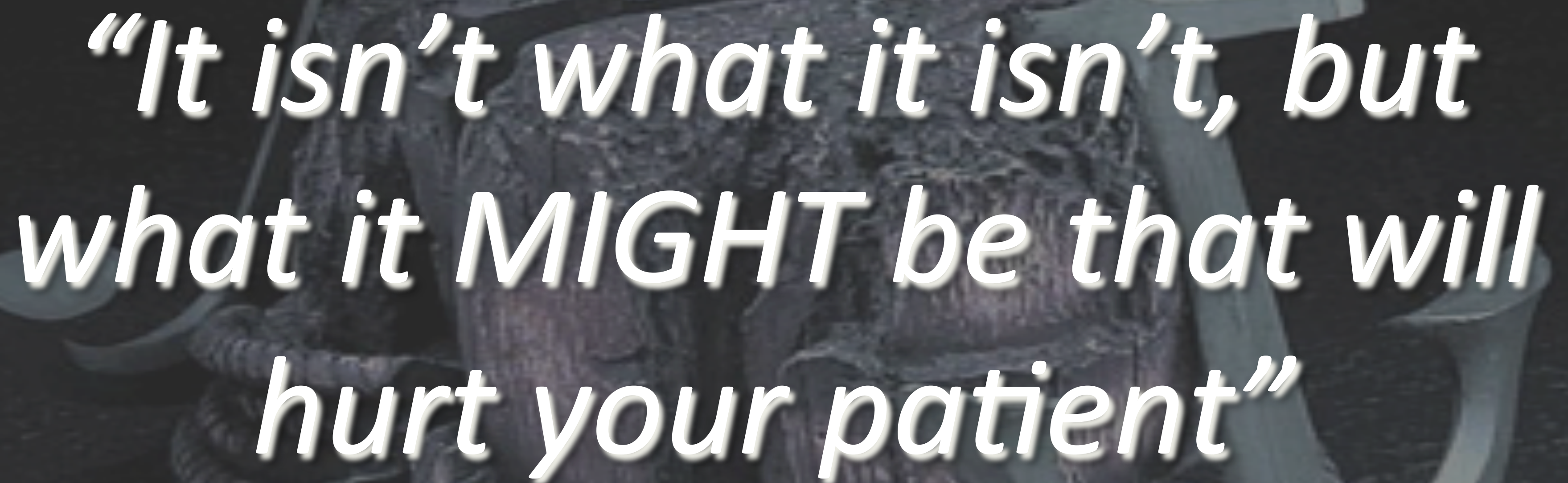
"Critically Watching

and Waiting….

….and being suspicious"

…and ALWAYS
being a
FIERCE ADVOCATE
for the patient's
total spectrum of needs

ALWAYS


"It isn't what it isn't, but
what it MIGHT be that will
hurt your patient"

Overconfidence Bias:

The tendency to believe we know more than we actually do

Overconfidence Bias:

You HAVE to be a
risk manager first and foremost

Search Satisfying

The tendency to call off a search once something is found (comes from not being methodical)

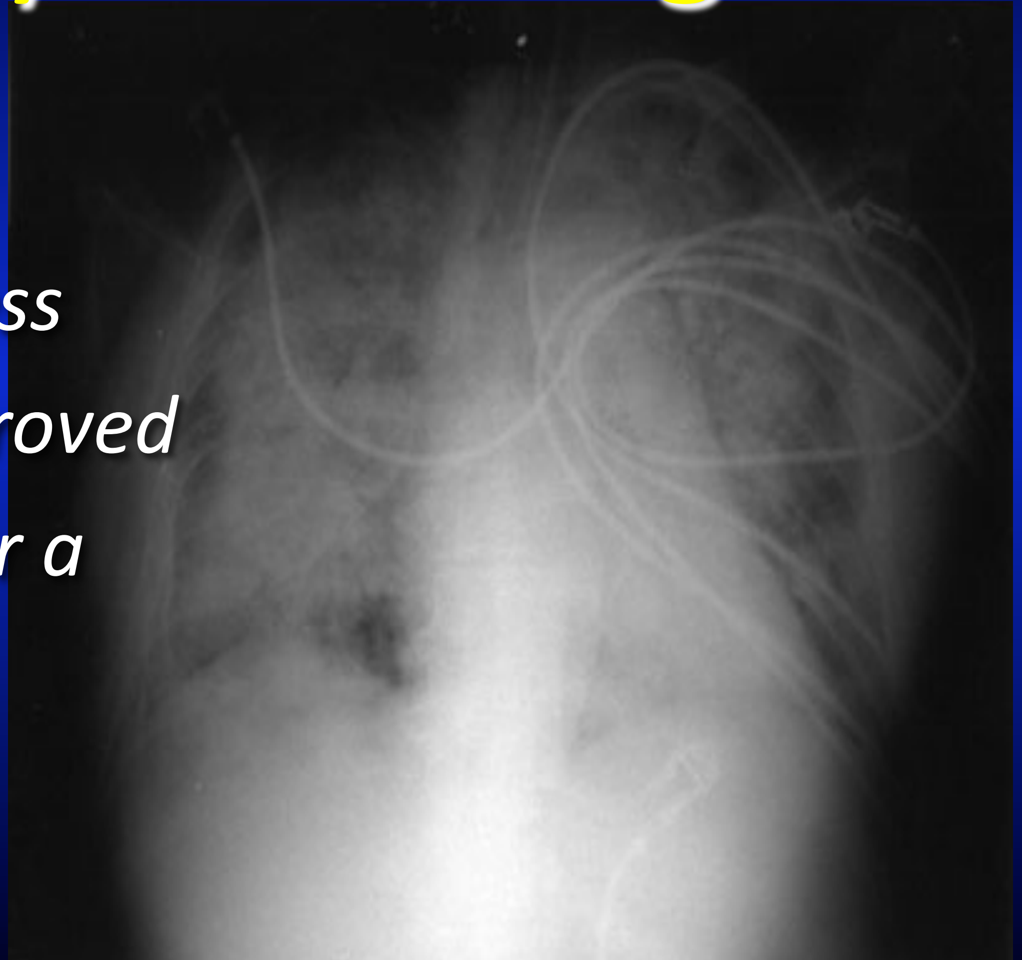
Search Satisfying

A great example is
in the workup of
abdominal pain

Sometimes it's easy….
but often it isn't, and
it takes mental commitment

Difficulty Breathing

- *"Flu" Diagnosed*
- *Respiratory Distress*
- *CPAP in field, improved*
- *Removed at ED for a "room air" ABG*
- *Patient arrested*



So, Our Potential Mistakes…..

- *Anchoring*
- *Diagnosis Momentum*
- *Cherry Picking*
- *Overconfidence Bias*

It is hard to abandon

"*Pretest Probability*"

…once your mind is already made up…

David Rosenbaum

NY Times Correspondent
March 1, 1942 – Jan 8, 2006

- *Mugged while jogging in Washington, D.C*
- *Assumed to be "just drunk"*
- *Made a P3 instead of P1*
- *Unfounded prejudice followed him all the way from the field into the ED and cost him his life*
- *GCS 6, but was made "BLS"*
- *Lay in ED for an hour before vomiting alerted the ED nurse*

David Rosenbaum

March 1, 1942 – Jan 8, 2006

"If, through the investigation of David Rosenbaum's death, the public can be assured that D.C. Fire and EMS will give the proper care and treatment to all John Does lying on the District's streets, regardless of where they are found, then Rosenbaum's tragic and cruel final days on Earth may have rendered an invaluable service to people who live in or visit the nation's capital." Colbert King, 2006

The Mistakes We Make

- *Anchoring*
- *Diagnosis Momentum*
- *Cherry Picking*
- *Search Satisfying*

The Mistakes We Make

Above all, the worst mistake is just not being willing to look…and keep looking…and getting involved…

Don’t Make these Mistakes

- *Psyched Out*
- *Anchoring*
- *Diagnosis Momentum*
- *Cherry Picking*

Think About
the Whole Patient
Every Time

Half of litigation brought against Emergency Providers results from delayed or missed diagnoses

Why is that???

Clinicians Not Thinking Critically

- *COMPLETING A DIFFERENTIAL DIAGNOSIS*
- *ASSESSING RISK TO THE PATIENT*
- *TREATING ACCURATELY AND QUICKLY*
- *RE-ASSESSING AT APPROPRIATE INTERVALS*
- *DECIDING HOW THE RAZOR IS CUTTING*
- *KEEPING THE STAFF INFORMED*
- *KEEPING THE FAMILY INFORMED*

It may be generally stated that the difference between an amateur and a specialist in medicine is in the rigor of the application of a differential diagnosis

It's my opinion that this remains one of the weakest areas of performance today

What Drives the Difference?

The primary difference involves training and experience.

The second, and most important, is the mind-set.

Taking a mediocre history and performing a cursory physical…

…not forming a differential diagnosis…

…and sending the patient off for a test somwhere to let that Doc give them the answer…

"I think it's THIS"

"It COULD be that"

"I DON'T think it's that"

"I KNOW it isn't that"

Differential Diagnosis

A Mandatory Step in Care

Differential Diagnosis

The Definition of A "Specialist"

How To Make Things Better

- *Reduce errors by understanding how they happen.*
- *Minimize knowledge errors by acknowledging the BIASES that lead to them.*
- *Force ourselves to think broadly*

Reducing Errors

- *Scenario-based training*
- *Simulations*
- *Focus less on algorithmic protocols*
- *Focus more on critical thinking and reasoning skills*

Reducing Errors

- *Recognize our biases*
- *Work with the insight gained*
- *ALWAYS consider alternatives*
- *Ask what else might be going on*
- *Learn to step back*

Critical Thinking as Evidence Advances

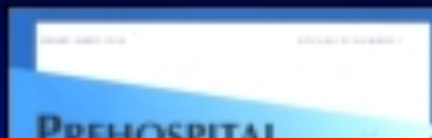
The Advance of Evidence

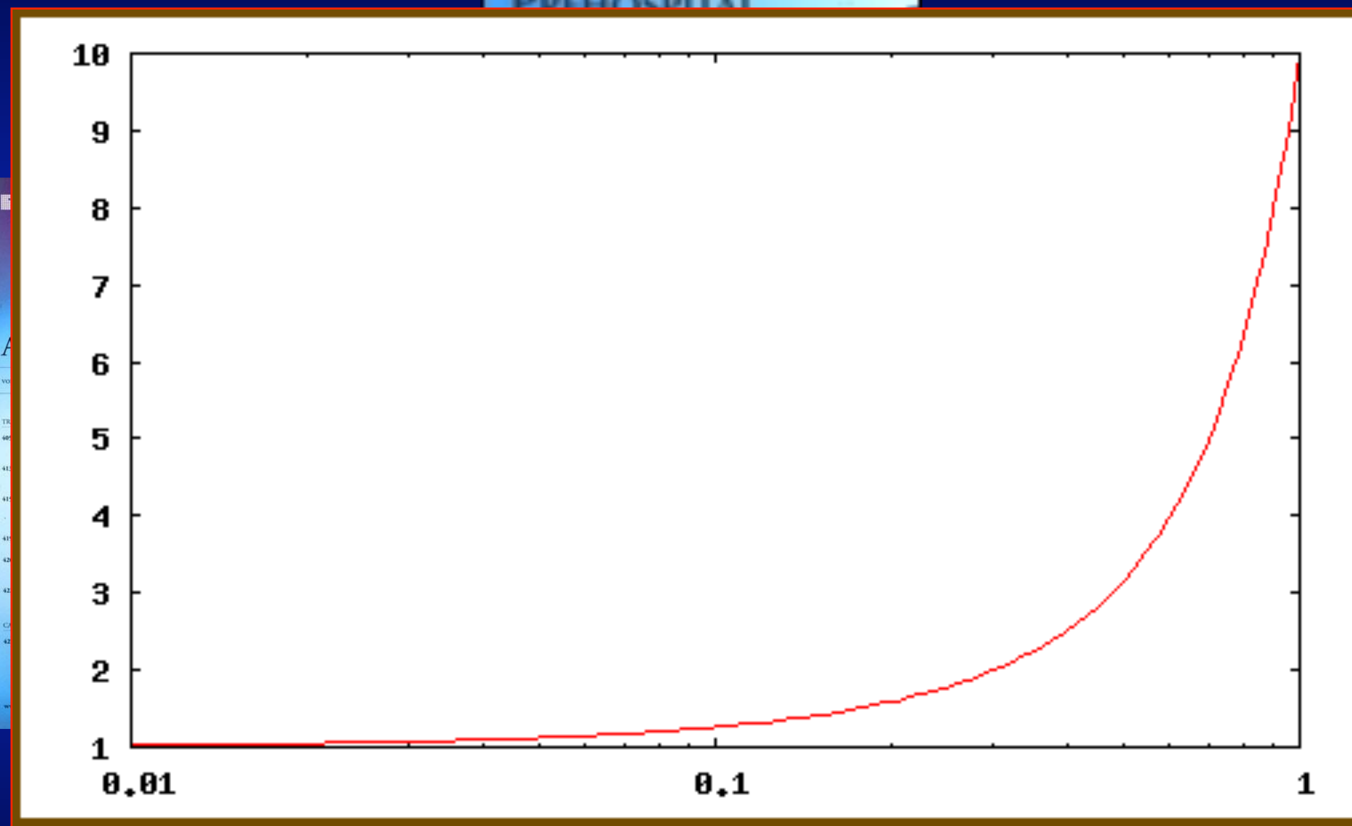
The only care that has shown to make a difference in survival from cardiac arrest…
…with RARE exceptions…
is Basic Life Support!!!

Critical Thinking in Cardiac Arrest

Advanced Airways Harmful?
Defibrillation of course
Drugs of uncertain value except in some cases (TPA??)
Therapeutic Hypothermia

Commitment to Medicine
is a commitment to
lifelong learning
and discovery





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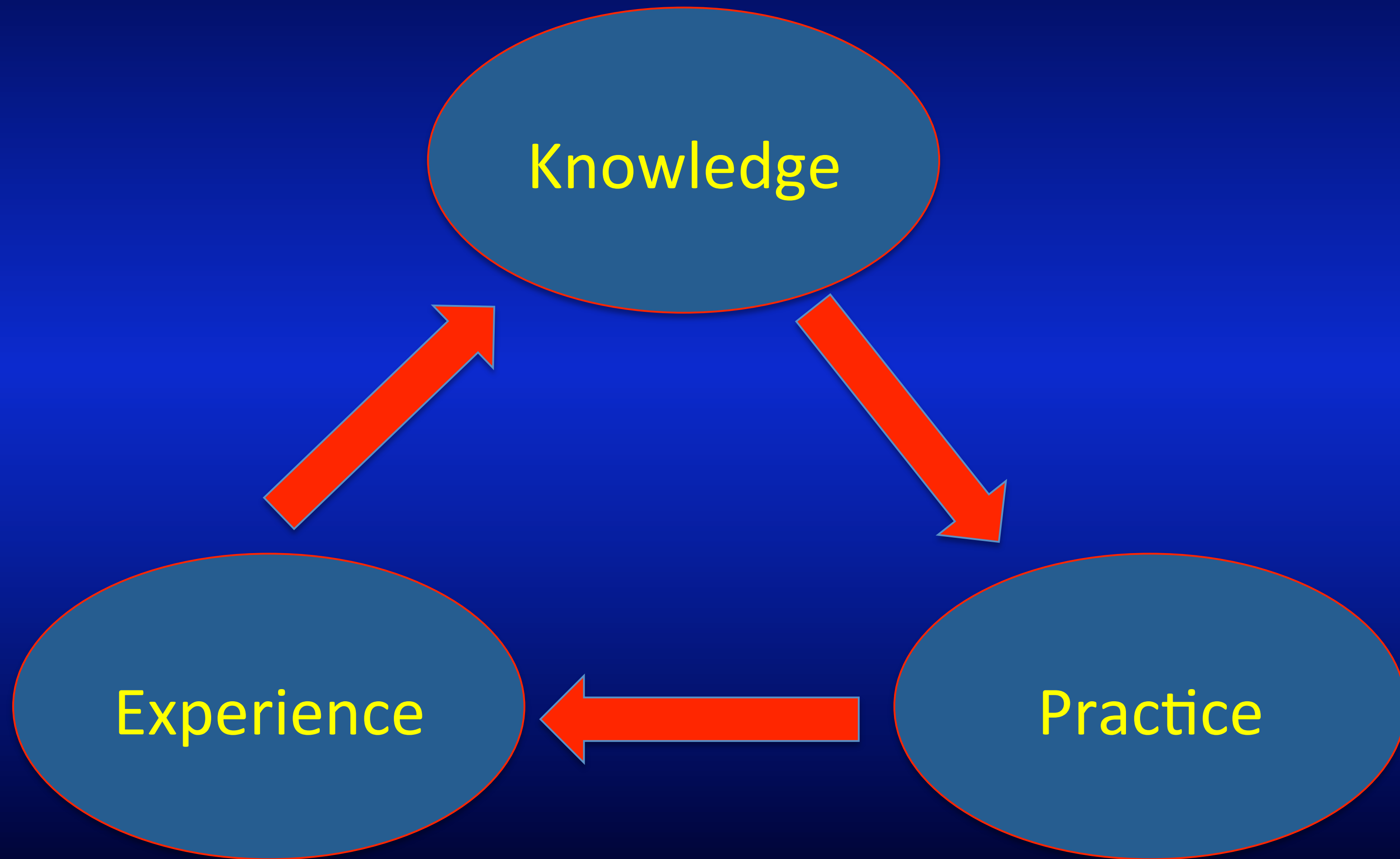
1

We Pledge to Close the Loop



…and finally…

The Critically Thinking Provider as Patient Advocate and Humanitarian

Synthesis

Psalm 39:5:

Verily, every man at his best state is altogether vanity.

Our opportunity for service allows us to fulfill our mission in medicine:

The betterment of the human condition

Let us vow anew to lead the way in sharing the art of critical thinking in medicine

Thank you for your kind attention

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