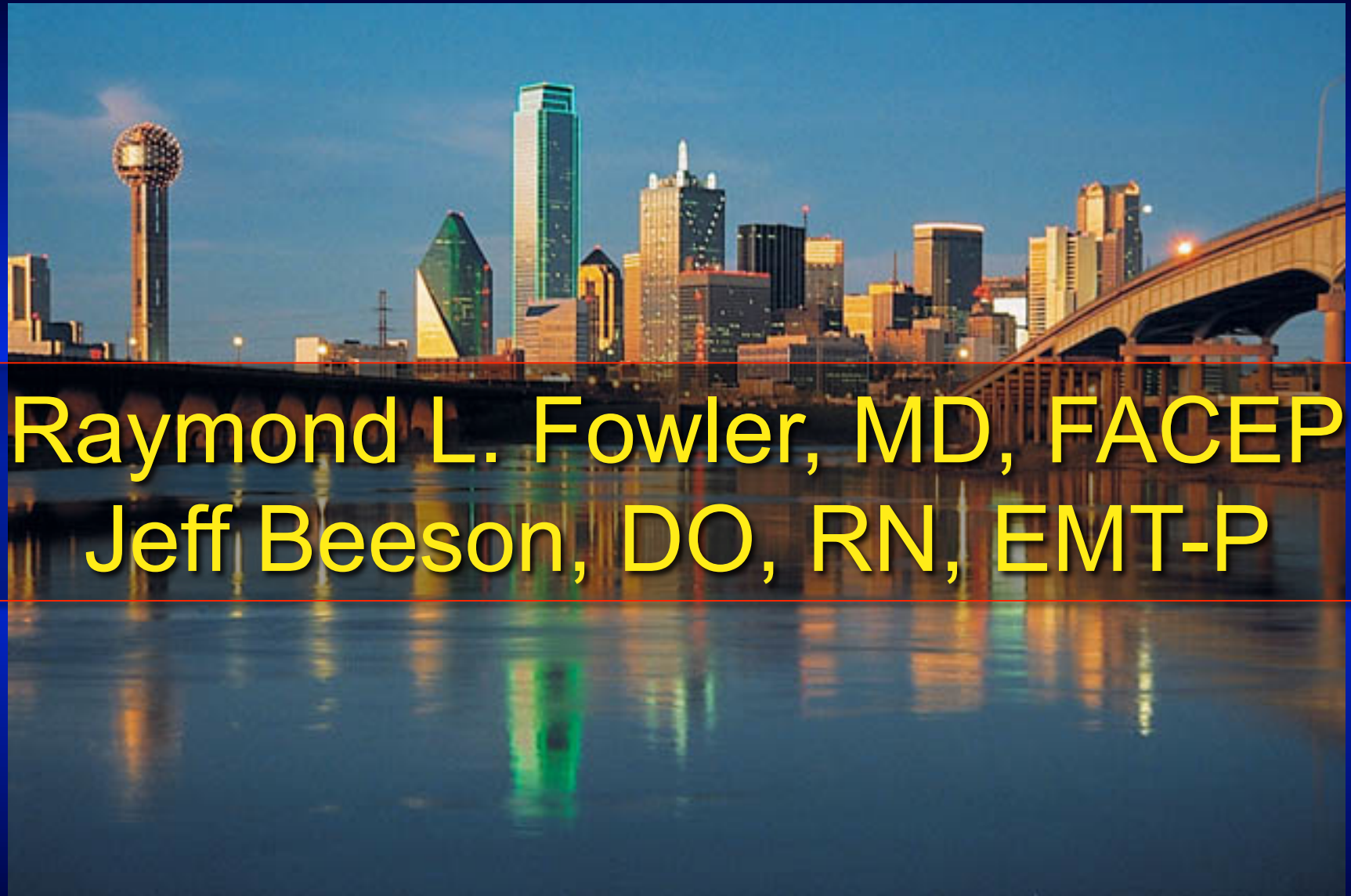






From Technician to Clinician:

*Critical Thinking
in Patient Care*

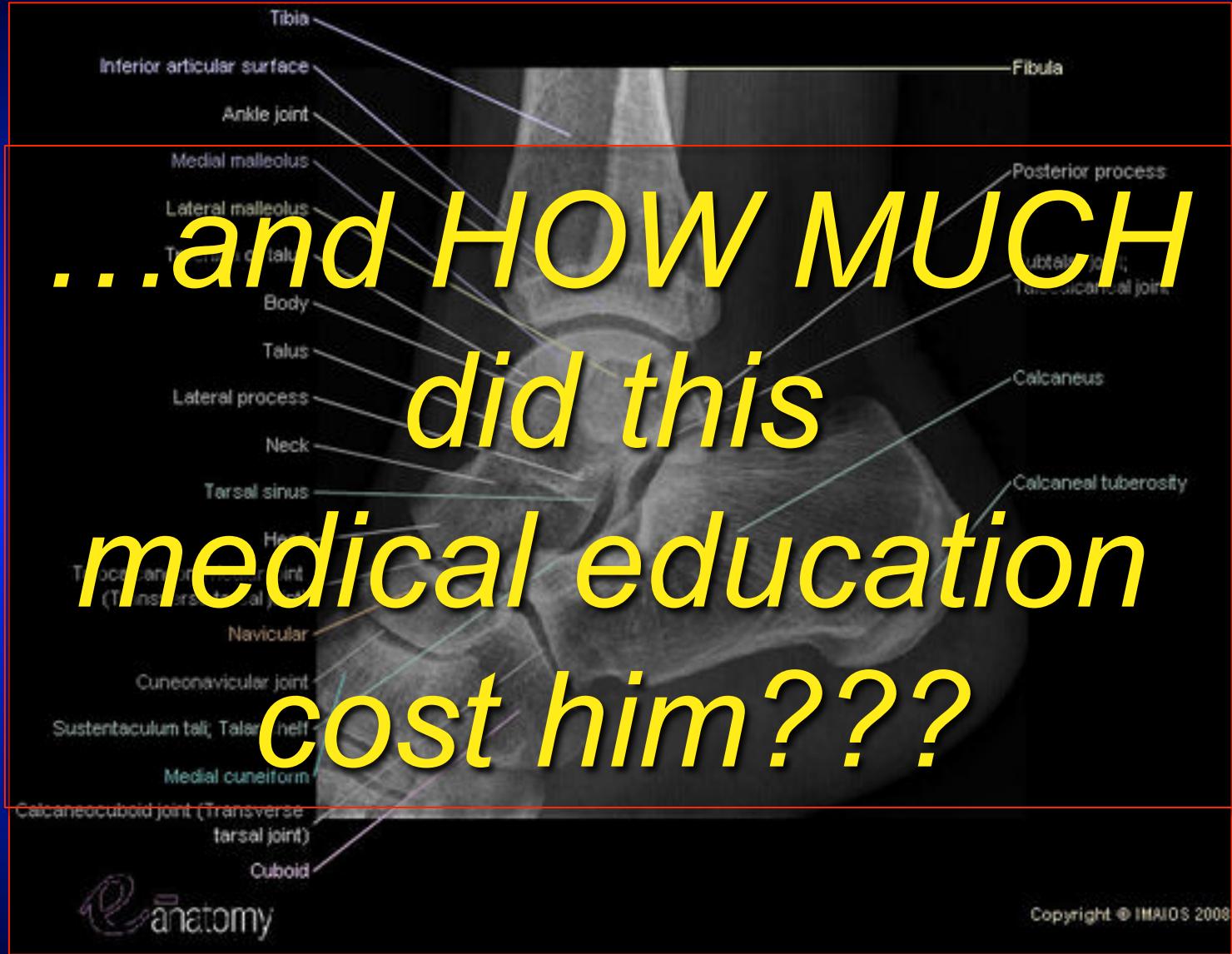


Raymond L. Fowler, MD, FACEP
Jeff Beeson, DO, RN, EMT-P

*...to get to the
subject of
thinking critically...*







*...and HOW MUCH
did this
medical education
cost him???*

Education

```
graph TD; Education[Education] --> Information[Information]; Education --> Experience[Experience]; Education --> Skills[Skills];
```

Information

Experience

Skills

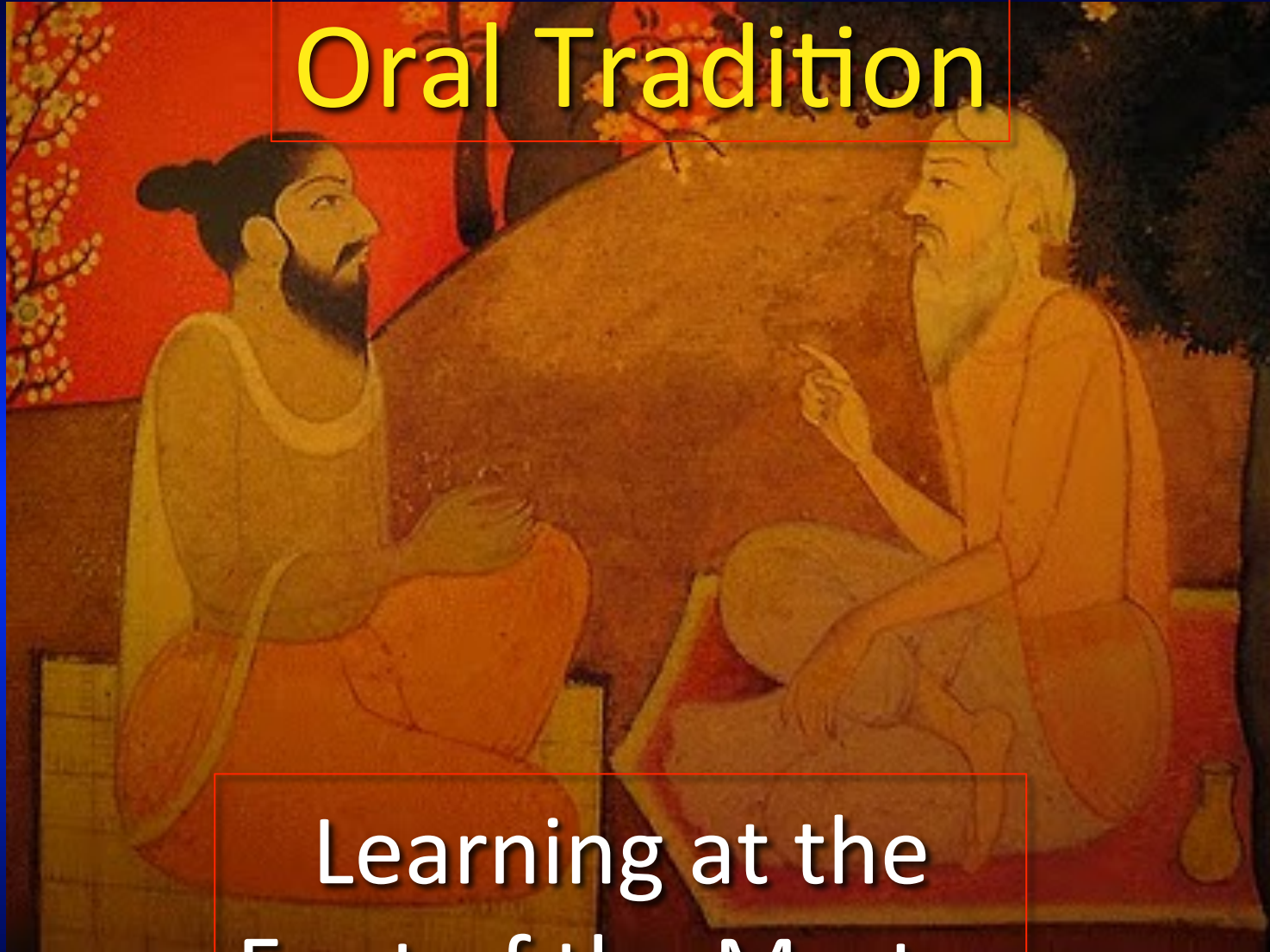
Experience

Years of P



Tradition

Oral Tradition



Learning at the
Foot of the Master



Oral Tradition in 1921

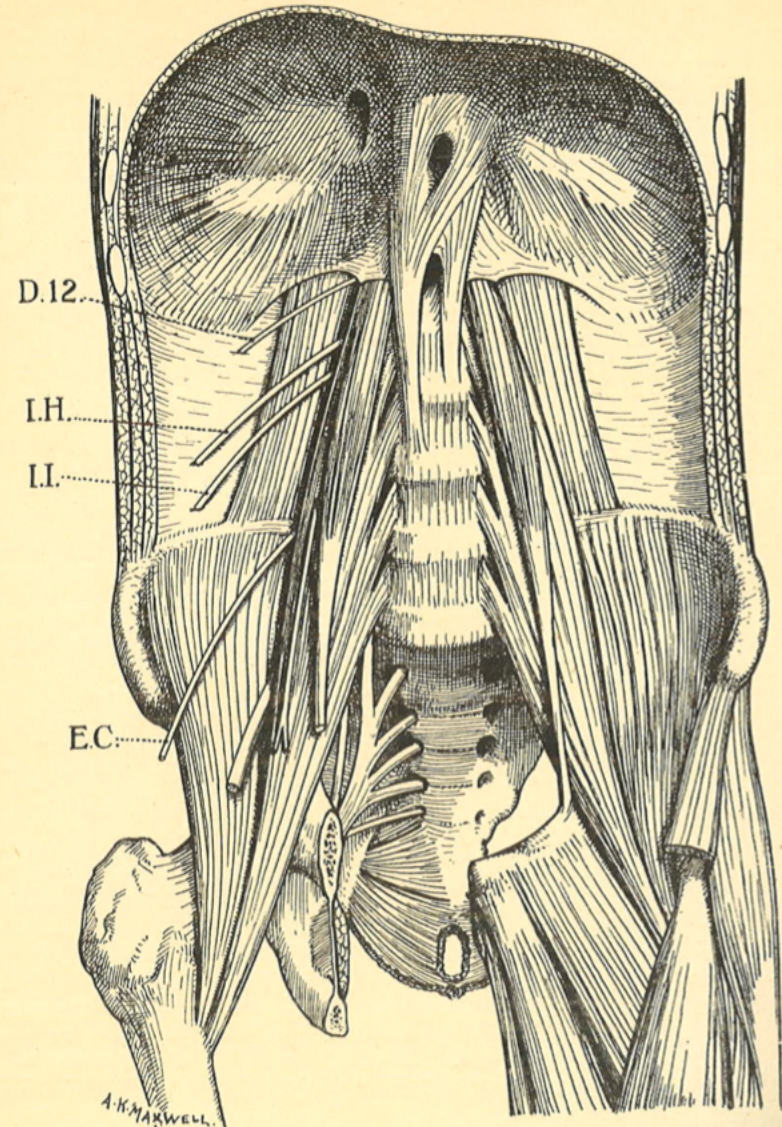
OXFORD MEDICAL PUBLICATIONS

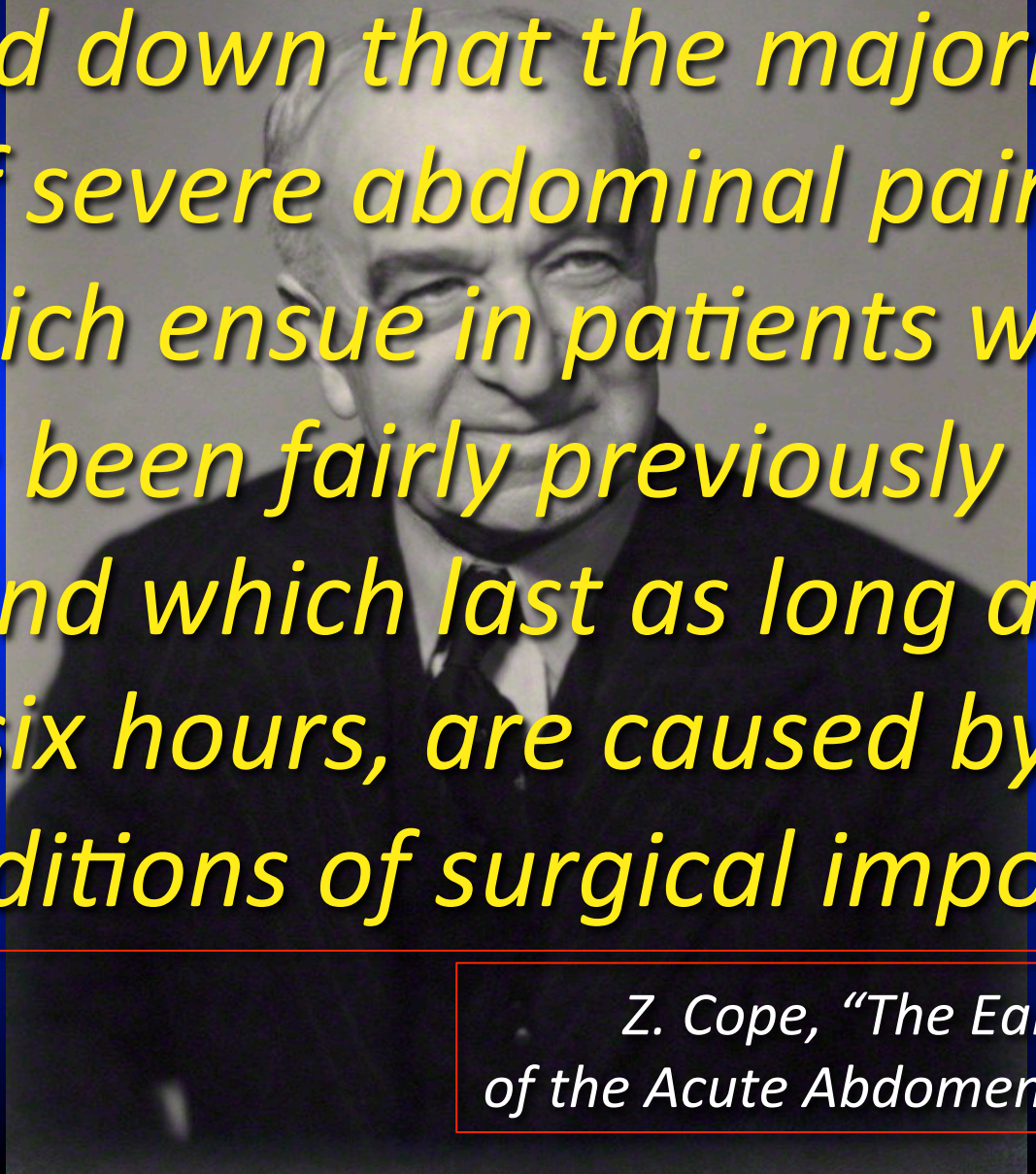
THE EARLY DIAGNOSIS
OF
THE ACUTE ABDOMEN

BY
ZACHARY COPE

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

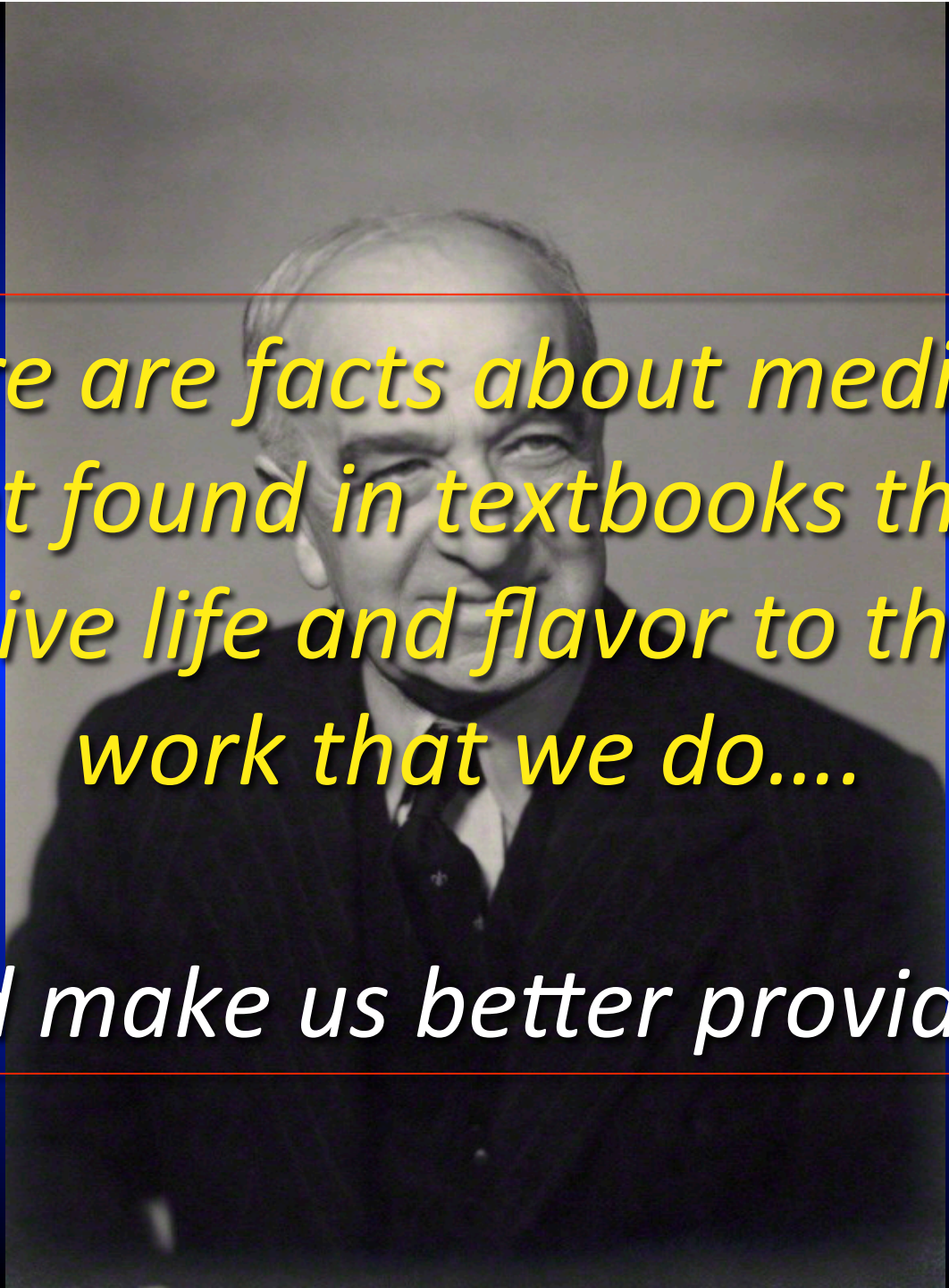
SURGEON TO ST. MARY'S HOSPITAL, PADDINGTON; SENIOR SURGEON TO THE BOLINGBROKE
HOSPITAL, WANDSWORTH COMMON; LATE HUNTERIAN PROFESSOR, AND ARRIS AND GALE
LECTURER, ROYAL COLLEGE OF SURGEONS



A black and white portrait of Z. Cope, a man with glasses, wearing a suit and tie, looking slightly to the right. The portrait is centered in the background of the slide.

“The general rule can be laid down that the majority of severe abdominal pains which ensue in patients who have been fairly previously well, and which last as long as six hours, are caused by conditions of surgical import.”

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

An illustration of two men in classical attire. On the left, a younger man with dark hair, wearing a white tunic and a brown cloak, stands with his back to the viewer, looking towards the other man. On the right, an older man with a white beard and hair, wearing a white tunic and a white cloak, stands facing the younger man. He has his right hand raised in a gesture of teaching or explanation. The background is dark and textured. The entire scene is set against a blue gradient background.

The Mentor as Educator

- *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...



Hmmmm....

te
a to

as
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

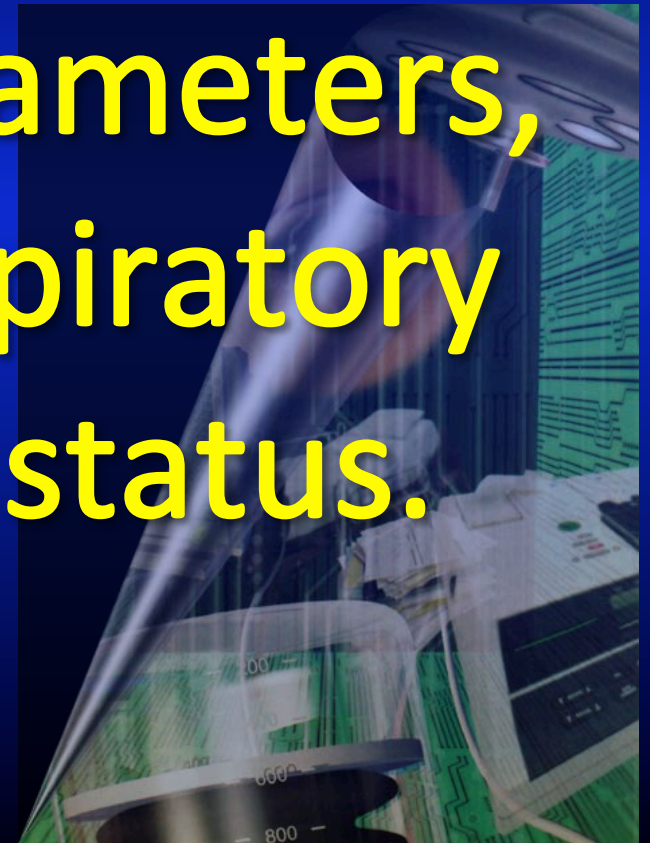
A photograph of a hospital room. In the foreground, a patient is lying in a hospital bed, covered with a white sheet. The room is filled with medical equipment, including a red cart, a sink, and various monitors. A window with a view of the outdoors is visible in the background. The lighting is somewhat dim, typical of a hospital room.

**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.**



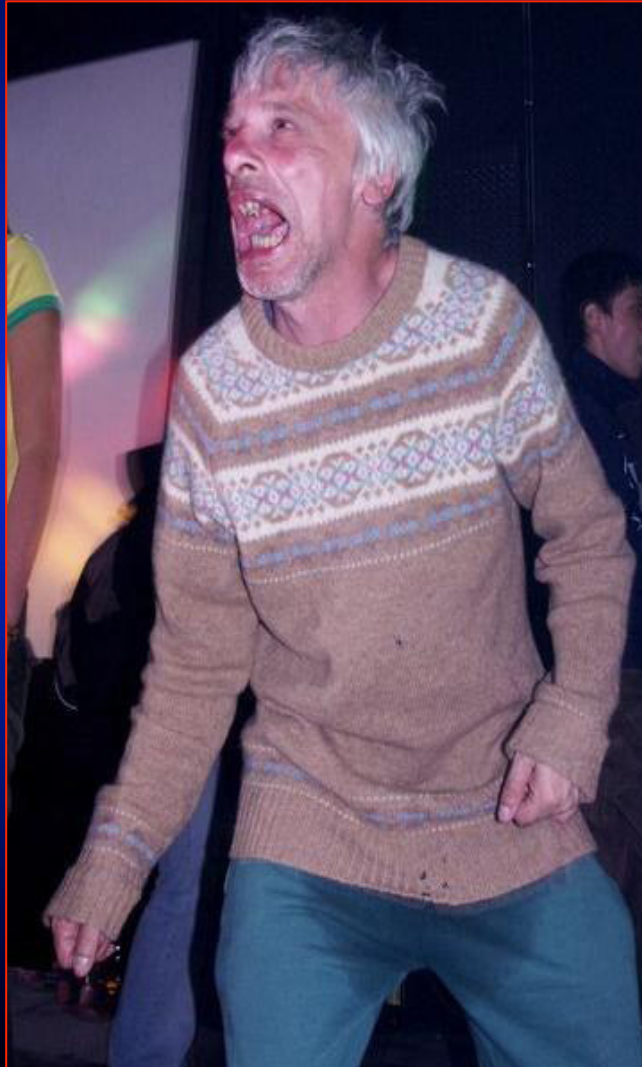
“I Can’t Catch My Breath”



Injured Person?



Psychiatric Problem?



A photograph of the interior of an ambulance. Two paramedics are attending to a patient lying on a stretcher. The ambulance has emergency lights on the roof, and the interior is brightly lit. The text "We learn from our Experiences:" is overlaid in yellow with a white outline.

**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

Observation



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
- Fowler’s Law: Never try to explain away a result...
- 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

A photograph of a homeless man with a long, full, reddish-brown beard and a dark cap. He is holding a large, rectangular cardboard sign in front of his chest. The sign has handwritten text in black marker. The background is a blurred outdoor setting, possibly a street or parking lot, with a red and white striped marker visible on the right side.

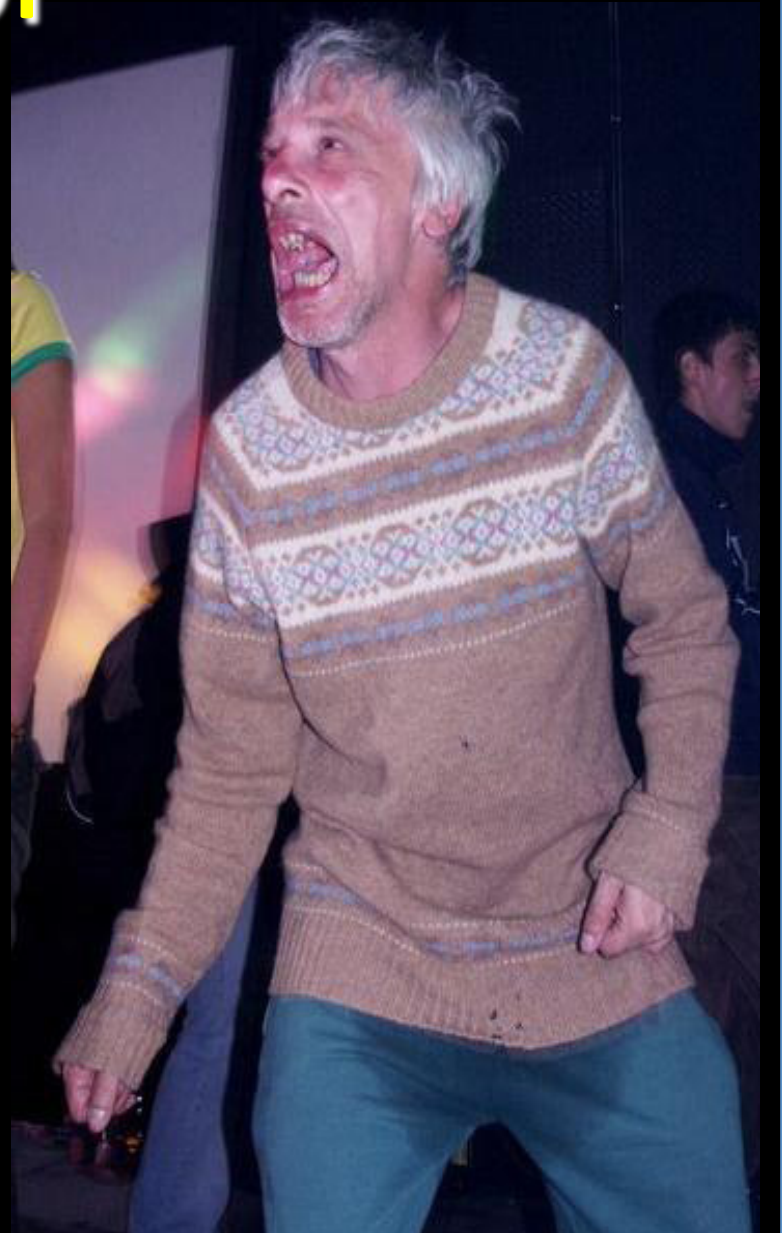
HOMELESS
BILL
NEEDS
RICH
WOMAN

Psych-Out Error

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

...and...

WE GET ANGRY

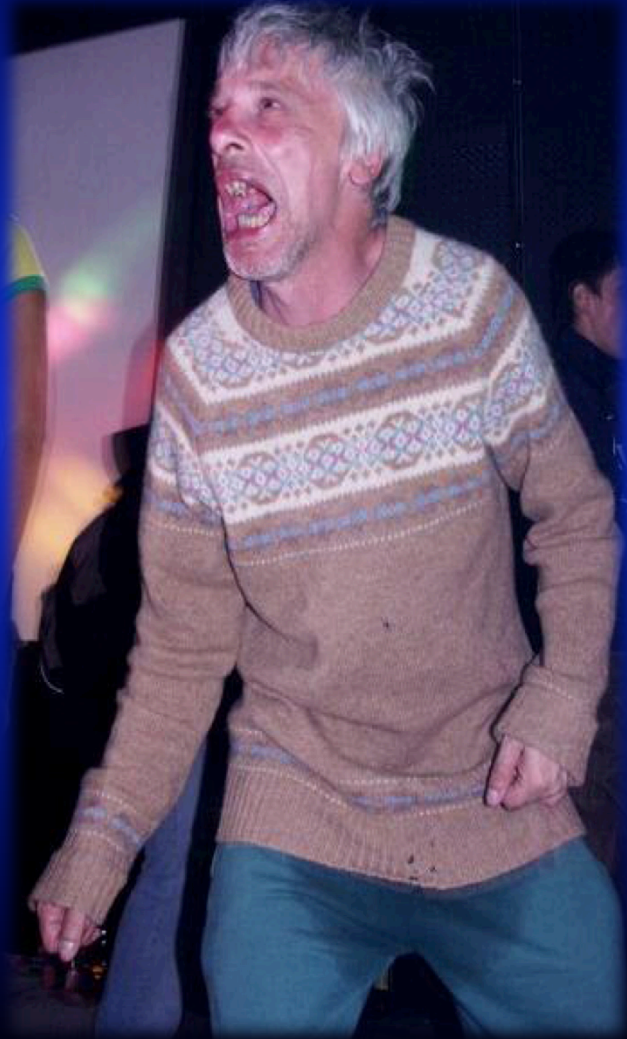


Psychiatric Problem



- *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.*

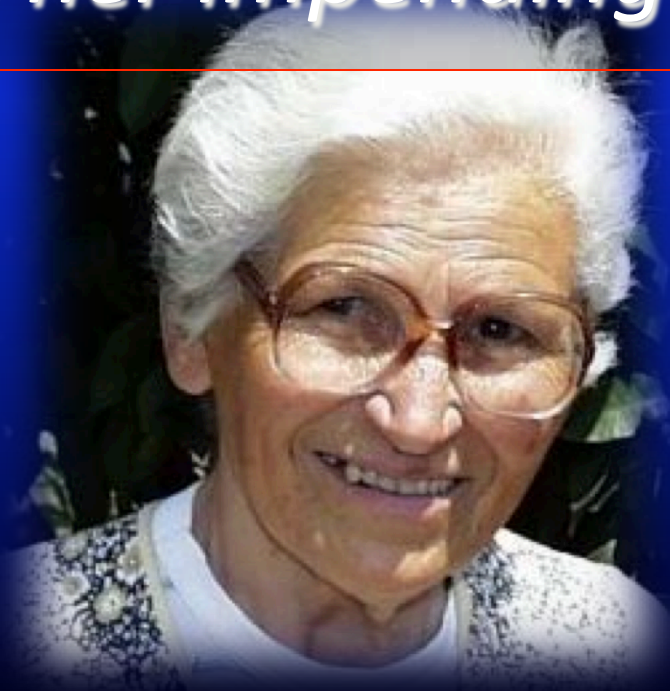
Gender Bias

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*



The background of the slide features a dark, textured surface. In the center, there is a large, dark-colored anchor with a rope coiled around its base. To the left of the anchor, a pair of surgical forceps is visible, with its handles extending upwards and outwards. The overall lighting is dramatic, highlighting the metallic and rope textures against the dark background.

Anchoring

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

The background of the slide features a dark, textured surface. In the center, there is a large, weathered wooden log. Behind the log, a metallic anchor is visible, with its shank and flukes extending outwards. The lighting is dramatic, highlighting the textures of the wood and metal against the dark background.

Anchoring

*After all...
It takes “mental work”
to let go of an initial
impression and keep looking
for causes to the problem*

The background of the slide features a dark, textured surface. In the center, there is a large, dark-colored anchor with a thick, braided rope coiled around its base. The anchor is positioned diagonally, with its shank pointing towards the upper left and its flukes pointing towards the lower right. The rope is thick and has a prominent twisted texture. The overall lighting is dramatic, highlighting the metallic sheen of the anchor and the texture of the rope against the dark background.

Anchoring

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

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Are you headed in the right direction?
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CPAs & Advisors

Healthcare Business News



Study notes risk of under-triage for elderly

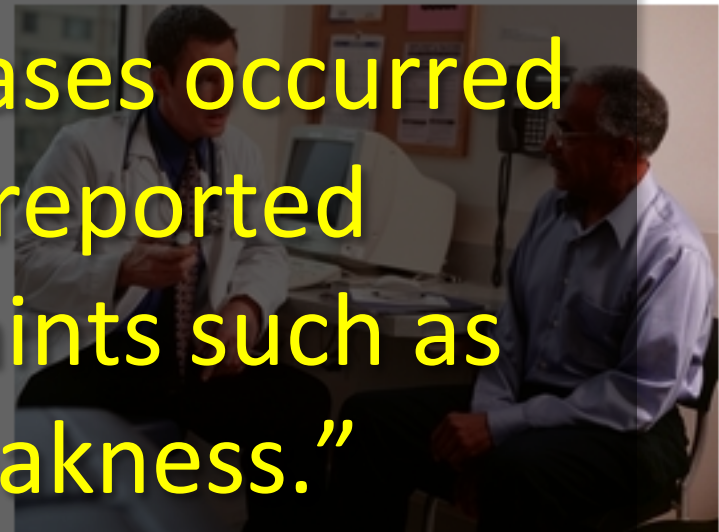
By Jaimy Lee

Posted: March 8, 2012 12:30 pm ET

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.

“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.”

The background of the slide features a dark, textured surface. In the center, there is a large, dark-colored anchor with a thick rope coiled around its base. A magnifying glass is positioned behind the anchor, with its handle extending towards the top left and its lens pointing towards the center. The overall lighting is dim, creating a somber and focused atmosphere.

Anchoring

*Critical thinking
means*

*“Critically Watching
and Waiting....*

....and being suspicious”

An anchor with a wooden post and rope on a dark background. The anchor is positioned diagonally, with the post on the left and the flukes on the right. The rope is coiled around the post. The background is a dark, textured surface.

Anchoring

...and ALWAYS

being a

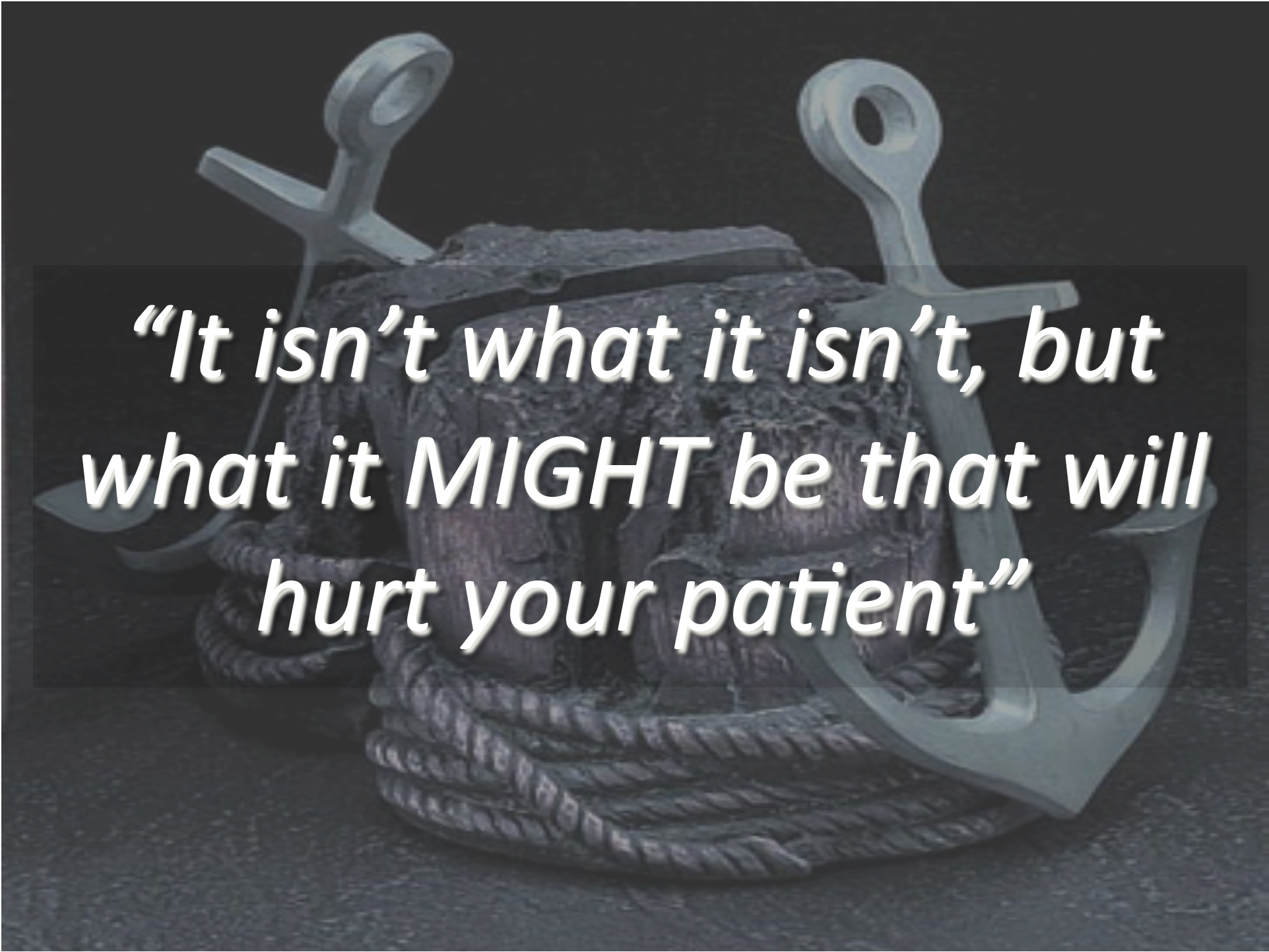
FIERCE ADVOCATE

for the patient's

total spectrum of needs

A still life composition of nautical items. In the center is a large, dark, textured anchor. To its left is a compass with a circular lens. To its right is a sextant. In the foreground, a thick, braided rope is coiled around the base of the anchor. The background is dark and textured. The word "ALWAYS" is overlaid in large, white, sans-serif capital letters across the middle of the image.

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

A red and white Irish Coast Guard rescue helicopter is shown in flight against a cloudy sky. The helicopter has "IRISH COAST GUARD" and "COAST GUARD RESCUE" written on its side. The background is a snowy, hilly landscape.

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

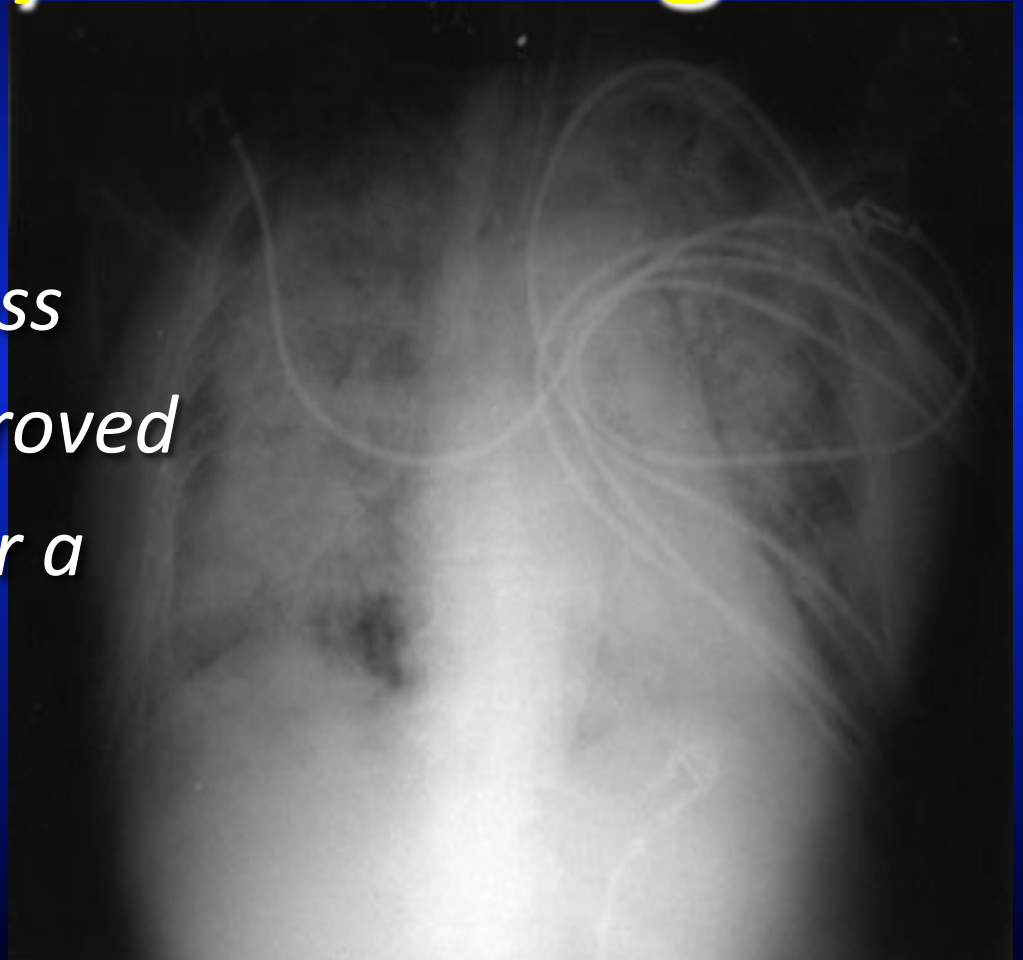
Search Satisfying

*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

- *Psychoped* **Think About**
- *Anchoring* **the Whole Patient**
- *Diagnosis Momentum*
- *Chem* **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 somewhere to let that
Doc give them the answer...*



The Differential Diagnosis

“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

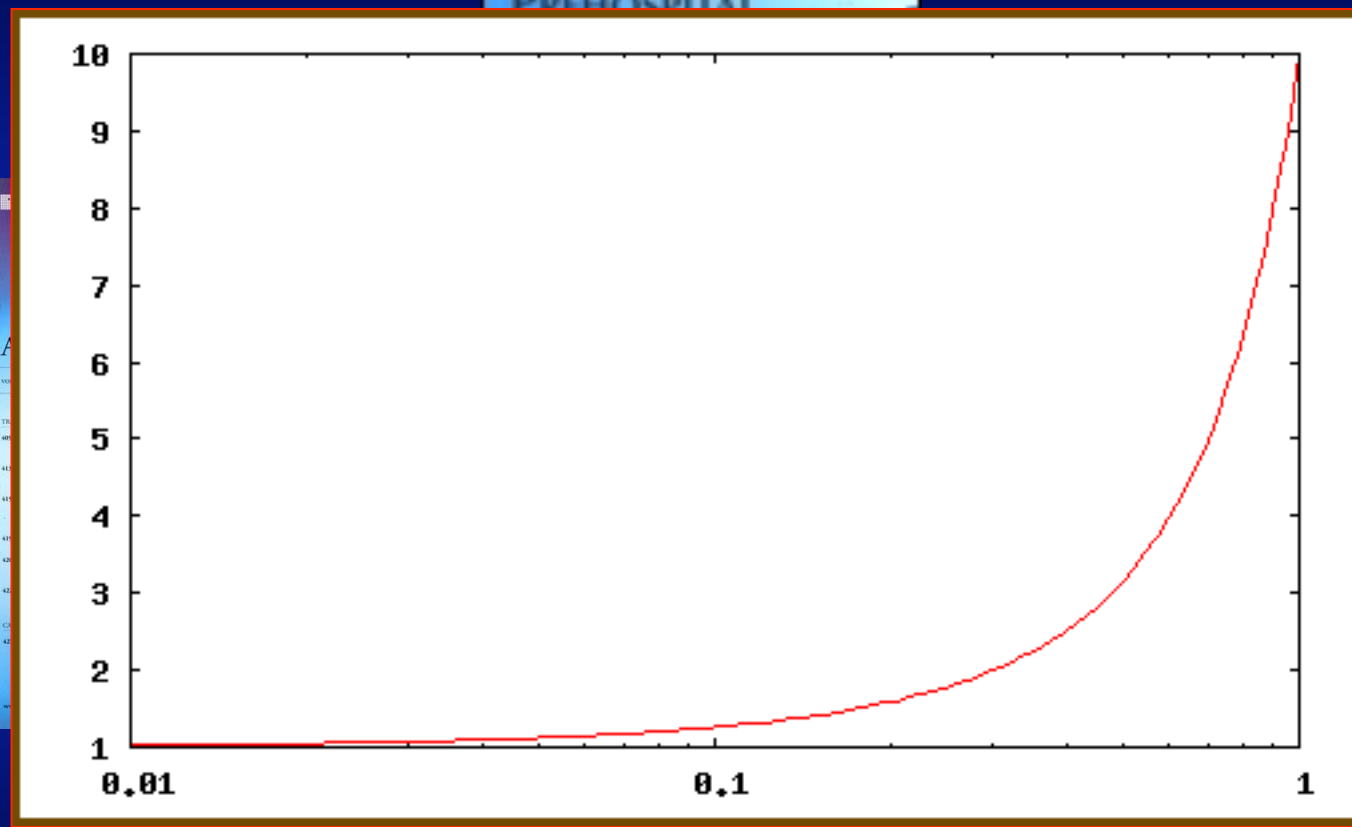
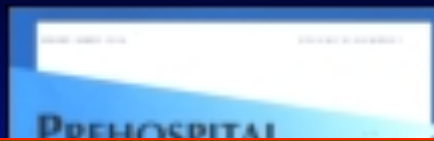
The Advance of Evidence

*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

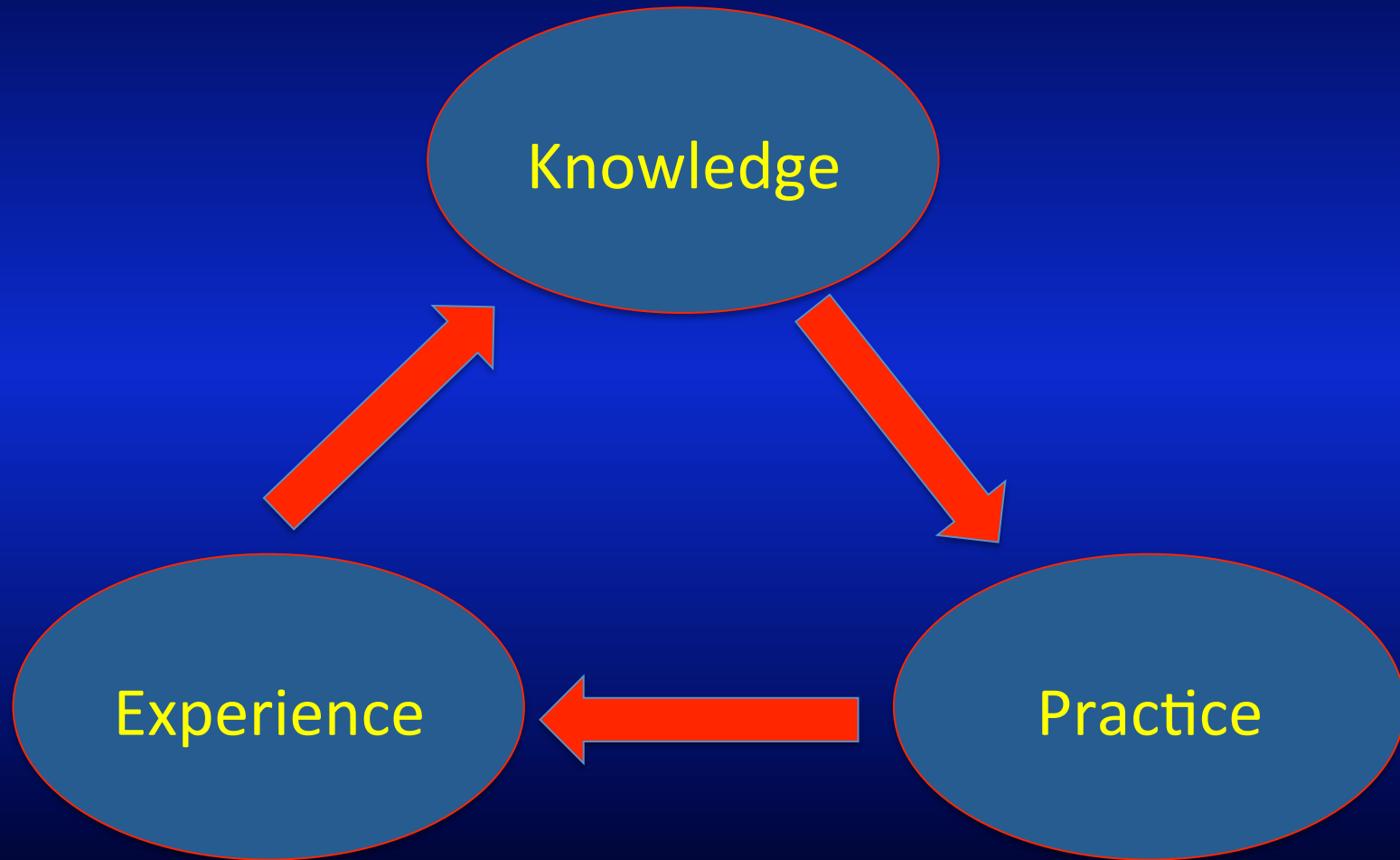
**Commitment to Medicine
is a commitment to
lifelong learning
and discovery**



A
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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*

www.rayfowler.com

