Charting the Course to Improved Medical Diagnosis

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SOCIETY to IMPROVE DIAGNOSIS in MEDICINE

Better Outcomes Through Better Diagnosis

Disclosures: None

- **Goals: Discuss …..**
- **The main findings of the IOM report: "Improving Diagnosis in Health Care"**
- **Why, where, and often diagnostic errors occur**
- **How to address diagnostic error – the role of physicians, patients and healthcare organizations**

Survey

Think of yourself and your immediate family.

Have you experienced one of these 3 things?

- **Someone was given a diagnosis that was wrong**
- **Someone was given the right diagnosis, but it should have been made much earlier**
- **Someone has a medical condition that STILL has not been diagnosed?**

Why Should I Care About Dx Error?

Dollars and cents

- **Each malpractice case = $300,000**
- **A third of healthcare dollars are wasted – a large fraction could be diagnostic errors**

Your organization's reputation

The next case could be YOU or your FAMILY

WHO WE ARE: Non-profit physician-led organization. Members: MD's, Patients, safety experts, educators, researchers, insurers, payers, regulators

VISION: We envision a world where diagnosis is timely, accurate, reliable, efficient, & SAFE. We are the ONLY safety organization focused on this problem.

ACTIVITIES: Annual Conference: Diagnostic Error in Medicine; Newsletter; Listserv; IOM report

DIAGNOSTIC ERROR IN MEDICINE

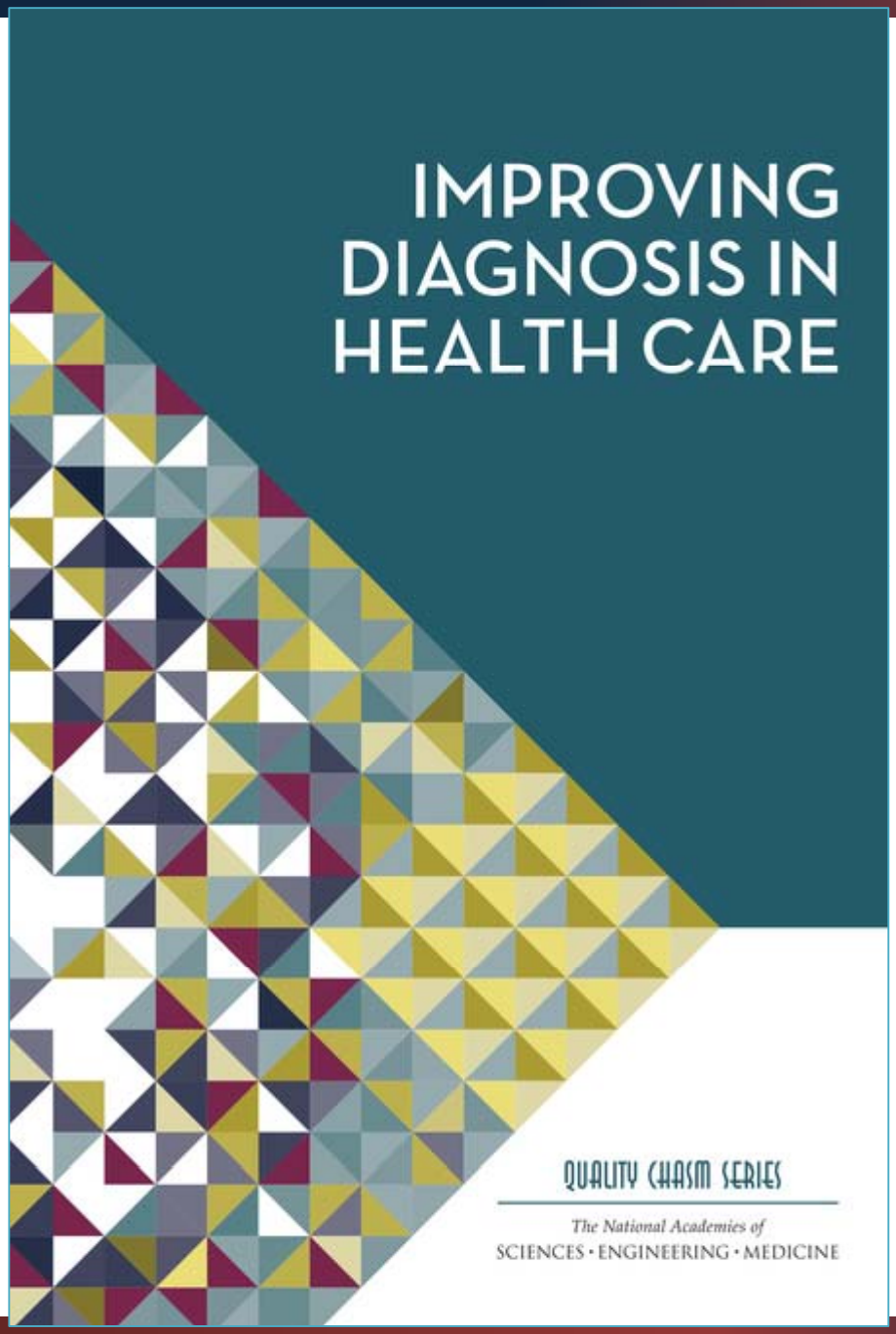
10TH INTERNATIONAL CONFERENCE

October 8-10, 2017
Boston Marriott Newton
DEMConference.org

IMPROVING DIAGNOSIS: IT TAKES A TEAM

SOCIETY to IMPROVE DIAGNOSIS in MEDICINE

Better Outcomes Through Better Diagnosis



http://nas.edu/improvingdiagnosis

Knowing is not enough, we must apply
Willing is not enough, we must do

YOU

Recommendations

Practice Improvement

The Bad News and the Good

Bad

- Your plate is already full
- There are a LOT of diagnostic errors out there

Good

- You won't be seeing any new performance measures on these any time soon
- You know how to do this – process improvement

Conclusion

Diagnostic errors are a significant but underappreciated challenge to health care quality

- **Getting the right diagnosis is a key aspect of health care: it provides an explanation of a patient's health problem and informs subsequent health care decisions**

- **Diagnostic errors persist through all settings of care and harm an unacceptable number of patients**

Definition of Diagnostic Error

The failure to:

(a) establish an **accurate** and **timely** explanation of the **patient's** health problem(s)

or

(b) **communicate** that explanation to the **patient**

The single biggest problem in communication is the illusion that it has taken place. *George Bernard Shaw*

Low Hanging Fruit:
Test Result Communication

52 %

Primary care providers have NO system to track tests ordered *Poon, et al. Arch Intern Med. 2004;164(20):2223-2228*

8 %

Critical lab abnormalities never followed *up Singh et al. Arch Intern Med 2009;169(17):1578-86.*

62 %

Tests results that return after discharge that PC provides are unaware of *Roy et al Ann Intern Med. 2005;143(2):121-8.*

What is the number ??

1 in 10 diagnoses are wrong (secret shoppers)

40,000 – 80,000 deaths (autopsy data)

1 in 3 people surveyed have experienced a dx error (survey)

Most common cause for a malpractice claim (CRICO, VA, KP)

1 in 20 patients will experience a dx error every year (chart review)

The Toll of Dx Error

US

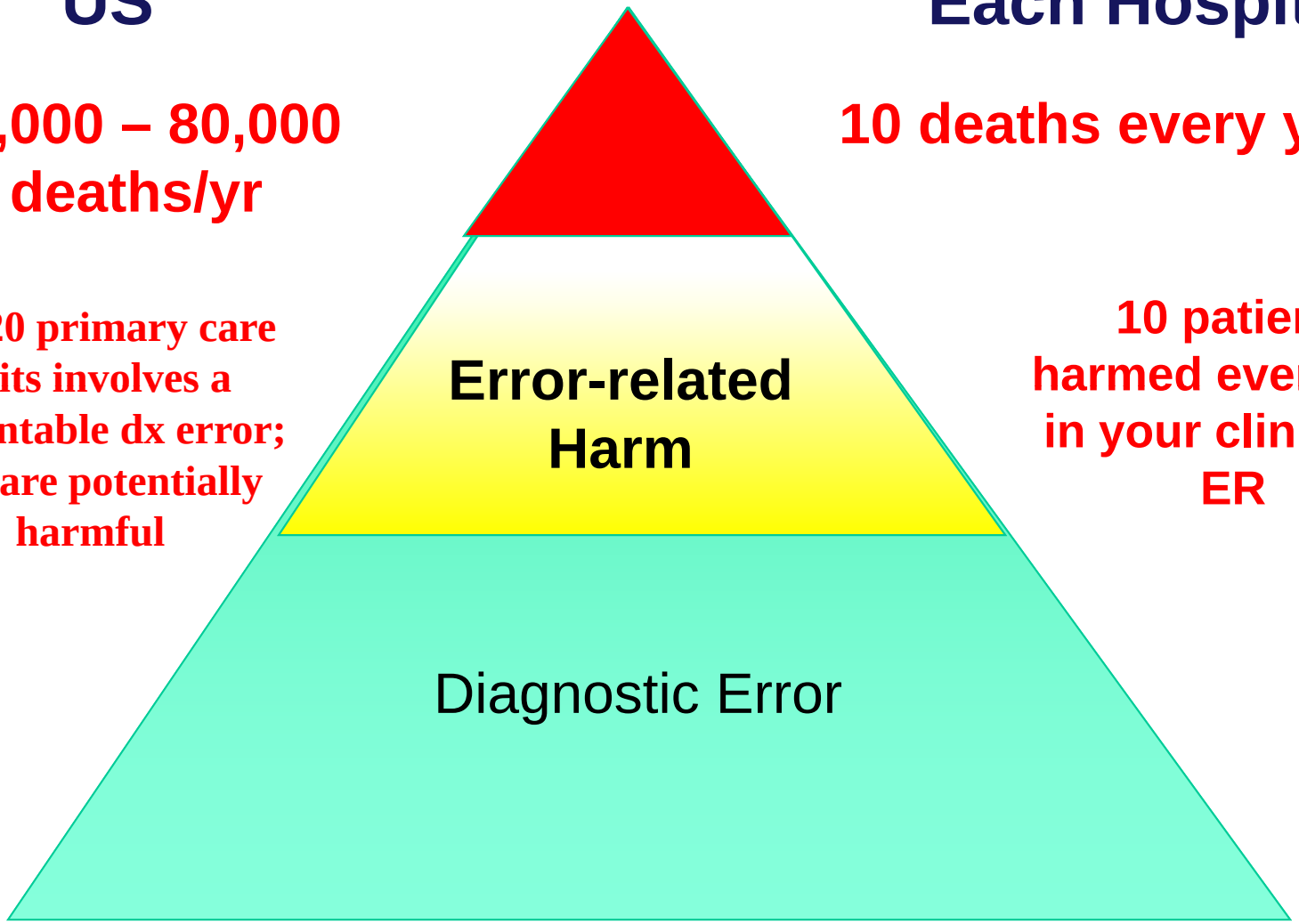
40,000 – 80,000 deaths/yr

1 in 20 primary care visits involves a preventable dx error; half are potentially harmful

Each Hospital

10 deaths every year

10 patients harmed every day in your clinics or ER

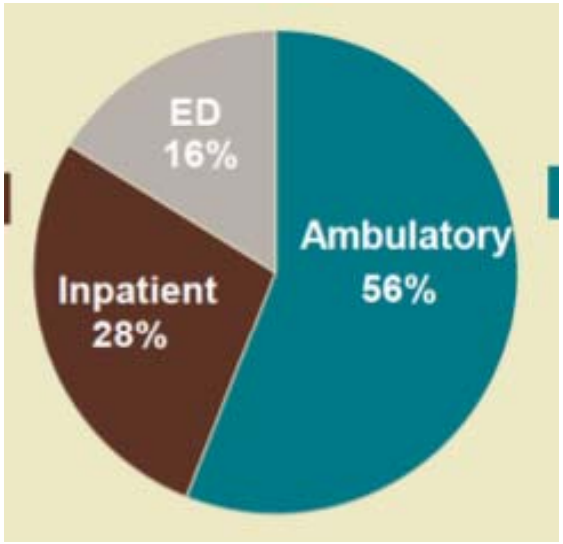


Leape et al. JAMA 288:2405, 2002
Singh et al. BMJ Qual Safety 21: 93-100, 2012

IOM:

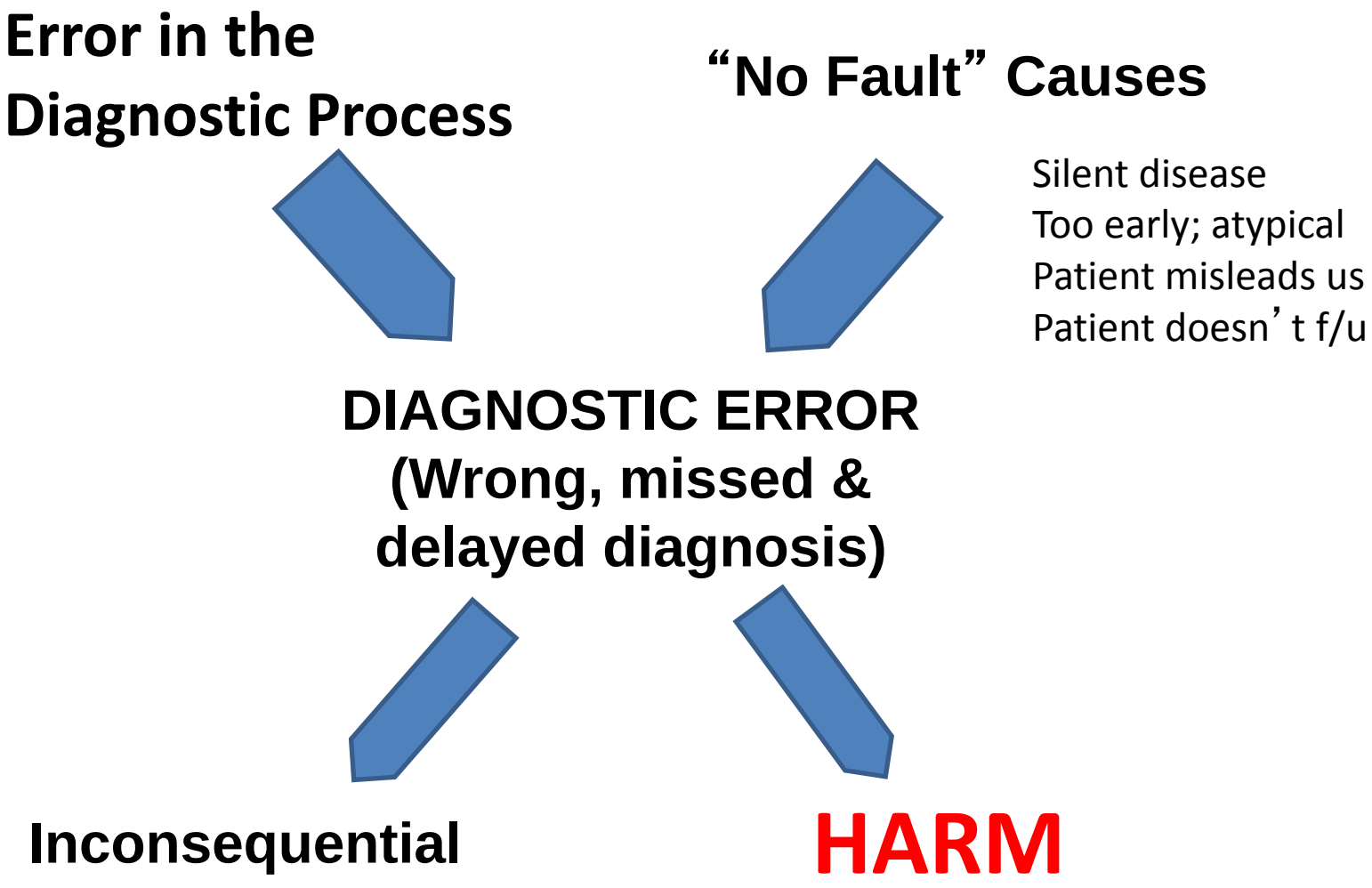
“It is likely that most of us will experience at least one diagnostic error in our lifetime, sometimes with devastating consequences.”

Where do they happen?



CRICO - Analysis of 4519 claims related to diagnostic error

Ambulatory care clinics Its NOT just rare conditions. Dx errors are COMMON in patients with anemia, asthma, COPD


Error in the Diagnostic Process
"No Fault" Causes
Silent disease
Too early; atypical
Patient misleads us
Patient doesn't f/u
DIAGNOSTIC ERROR (Wrong, missed & delayed diagnosis)
Inconsequential
HARM

Diagnosis is HARD !

PATIENT VARIABLES

Stage of disease
How it manifests
How it is perceived
How it is described
When help is sought

SYSTEM COMPLEXITY

Disjointed care
Communication barriers
Production pressure
Tight coupling
Access to care & expertise

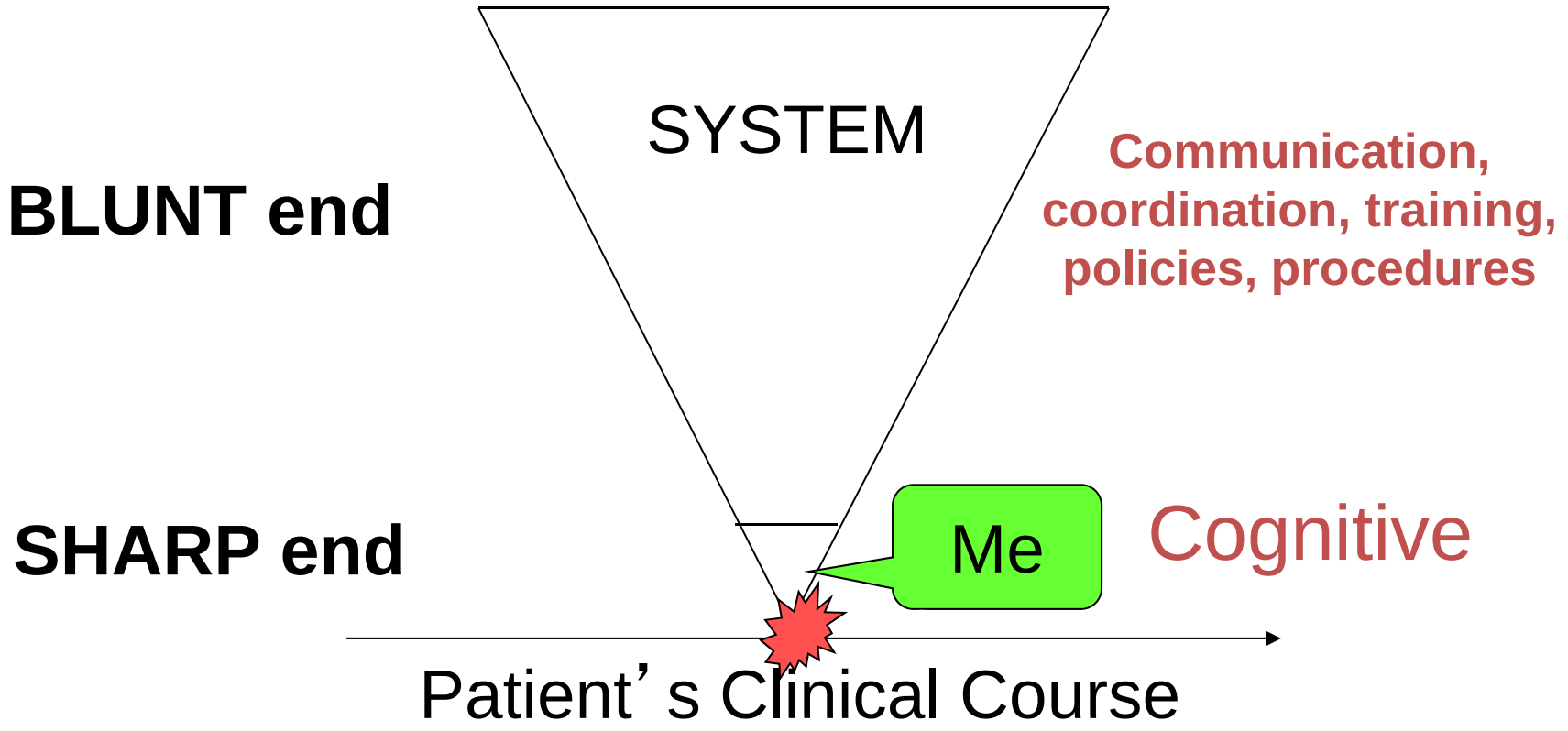
PHYSICIAN VARIABLES

Knowledge and experience
Access to patient data, tests, consults
Skill in clinical reasoning
Stress, distractions, mood, time to think

10,000 Diseases 5,000 Lab Tests

Why do they happen?

100 cases – 535 root causes
Graber et al. Arch Int Med 165:1493-9, 2005



In 100 cases of dx error, the most common system errors (n = 215) were:

TYPE	EXAMPLE
Communication	Critical lab abnormality lost
Coordination of care	Medical records aren't available
Expertise available	No Radiologist on nights
Culture of safety	No system to find dx errors
Supervising trainees	Trainee errors on weekends
Workload, stress, distractions	Short exam: missed a key finding
Reliability of lab, X-rays	Small lung nodule missed on X-ray
Staff – training, dedication, competency, compatibility	Residents mis-read chest X-ray on PACS system

Normalization of deviance

The Case: Rory Staunton

Wednesday:

12 year old boy

3 days earlier: Scraped knee

Wakes from sleep:

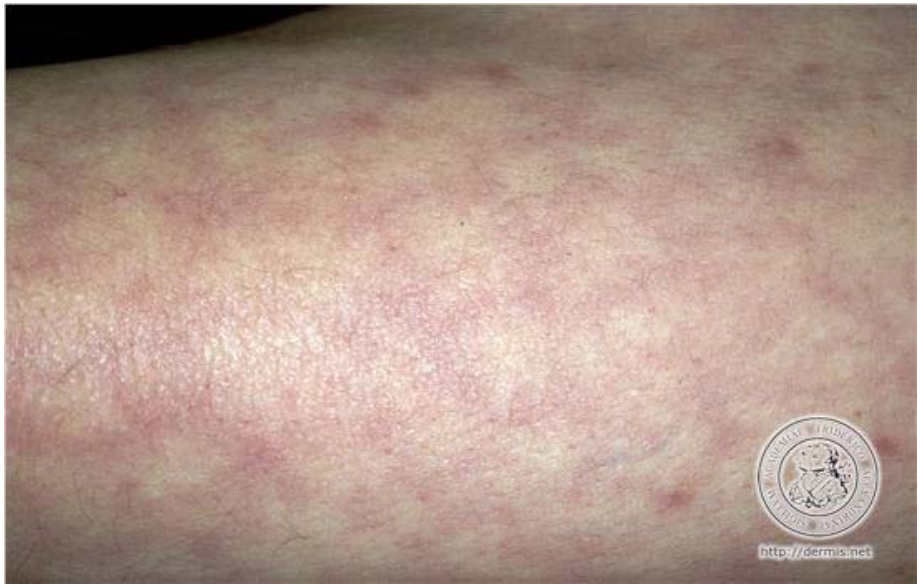
Feels sick, chills, vomiting,

pain at the abrasion site

Thursday, 6 PM – Pediatrician

Feels worse; Family calls Pediatrician

- CC: vomiting, fever, weak, leg pain
- PE: T102; HR 140; RR36; BP 100/60
  - Skin: mottled; Abd benign
- ASSESSMENT: Gastroenteritis; Call made to ER



Thursday, 9 PM – Emergency Dept

- PE: T 100; HR 143; RR 20; BP 94/46
  - Abd benign; No skin exam documented
- ASSESSMENT: Gastroenteritis
- LABS: (Return after discharge): WBC 14.7 with 53% bands
- ASSESSMENT: Gastroenteritis
- PLAN: Zofran, NS IV 1 L, home

Friday:

- Sx: fever, feels sick, skin sensitive to touch, turning splotchy and blue with red spots
- Family calls Pediatrician multiple times: Advised Tylenol

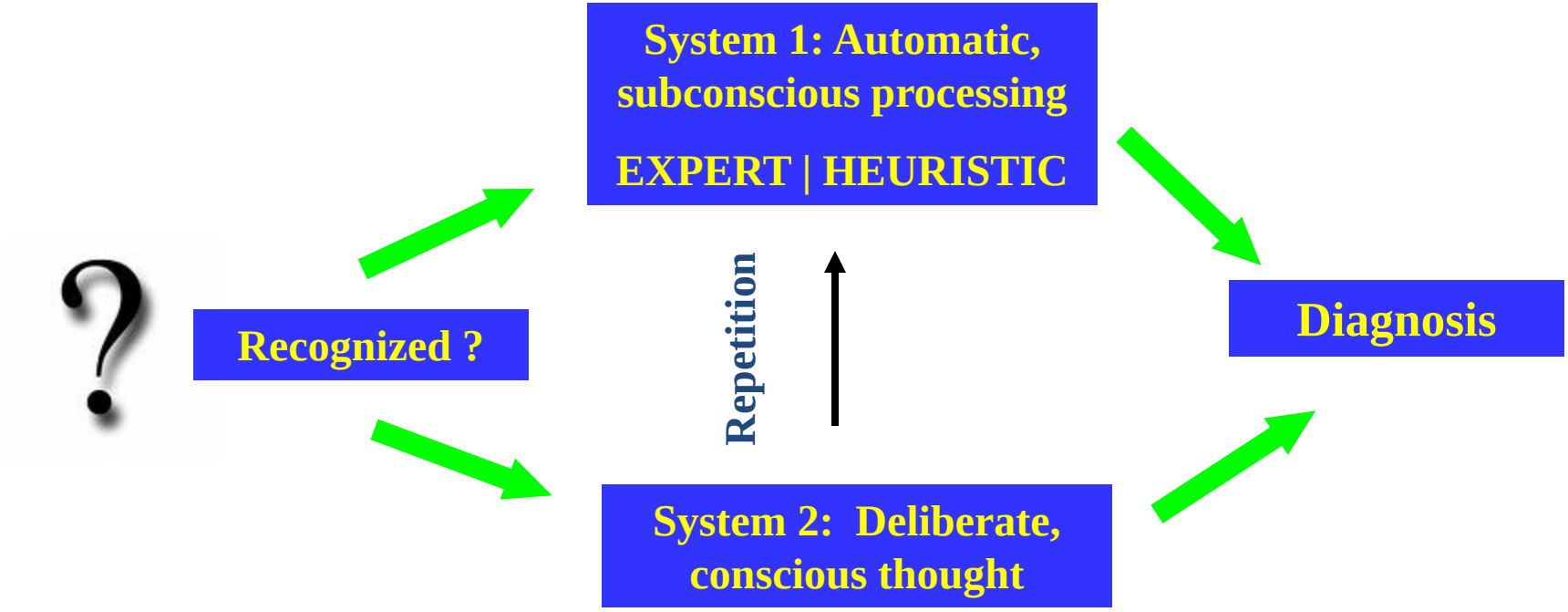
Saturday:

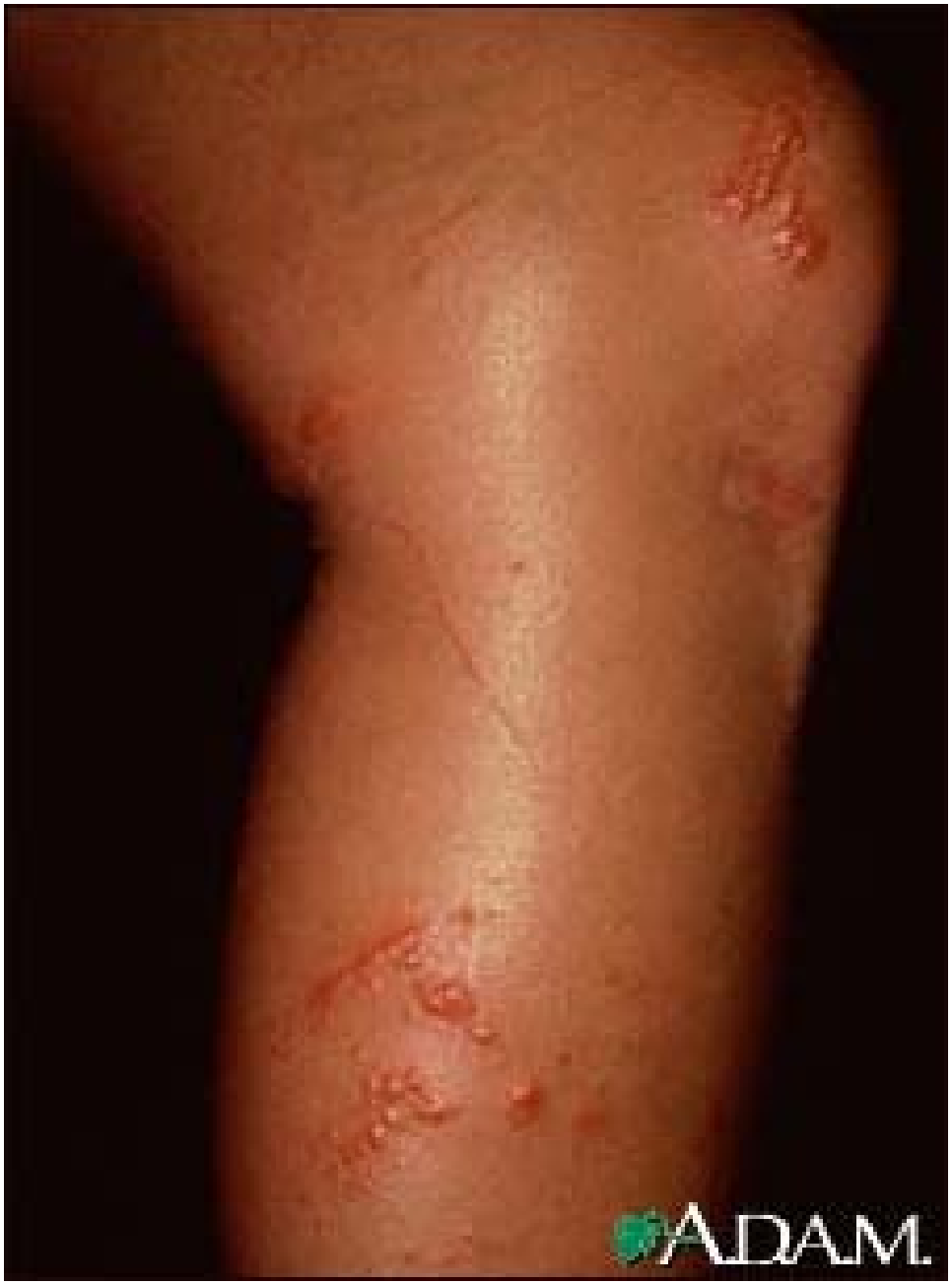
- Returns to ER, admitted to ICU;
- Dx = Strep sepsis.

Sunday: **Dies in the ICU**

How Do Doctors Think ?

How Do Doctors Think ?


System 1: Automatic, subconscious processing
EXPERT | HEURISTIC
Recognized ?
Repetition
Diagnosis
System 2: Deliberate, conscious thought



This past weekend the patient was clearing brush from his back yard, wearing shorts. He now has a very itchy rash: vesicles, linear, just where his skin was exposed.

1. **Morphea**
2. **Chicken pox**
3. **Poison Ivy**
4. **Pemphigoid**

Think about the letter “R”. Which is more common?

A. R as the FIRST letter of a word ?

B. R as the THIRD letter of a word ?

High Stakes Testing
Blink or Think?

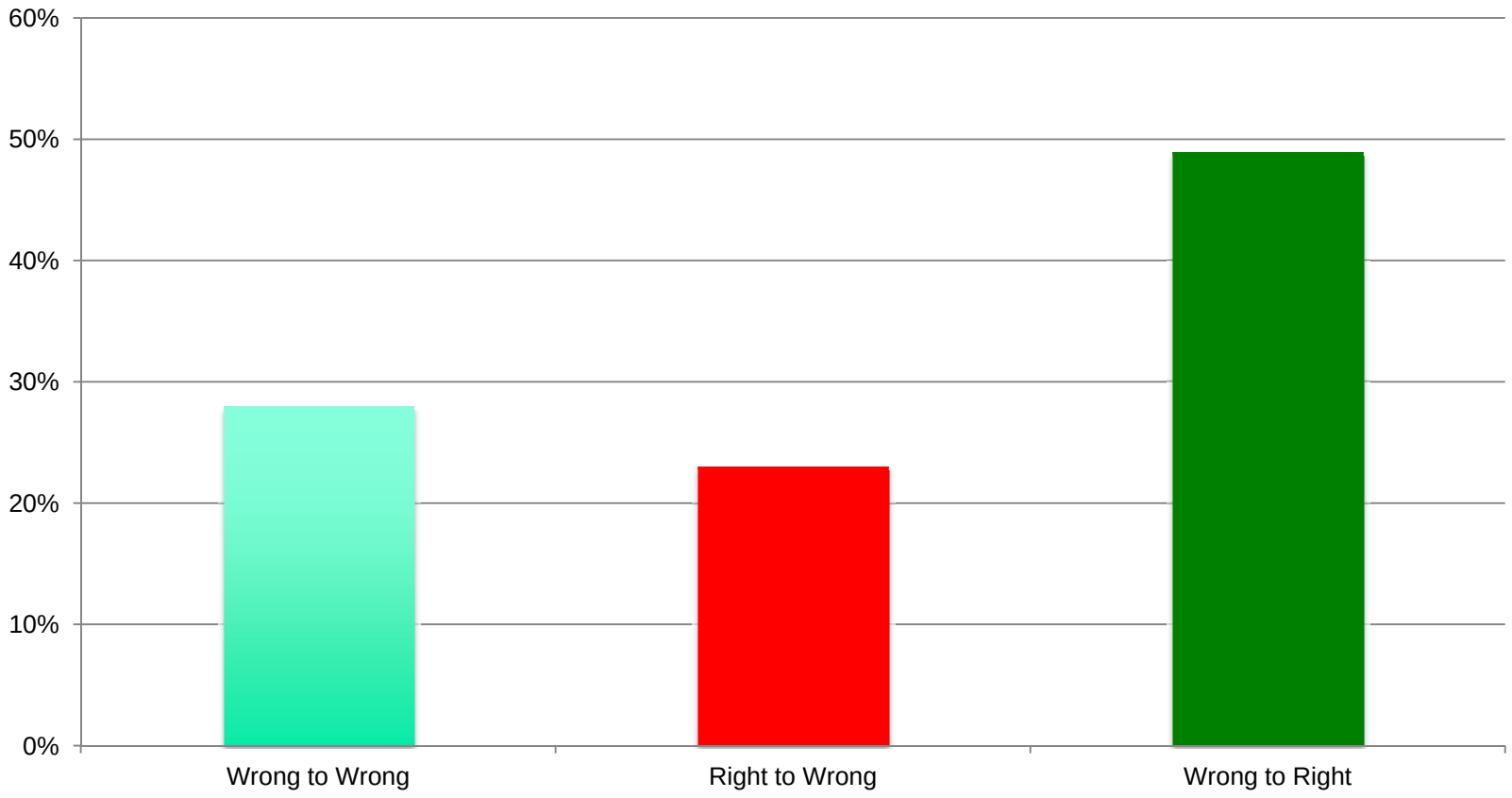
The gestation period of the Asian elephant is …..

4 months
8 months
12 months
18 months
24 months

What advice did you receive to get the best score on multiple choice tests?

A. Trust your intuition

B. At the end of the test, go back and reconsider the questions you weren't sure about



Wrong to Wrong

Right to Wrong

Wrong to Right

							% of answers changed		
AUTHOR	YEAR	SETTING	# Students		Total Questions	% Changed	Wrong to Wrong	Right to Wrong	Wrong to Right
Davis	1929	College Education Courses	28	MC	22000	2.50%	26%	21%	53%
Shahabudin	1929	Not stated	> 262	T\F	21903	2.90%		34%	66%
Bath	1967	College Psychology Courses	77	MC	7700	4.30%	20%	20%	60%
Mathews	1975	1st & 2nd Year Medicine Courses	188	MC	11630	5.40%	22%	20%	58%
Lowe and Crawford	1983	2nd Year Med Students: Physiology	353	MC	39380	4.60%	32%	22%	46%
Fabry and Case	1985	National boards: Ob\Gyn	692	Mix	123,175	3.80%	29%	23%	48%
ABIM	**2012**	**National boards: Internal Med**	**500**	**MC**	**40,000**	**12.00%**	28%	23%	49%

The RIGHT FOOT test …..

The RIGHT FOOT test …..

Lessons:

The intuitive, subconscious system that we trust so much is error prone and we know very little about it.

We should NOT trust it for diagnosis

Delayed Diagnosis of Sepsis

Cognitive Errors

- Knowledge: OK?
- Data collection: Incomplete
- Synthesis: Faulty

  Wrong context; Premature closure

System Errors

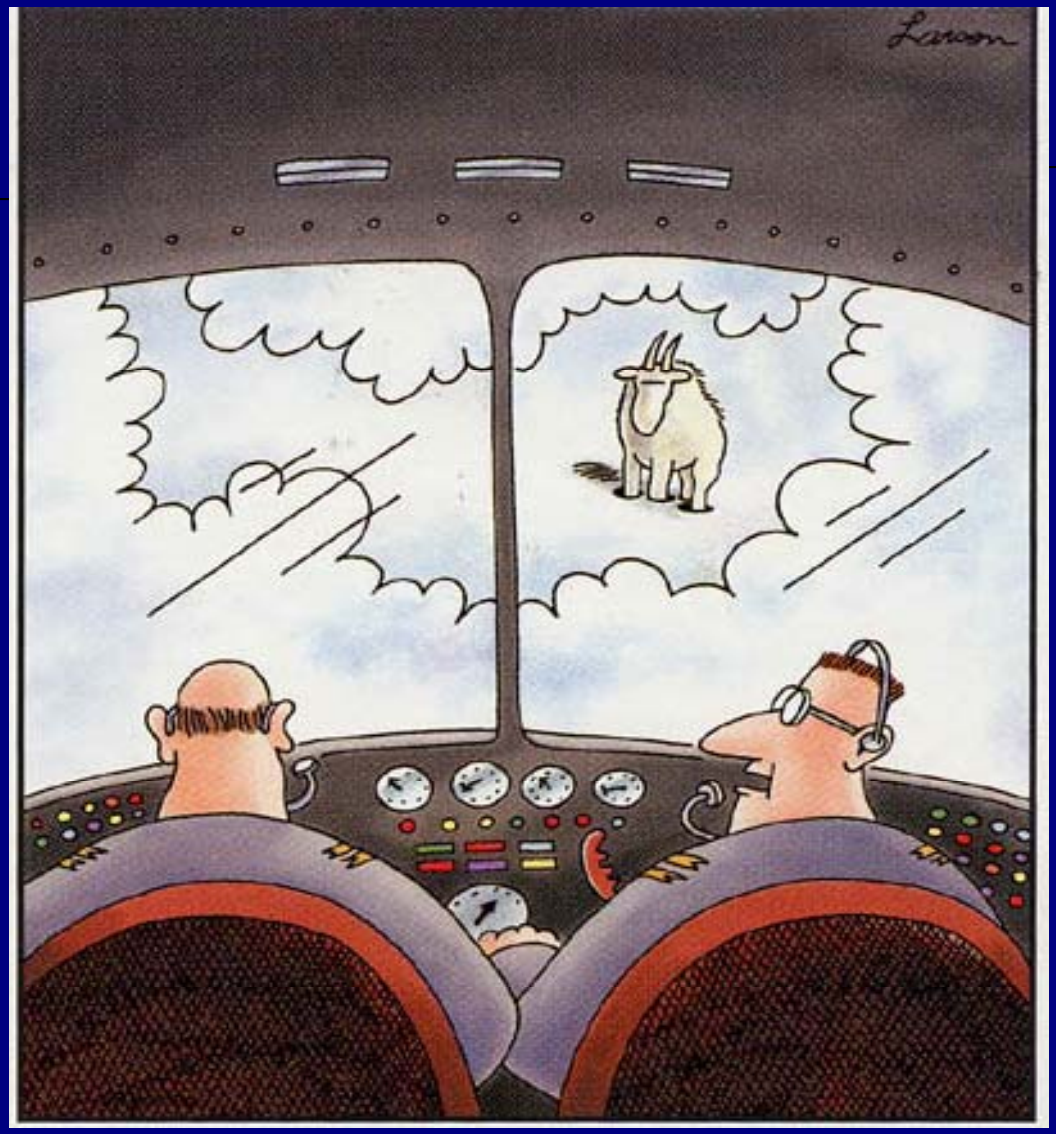
- Lab results not available fast enough
- Inadequate plan for follow-up
- No system to learn from errors

COGNITIVE ERRORS (n = 320)

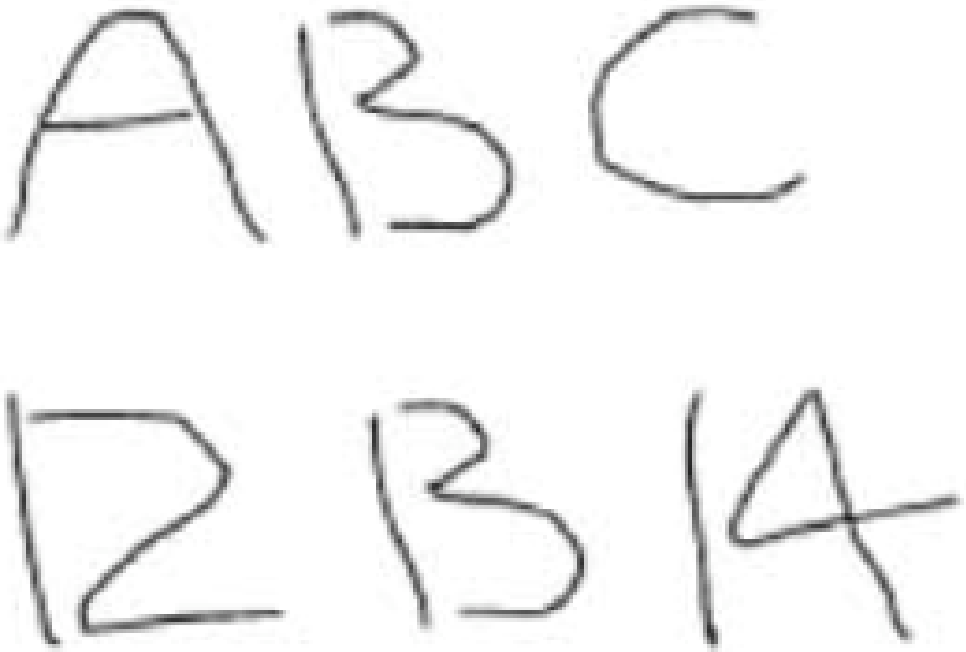
Most common:

- **Premature closure (39)**
- **Faulty context generation (26)**

And many many others ….



“ Say … What’s a mountain goat doing way up here in a cloud bank ?”


ABC
12B14

Premature closure = Satisficing

= Falling in love with the first puppy …

(Herbert Simon)

Diagnostic Errors

- Are common and cause enormous harm
- Errors happen wherever diagnoses are made: clinics, ER, inpatient settings
- Errors reflect the many shortcomings in our healthcare systems, and the limitations and of human cognition
- Are generally NOT being addressed

High Reliability	Diagnosis
Someone owns the process	No one owns the process
The pieces are integrated	Independent systems
Top priority is safety	Top priority is fiscal responsibility
Equivalent actors	Independent actors
Performance is predictable	Performance is variable
Measurement is king	Measurement doesn't exist
Culture: Resilient, safety oriented	Culture: Financial health is goal #1
Results: Six Sigma	**Results: One or Two Sigma**

So where are we ?

Hospitals:
Its not OUR problem !

Docs: Its not MY problem !

Oversight Organizations:
Its not OUR problem !

Who owns the diagnostic error problem?

PHYSICIANS - What can I do?

Be thoughtful and reflective

Learn why dx errors occur and how to avoid

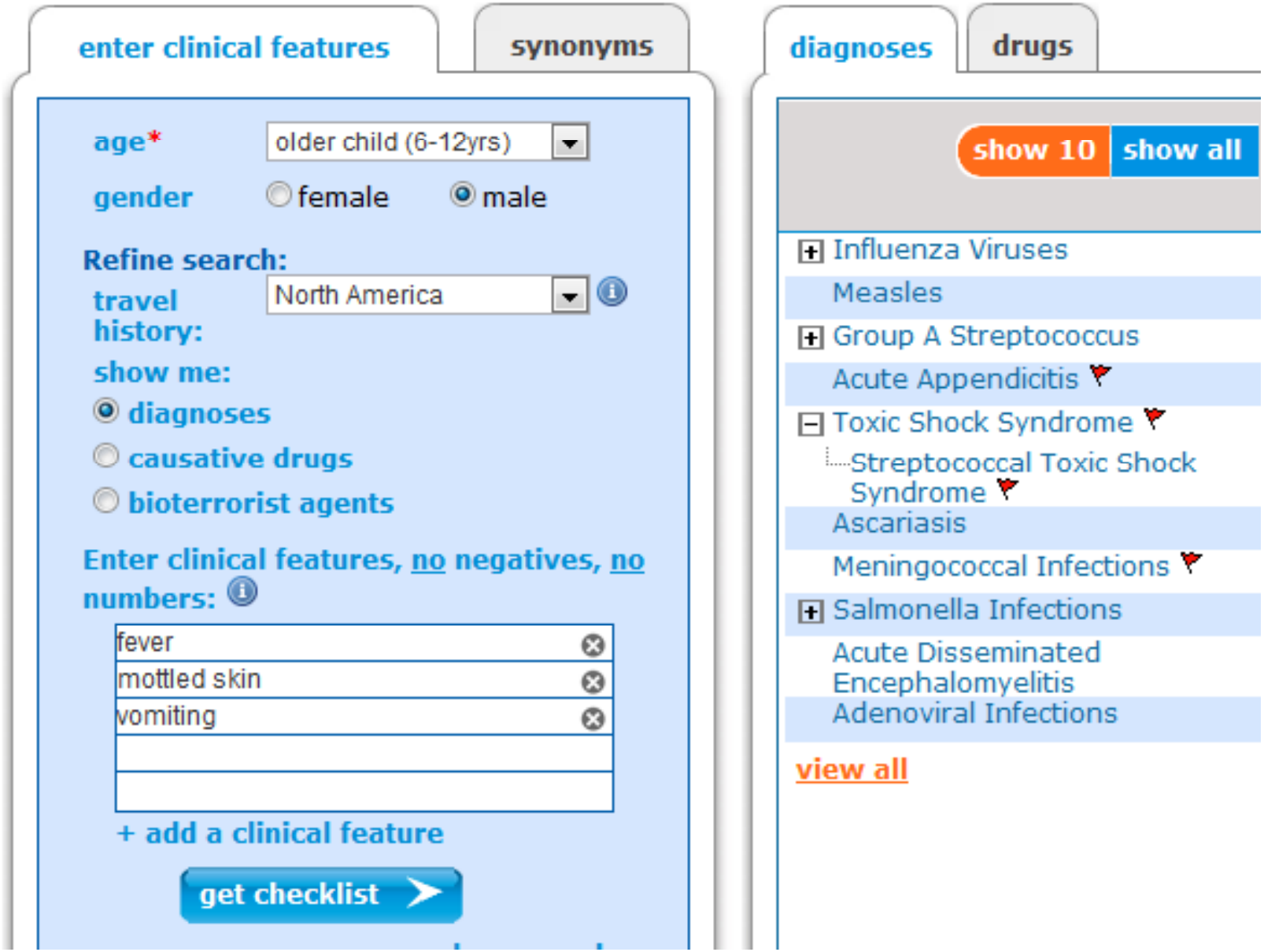
Always construct a differential diagnosis

Take advantage of second opinions

Use decision support resources

Make the patient your partner

Isabel – Isabelhealthcare.com



IMPACT OF ISABEL

Studied pediatric ICU admissions who did NOT have a diagnosis on admission (n = 206). Correct diagnosis rates:

- **Residents on their own: 89.4%**
- **Residents + Isabel: 92.5%**
- **Residents + Isabel + Attending 95%**

Thomas et al. International assessment of a web-based diagnostic tool in crically ill chlidren. Technol Health Care 2008; 16:103-110

PATIENTS - What can I do?

Be a good historian

Take advantage of cancer screening

Keep accurate records of your tests

SPEAK UP ! What else could this be ?

Ask what to expect & how to follow-up

Give feedback about diagnostic errors

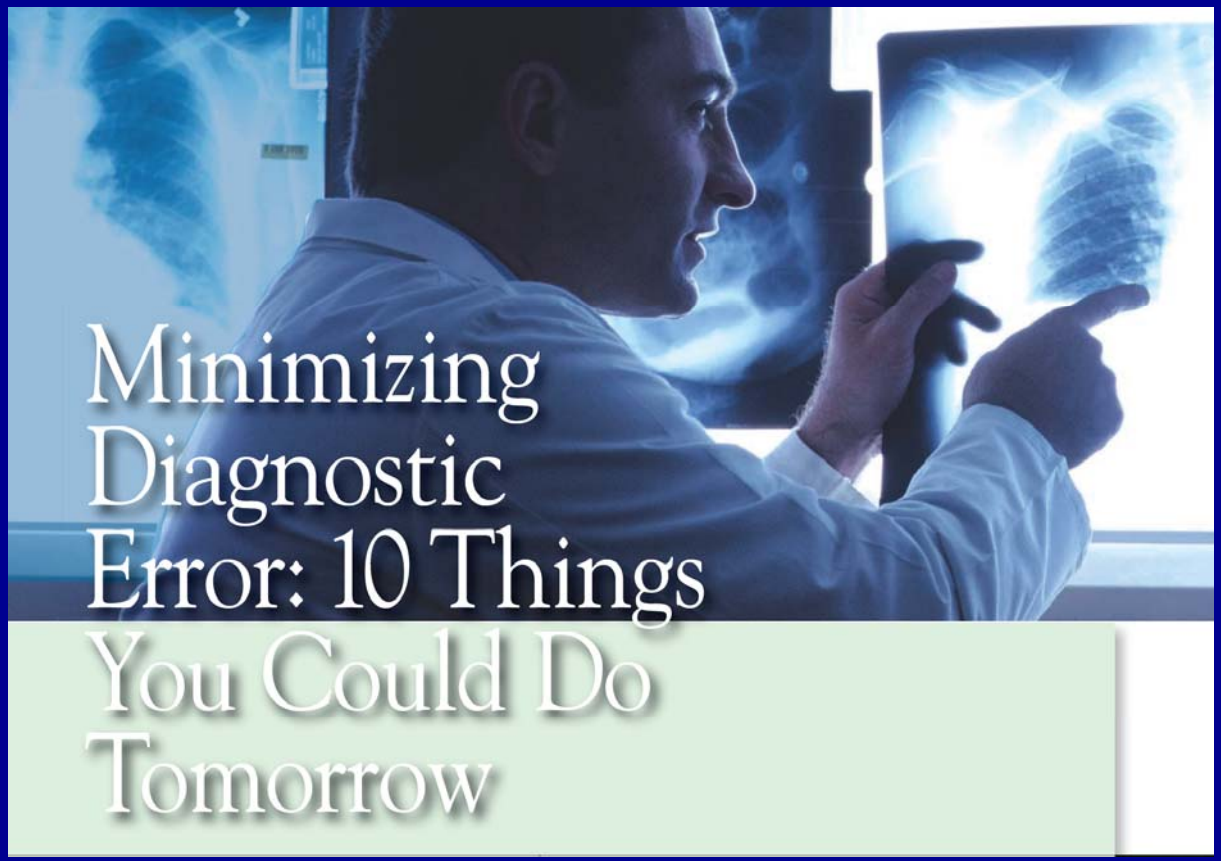
8 Goals to Improve Diagnosis and Reduce Diagnostic Errors

1	Facilitate more effective teamwork in the diagnostic process among health care professionals, patients, and their families
2	Enhance health care professional education and training in the diagnostic process
3	Ensure that health information technologies support patients and health care professionals in the diagnostic process
4	Develop and deploy approaches to identify, learn from, and reduce diagnostic errors and near misses in clinical practice
5	Establish a work system and culture that supports the diagnostic process and improvements in diagnostic performance
6	Develop a reporting environment and medical liability system that facilitates improved diagnosis through learning from diagnostic errors and near misses
7	Design a payment and care delivery environment that supports the diagnostic process
8	Provide dedicated funding for research on the diagnostic process and diagnostic errors

The Joint Commission Journal on Quality and Patient Safety

Diagnostic Error

The Next Organizational Challenge: Finding and Addressing Diagnostic Error



Healthcare Systems - What can I Do?

Find and discuss diagnostic errors

Address the common system flaws that contribute to diagnostic error: Lost test results; failure to follow-up; expertise not available;

Provide decision support resources

Develop pathways for feedback

Facilitate second opinions

Follow up on patients seen in the ED

Healthcare Systems - What can I Do?

The “new” TEAM for diagnosis

THE PATIENT !!

NURSES !!

MD’S – NP’S – PA’S – APN’S

PATHOLOGY & RADIOLOGY

Healthcare Systems - What can I Do?

FIND CASES OF DX ERROR

AND LEARN FROM THEM

Step #1 - Find and learn from diagnostic error

Your existing tools won't work: Global trigger tool yield: 0

- **Ambulatory Care:** None of the existing quality assessment tools captures diagnostic errors in ambulatory patients
  Tsang et al Fam Pract 29: 8-15, 2012

- **Inpatient Care:** 785 Medicare inpatients: Found 13% rate of adverse events using 5 different QA approaches, but not a single episode of diagnostic error
- Levinson (OIG) Nov 2010

Promising new approaches:

- **Standardized patients**
- **Asking physicians and asking patients**
- **Focused trigger tools**

Facilitated Physician Reporting

Robert Trowbridge – Maine Medical Center

Established a desktop icon for MD reporting; Personally championed:

- Identified 36 dx errors over 6 months
- 73% involved moderate or serious harm

Addressing diagnostic error – an institutional approach. Focus on Patient Safety 2010. 13(3): 1-5

Facilitated Patient Follow-Up

- **Saul Weingart et al:**

- 228 discharged patients – 20 adverse events and 13 near misses, none detected by the hospital

- Similar reports from the US, Japan, Sweden, Canada

AHRQ Web M&M 2013

Trigger Tools

- **Singh et al**
- Trigger = PC visit + unplanned admission within 2 weeks:

- **Found:**
- 21% dx error rate vs 2% unselected patients
- 1 in every 20 ambulatory patients experiences a diagnostic error every year
- Many\most errors involve common problems

BMJ-Qual Safety 2011; JAMA 2013

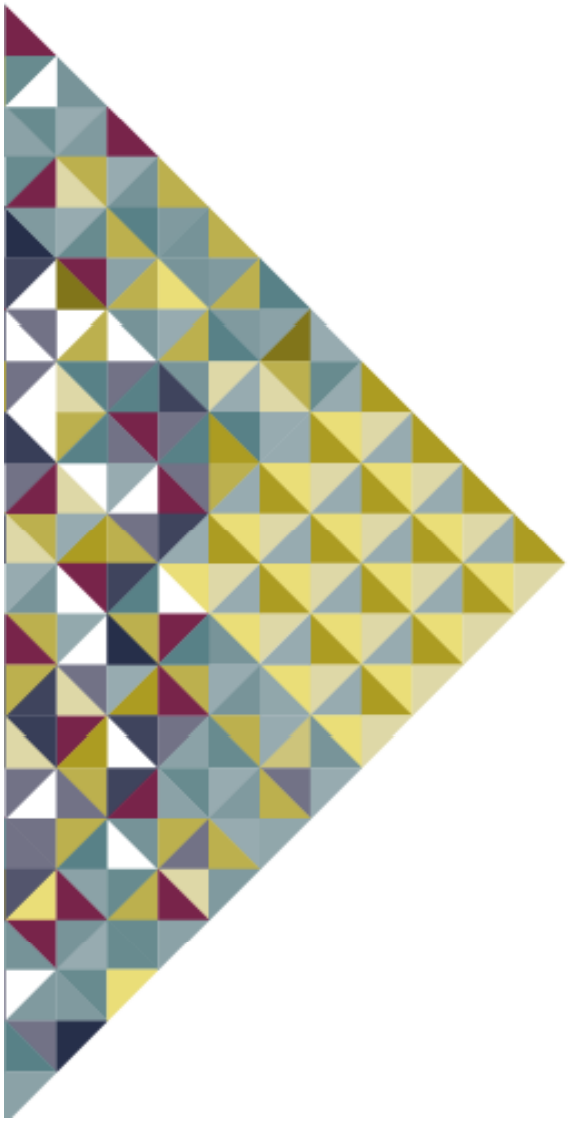
If you aren't addressing diagnostic error, are you really what you say?

A passion for putting patients first.
A Transforming, Healing Presence.
Advanced Healthcare Made Personal.
Advanced Medicine, Trusted Care.
Because Your Life Matters.
Best of Care, Close to Home.
Changing Medicine. Changing Lives.
Exceptional Care. Exceptional People.
First. Best. Always.
Growing to Meet Your Needs
Healing Hands. Caring Hearts.
Medicine that touches the world.
Minds Advancing Medicine
Our Best, Every Day
Our specialty is you.
Partnerships for Health
Remarkable People. Remarkable Medicine.
The heart of your healthcare.
The Hospital of the Future, Today.
The hospital you trust to care for those you love.
Uncompromising Excellence. Commitment to Care.
We're here for life.
We're in this together.
We're Right Where You Need Us.
Where care comes first.
Where caring is our calling.
Where Compassion and Healing Come Together.
World class healthcare where you live.
You'll Love the Way We Care for You.
Your Health. Our Mission.
Your Hospital for Life.
Your Most Trusted Health Partner for Life

The Coalition to Improve Diagnosis

American Board of Internal Medicine and the ABIM Foundation
American Board of Medical Specialties
American College of Emergency Physicians
American College of Physicians
American Society of Healthcare Risk Managers
Consumers Advancing Patient Safety
Leapfrog Group
National Patient Safety Foundation
National Partnership of Women and Families
National Association of Pediatric Nurse Practitioners
Society to Improve Diagnosis in Medicine
Department of Veterans Affairs – Veterans Healthcare Agency

Advisory: AHRQ, CDC



“Improving the diagnostic process is not only possible, but it also represents a moral, professional, and public health imperative.”

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