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Avoidable Imaging Initiative

Head CT decision rules and liability

Does ordering more CTs protect you? Medical liability and avoidable imaging

Tribe mentality- Anthropology of over ordering

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Presenters



Dr. Kevin Klauer



Dr. Rachel Lindor



Dr. Jeff Kline

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Does ordering more CTs protect you?
Medical liability and avoidable imaging



No!



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Medical Malpractice & Choosing Wisely

Increased medical malpractice has been a primary criticism of CW and an obstacle to adoption.



Straw-Man Argument Gives false characteristics to an argument and then attacks the argument based on those false characteristics.



ORIGINAL CONTRIBUTION

Emergency Physician Perceptions of Medically Unnecessary Advanced Diagnostic Imaging

Hemal K. Kanzaria, MD, MSHPM, Jerome R. Hoffman, MA, MD, Marc A. Probst, MD, MSHPM, John P. Caloyeras, MPhil, Sandra H. Berry, MA, and Robert H. Brook, MD, ScD

Abstract

Objectives: The objective was to determine emergency physician (EP) perceptions regarding 1) the extent to which they order medically unnecessary advanced diagnostic imaging, 2) factors that contribute to this behavior, and 3) proposed solutions for curbing this practice.

Methods: As part of a larger study to engage physicians in the delivery of high-value health care, two multispecialty focus groups were conducted to explore the topic of decision-making around resource utilization, after which qualitative analysis was used to generate survey questions. The survey was extensively pilot-tested and refined for emergency medicine (EM) to focus on advanced diagnostic imaging (i.e., computed tomography [CT] or magnetic resonance imaging [MRI]). The survey was then administered to a national, purposive sample of EPs and EM trainees. Simple descriptive statistics to summarize physician responses are presented.

Results: In this study, 478 EPs were approached, of whom 435 (91%) completed the survey; 68% of respondents were board-certified, and roughly half worked in academic emergency departments (EDs). Over 85% of respondents believe too many diagnostic tests are ordered in their own EDs, and 97% said at least some (mean = 22%) of the advanced imaging studies they personally order are medically unnecessary. The main perceived contributors were fear of missing a low-probability diagnosis and fear of litigation. Solutions most commonly felt to be “extremely” or “very” helpful for reducing unnecessary imaging included malpractice reform (79%), increased patient involvement through education (70%) and shared decision-making (56%), feedback to physicians on test-ordering metrics (55%), and improved education of physicians on diagnostic testing (50%).

Conclusions: Overordering of advanced imaging may be a systemic problem, as many EPs believe a substantial proportion of such studies, including some they personally order, are medically unnecessary. Respondents cited multiple complex factors with several potential high-yield solutions that must be addressed simultaneously to curb overimaging.

ACADEMIC EMERGENCY MEDICINE 2015;22:390–398 © 2015 by the Society for Academic Emergency Medicine

“Over 85% of respondents believe too many diagnostic tests are ordered in their own EDs, and 97% said at least some (mean = 22%) of the advanced imaging studies they personally order are medically unnecessary. The main perceived contributors were fear of missing a low-probability diagnosis and fear of litigation.”

Table 2
Perceived Largest Contributors to Ordering Medically Unnecessary Advanced Imaging*

Perceived Contributors	Almost Always or Often a Reason	Sometimes a Reason	Rarely or Almost Never a Reason
Fear of missing a diagnosis, even if there is a low likelihood	299 (68.9)	110 (25.3)	25 (5.8)
Avoidance of potential malpractice issues	279 (64.3)	120 (27.6)	35 (8.1)
Patient or family expectations	172 (39.7)	198 (45.7)	63 (14.6)
Standard practice in medical group or among closest colleagues	167 (38.5)	153 (35.2)	114 (26.3)
Standard practice in EM	151 (34.9)	189 (43.6)	93 (21.5)
The test saves time	102 (23.6)	172 (39.7)	159 (36.7)
Administrative pressure to increase group reimbursement	6 (1.4)	16 (3.7)	410 (94.9)

Table 3
Solutions Perceived to be Most Helpful to Reduce Unnecessary Advanced Imaging*

Potential Solution	Extremely or Very Helpful	Somewhat Helpful	Not Very Helpful or Not Helpful at All
Reform malpractice	343 (78.9)	77 (17.7)	15 (3.4)
Educate patients and families	304 (69.9)	109 (25.1)	22 (5.0)
Involve patients more in shared decision-making surrounding diagnostic testing for low-probability clinical outcomes	242 (55.9)	156 (36.0)	35 (8.1)
Provide feedback to physicians on test ordering behavior compared to peers in same practice	238 (54.8)	163 (37.6)	33 (7.6)
Improved education of physicians on diagnostic testing	218 (50.2)	157 (36.2)	59 (13.6)
Staff the department to allow more time for clinical evaluation	170 (39.7)	157 (36.7)	101 (23.6)
Create and disseminate voluntary guidelines for when to order studies in specific clinical scenarios	165 (37.9)	190 (43.7)	80 (18.4)
Eliminate financial incentives to physicians to order the test	141 (32.7)	103 (23.9)	187 (43.4)
Implement computer decision support to assist physicians	109 (25.2)	171 (39.5)	153 (35.3)
Limit reimbursement to only studies that meet guidelines	90 (20.7)	83 (18.9)	262 (60.4)
Offer financial incentives to physicians who order fewer studies	76 (17.5)	106 (24.4)	252 (58.1)

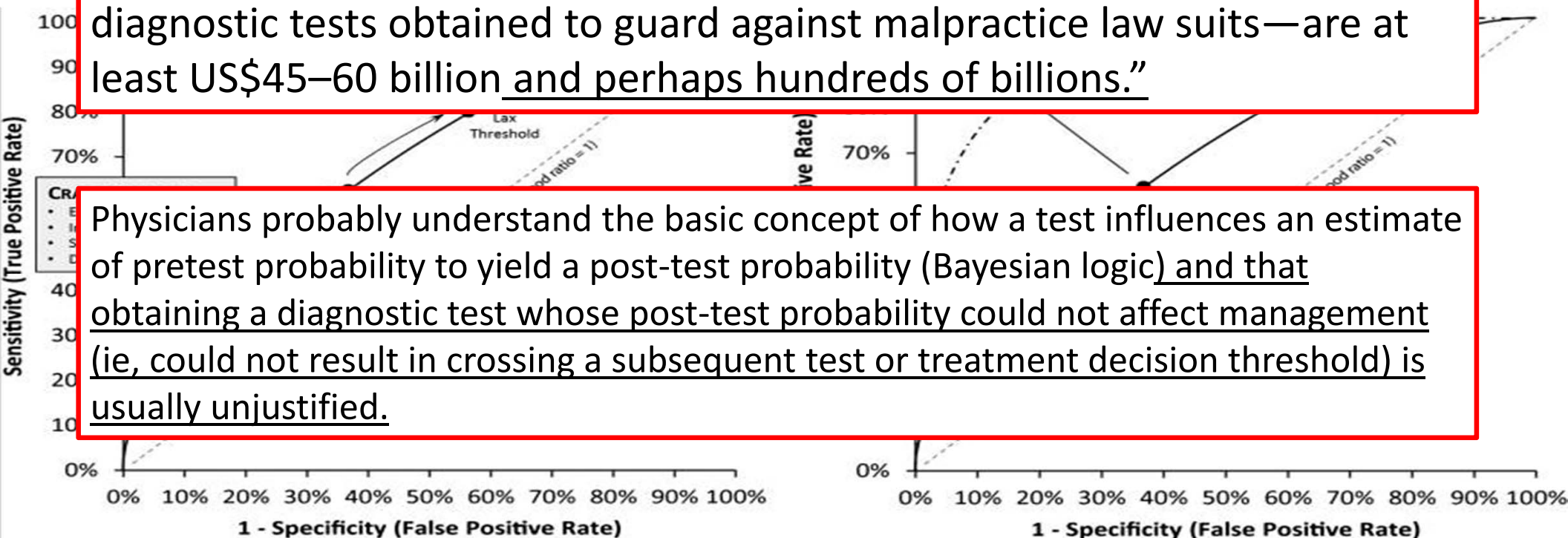
Data are reported as number (%).

*Respondents were also offered an "other" category to write in additional ideas.

Newman-Toker DE, et al. How much diagnostic safety can we afford, and how should we decide? A health economics perspective. *BMJ Qual Saf.* 2013 Oct;22 Suppl 2:ii11-ii20.

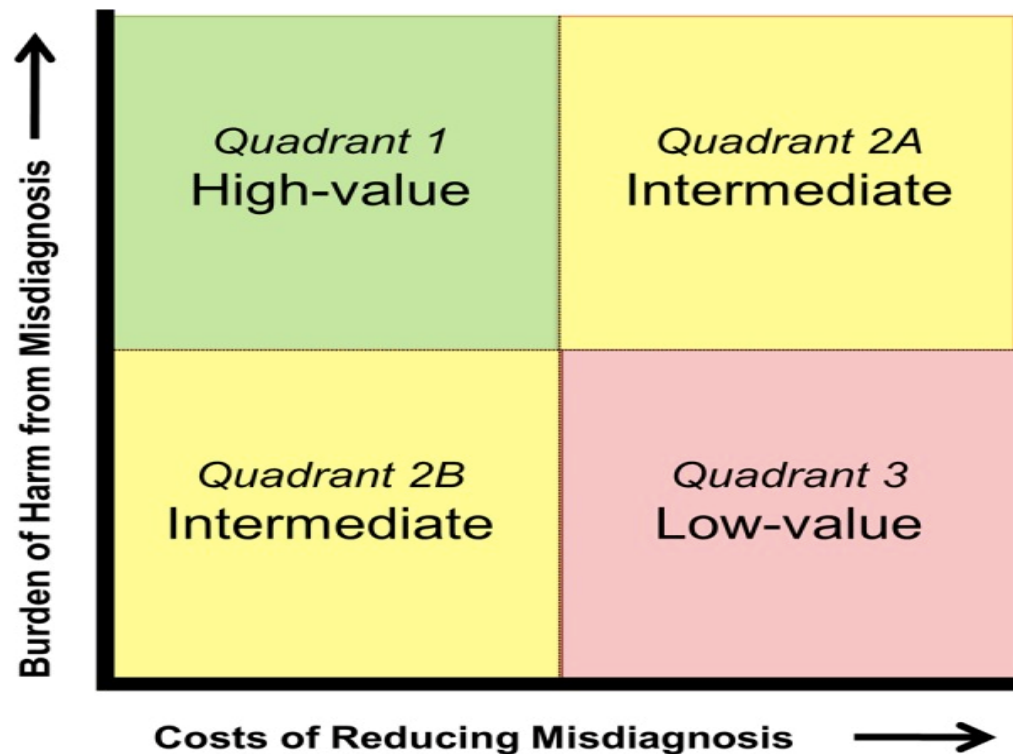
“The annual costs of ‘defensive medicine’ alone—mostly unnecessary diagnostic tests obtained to guard against malpractice law suits—are at least US\$45–60 billion and perhaps hundreds of billions.”

Physicians probably understand the basic concept of how a test influences an estimate of pretest probability to yield a post-test probability (Bayesian logic) and that obtaining a diagnostic test whose post-test probability could not affect management (ie, could not result in crossing a subsequent test or treatment decision threshold) is usually unjustified.



Newman-Toker DE, et al. How much diagnostic safety can we afford, and how should we decide? A health economics perspective. *BMJ Qual Saf.* 2013 Oct;22 Suppl 2:ii11-ii20.

Figure 2



Lindor RA, et al. Failure to Obtain Computed Tomography Imaging in Head Trauma: A Review of Relevant Case Law. Acad Emerg Med. 2015 Dec;22(12):1493-8. 2015 Nov 17.

“Conclusions: A review of legal cases reported in a major online legal research system revealed 60 lawsuits in which providers were sued for failing to order head CTs in cases of head trauma. In all cases in which providers were found negligent, CT imaging or observation would have been indicated by every applicable CDR.”

Lindor RA, et al. Liability and informed consent in the context of shared decision making. Acad Emerg Med. 2016 Sep 8.

- Shared decision making v. Informed consent

RESEARCH ARTICLE

Open Access

Can shared decision-making reduce medical malpractice litigation? A systematic review

Marie-Anne Durand^{1,2*}, Benjamin Moulton^{3,4,5}, Elizabeth Cockle², Mala Mann⁶ and Glyn Elwyn^{1,7}

Abstract

Background: To explore the likely influence and impact of shared decision-making on medical malpractice litigation and patients' intentions to initiate litigation.

Methods: We included all observational, interventional and qualitative studies published in all languages, which assessed the effect or likely influence of shared decision-making or shared decision-making interventions on medical malpractice litigation or on patients' intentions to litigate. The following databases were searched from inception until January 2014: CINAHL, Cochrane Register of Controlled Trials, Cochrane Database of Systematic Reviews, EMBASE, HMC, Lexis library, MEDLINE, NHS Economic Evaluation Database, Open SIGLE, PsycINFO and Web of Knowledge. We also hand searched reference lists of included studies and contacted experts in the field. Downs & Black quality assessment checklist, the Critical Appraisal Skill Programme qualitative tool, and the Critical Appraisal Guidelines for single case study research were used to assess the quality of included studies.

Results: 6562 records were screened and 19 articles were retrieved for full-text review. Five studies were included in the review. Due to the number and heterogeneity of included studies, we conducted a narrative synthesis adapted from the ESRC guidance for narrative synthesis. Four themes emerged. The analysis confirms the absence of empirical data necessary to determine whether or not shared decision-making promoted in the clinical encounter can reduce litigation. Three out of five included studies provide retrospective and simulated data suggesting that ignoring or failing to diagnose patient preferences, particularly when no effort has been made to inform and support understanding of possible harms and benefits, puts clinicians at a higher risk of litigation. Simulated scenarios suggest that documenting the use of decision support interventions in patients' notes could offer some level of medico-legal protection. Our analysis also indicated that a sizeable proportion of clinicians prefer ordering more tests and procedures, irrespective of patient informed preferences, as protection against litigation.

Conclusions: Given the lack of empirical data, there is insufficient evidence to determine whether or not shared decision-making and the use of decision support interventions can reduce medical malpractice litigation. Further investigation is required.

Trial registration: This review was registered on PROSPERO. Registration number: CRD42012002367.

Keywords: Shared decision-making, Decision-making, Informed consent, Malpractice, Litigation, Decision support techniques

Important Considerations & Solutions

- Belief: Reducing utilization of truly unnecessary tests doesn't put anyone at risk.
- Clinical Guidelines \neq Choosing Wisely
- Become a good bedside educator
- Shared decision making is often useful
 - High/Moderate/Low/No pretest probability
- Tests are no substitute for a thorough H&P
- Ordering tests on patients with little to no likelihood of diagnostic yield does not reduce liability
- Document "Why"

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**Choosing
Wisely[®]**

“Avoid CT of the head in emergency department patients with minor head injury who are at low risk based on validated decision rules.”

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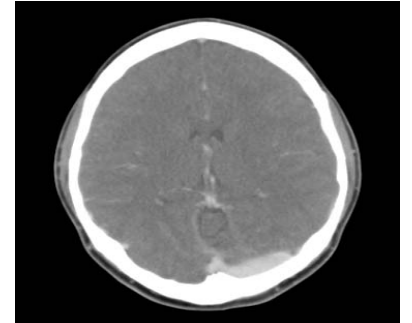


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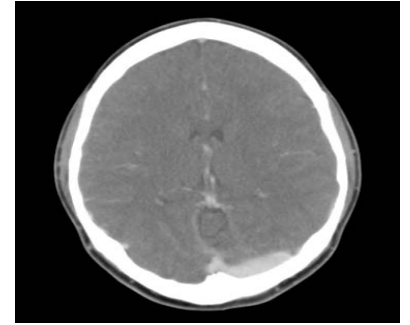
Background

- Lots of CTs
- Most CTs negative
- Sensitive clinical decision rules (CDRs) exist
- Up to 35% of head CTs not indicated by CDRs¹



Background

- Lots of CTs
- Most CTs negative
- Sensitive clinical decision rules (CDRs) exist
- Up to 35% of head CTs not indicated by CDRs¹



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Why?



- Decisions to CT motivated partly by concern for liability²
- Head CT rates lower in states with tort reform³

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Purpose

- Describe lawsuits against providers for failure to order a head CT in cases of head trauma
- Describe potential impact of clinical decision rules (CDRs)
 - ACEP “Clinical Policy: Neuroimaging and decisionmaking in adult mild traumatic brain injury in the acute setting”⁴
 - National Emergency X-ray Utilization Study (NEXUS II)⁵
 - Canadian CT head rule⁶
 - New Orleans criteria⁷
 - Pediatric Emergency Care Applied Research Network (PECARN) pediatric head injury/trauma algorithm⁸

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Academic Emergency Medicine

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ORIGINAL CONTRIBUTION

Failure to Obtain Computed Tomography Imaging in Head Trauma: A Review of Relevant Case Law

Rachel A. Lindor, MD, JD, Eric T. Boie, MD, Ronna L. Campbell, MD, PhD, Erik P. Hess, MD, MSc, and Annie T. Sadosty, MD

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Methods

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Q- Enter search terms, citations, databases, anything ...

- Retrospective review
- 1972-2014
- Search terms:
 - ("CT scan" or "head CT" or "CAT scan" or "computed tomography" or "CT imaging") AND ("epidural" or "subdural" or "intracranial" or "intracerebral" or "hemorrhag*" or "hematoma") AND ("emergency" or "ED" or "ER" or "urgent" or "ambulance" or "paramedics") AND ("malpractice" OR "negligence")

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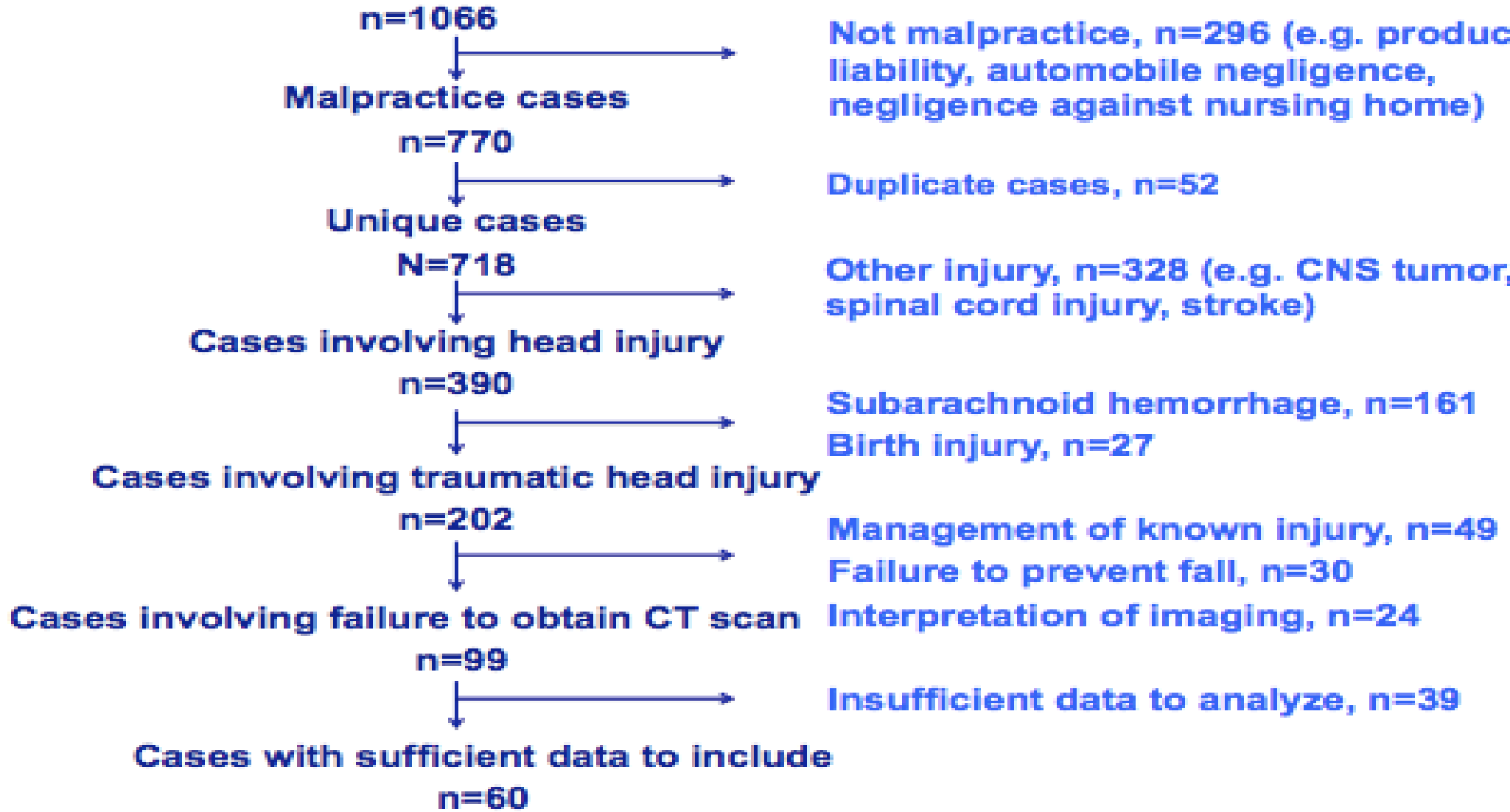
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Total Case Reports Captured by Search Terms



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Results

- **Total cases: 60**
 - Adults (16+ years): 52
 - Pediatric (<16 years): 8
- **Legal outcome:**
 - Negligence: 10
 - Settlement: 11
 - No liability: 27
 - Unknown: 12

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Results

	All cases		Negligence		Settlement		No liability		Unknown	
Age										
Mean age	53.5		39.9		55.2		56.4		63.0	
Median age	62.5		33.5		66.5		65.0		68.5	
Range	0.9 - 84	n=38	0.9-79	n=10	10-81	n=10	10-84	n=19	32-80	n=6
Gender										
Male	40	67%	7	70%	5	45%	21	78%	7	58%
Female	20	33%	3	30%	6	55%	6	22%	5	42%
Patient Outcome										
Death	32	53%	3	30%	6	55%	15	56%	8	67%
Neuro injury	28	47%	7	70%	5	45%	12	44%	4	33%
Types of Injuries										
Epidural	12	20%	4	40%	2	18%	5	19%	1	8%
Subdural	35	58%	6	60%	6	55%	12	44%	5	42%
Other	13	22%	0	0%	3	27%	10	37%	6	50%

Performance of CDRs

All cases
Negligence
Settlement
No liability
Unknown

of cases in which CT was indicated by all applicable CDRs:

43	10	10	19	4
(of 60)	(of 10)	(of 11)	(of 27)	(of 12)

Most frequent indications for CT in reported cases (age 16+ years)

age 65+ years	23	4	6	10	3
trauma above clavicles	11	1	0	6	4
anti-coagulated	10	1	4	4	1
abnormal behavior	8	1	0	5	2
intoxication	7	0	0	4	3
abnormal alertness	7	1	1	3	2
evidence of skull fracture	5	1	0	2	2
dangerous mechanism	4	1	0	2	1

Most frequent indications for CT in reported cases (< 16 yrs)

GCS < 15 or altered	4	1	1	2	-
vomiting	3	2	0	1	-
abnormal behavior per parent	1	1	0	0	-
dangerous mechanism	1	0	1	0	-
LOC	1	1	0	0	-

Performance of CDRs

All cases **Negligence** **Settlement** **No liability** **Unknown**

of cases in which CT was indicated by all applicable CDRs:

43 (of 60)	10 (of 10)	11 (of 11)	8 (of 27)	8 (of 12)
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evidence of skull fracture	5	1	0	2	2
dangerous mechanism	4	1	0	2	1

Most frequent indications for CT in reported cases (< 17 yrs)

GCS < 15 or altered	4	1	1	2	-
vomiting	3	2	0	1	-
abnormal behavior per parent	1	1	0	0	-
dangerous mechanism	1	0	1	0	-
LOC	1	1	0	0	-

JAS MI Ref. No. 31498WL, 1990 WL 1084355 (Mich.Cir.Ct.) (Verdict and Settlement Summary)

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Circuit Court of Michigan, Sixth Judicial Circuit, Oakland County.

ROBERT C. AND MARY C. HICKEY v. WILLIAM BEAUMONT HOSPITAL

86-319829-NM

DATE OF VERDICT/SETTLEMENT: May 21, 1990

TOPIC: MEDICAL MALPRACTICE MEDICAL MALPRACTICE - ER PATIENT - DIAGNOSIS OF HEMATOMA
HOSPITAL NEGLIGENCE DEFENSE VERDICT

SUMMARY:

Result: Verdict: Defense verdict

EXPERT WITNESSES:

Plaintiff's: **Stephen Kempner**, M.D. - Emergency Medicine - Providence RI; **Elvin Shapiro**, D.O. - Internist - Miami FL
Defendant's: **John Karazins**, M.D. - Emergency Medicine - Rochester MI; **L. Murray Thomas**, M.D. - Neurologist - Detroit MI

ATTORNEY:

Plaintiff's: **Maurice Herskovic**, Detroit
Defendant's: **Joseph F. Babiarz, Jr.**, Southfield

JUDGE: Fred M. Mester

RANGE AMOUNT: \$0

STATE: Michigan
COUNTY: Oakland

ALLEGED INJURY: Slight cognitive inabilities. Plaintiff claimed \$75,000 in medical specials and \$500,000 in lost income.

SUMMARY:

Plaintiff Information:

Age: 57

Sex: M

Occupation: Plant foreman

Marital Status: Married

Insurance Carrier: Self-insured

Jury Deliberations: 1 hour

Settlement Efforts:

ast Demand: N/A

ast Offer: None

'ACTS:

plaintiff consumed 8-10 shots of alcohol Easter morning and fell down his basement stairs, striking his head. He was taken to defendant hospital and examined by an ER physician. Plaintiff was alert, talkative and did not exhibit any neurological deficits. He was admitted to the hospital for observation. At 4:45 a.m. the next morning seizure activity was noted. A CT scan of plaintiff's brain disclosed a small subdural hematoma on the right side and a large area of intra-cerebral bleeding on the left side. Surgery was performed and plaintiff made a good recovery.

plaintiff alleged that defendant was negligent in failing to order a CT scan in the ER and that if the hematomas had been detected earlier, he would have had a better outcome.

Defendant contended that in the absence of a neurological deficit the standard of care did not require a CT scan. Further, surgery performed earlier would not have changed plaintiff's outcome.

EDITOR'S NOTE:

plaintiff suffered a stroke on the right side of his brain two years later. According to counsel, he appeared at trial in a wheelchair. Motion for Taxation of Costs pending.

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Circuit Court

PUBLISHED IN: Vol. 3, No. 5

End of Document

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Last Offer: None

FACTS:

Plaintiff consumed 8-10 shots of alcohol Easter morning and fell down his basement stairs, striking his head. He was taken to defendant hospital and examined by an ER physician. Plaintiff was alert, talkative and did not exhibit any neurological deficits. He was admitted to the hospital for observation. At 4:45 a.m. the next morning seizure activity was noted. A CT scan of plaintiff's brain disclosed a small subdural hematoma on the right side and a large area of intra-cerebral bleeding on the left side. Surgery was performed and plaintiff made a good recovery.

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EDITOR'S NOTE:

Plaintiff suffered a stroke on the right side of his brain two years later. According to counsel, he appeared at trial in a wheelchair. Motion for Taxation of Costs pending.

JAS Publications, Inc.
Circuit Court

PUBLISHED IN: Vol. 3, No. 5

Decision Rules

ACEP Clinical Policy - Level A Recommendations (LOC or amnesia)

GCS <15	vomiting	age > 60	visible trauma above clavicle	coagulopathy	focal neuro deficit	memory deficit	headache	intoxication	post-traumatic seizure
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ACEP Clinical Policy - Level B Recommendations (no LOC or amnesia)

GCS <15	vomiting	age 65+	signs of basilar skull fracture	coagulopathy	focal neuro deficit		severe headache	dangerous mechanism	
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NEXUS II

abnormal alertness	persistent vomiting	age 65+	evidence of skull fracture	coagulopathy	neuro deficit			scalp hematoma	abnormal behavior
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Canadian CT Head Rule

(LOC, amnesia, or disorientation; NO anticoagulants, seizure, focal neuro deficit, etc.)

GCS <15 at 2 hours	recurrent vomiting	age 65+	suspected skull fracture			retrograde amnesia		dangerous mechanism	
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New Orleans

(LOC or amnesia; NO anticoagulants; NO focal neuro deficits)

GCS <15	vomiting	age > 60	injury above clavicles			retrograde amnesia	severe headache	drug or alcohol use	seizure
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Decision Rules

NEXUS II

abnormal alertness	abnormal behavior	evidence of skull fx	persistent vomiting	65+ years	coagulopathy	neuro deficit	scalp hematoma

Decision Rules

NEXUS II							
abnormal alertness	abnormal behavior	evidence of skull fx	persistent vomiting	65+ years	coagulopathy	neuro deficit	scalp hematoma

- Evidence of skull fracture:
 - Periorbital or periauricular ecchymoses
 - Hemotympanum
 - CSF leak from nose or ears
 - Palpable step-off
 - Stellate laceration from a point source

Decision Rules

NEXUS II							
abnormal alertness	abnormal behavior	evidence of skull fx	persistent vomiting	65+ years	coagulopathy	neuro deficit	scalp hematoma

- Evidence of skull fracture:
 - Periorbital or periauricular ecchymoses
 - Hemotympanum
 - CSF leak from nose or ears
 - Palpable step-off
 - Stellate laceration from a point source
 - **Any injury produced by an object striking a localized region of the skull (such as a baseball bat, pool cue, baseball, etc.)**

Decision Rules

NEXUS II

abnormal alertness	abnormal behavior	evidence of skull fx	persistent vomiting	65+ years	coagulopathy	neuro deficit	scalp hematoma

Decision Rules

NEXUS II							
abnormal alertness	abnormal behavior	evidence of skull fx	persistent vomiting	65+ years	coagulopathy	neuro deficit	scalp hematoma

- Coagulopathy:
 - Any impairment of normal blood clotting such as occurs in hemophilia, secondary to medications, hepatic insufficiency, and other conditions

Decision Rules

NEXUS II							
abnormal alertness	abnormal behavior	evidence of skull fx	persistent vomiting	65+ years	coagulopathy	neuro deficit	scalp hematoma

- Coagulopathy:
 - Any impairment of normal blood clotting such as occurs in hemophilia, secondary to medications, hepatic insufficiency, and other conditions
 - Medications: “coumadin, heparin, **aspirin**, etc.”

Decision Rules

ACEP Clinical Policy - Level A Recommendations (LOC or amnesia)

GCS <15	vomiting	age > 60	visible trauma above clavicle	coagulopathy	focal neuro deficit	memory deficit	headache	intoxication	post-traumatic seizure
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ACEP Clinical Policy - Level B Recommendations (no LOC or amnesia)

GCS <15	vomiting	age 65+	signs of basilar skull fracture	coagulopathy	focal neuro deficit		severe headache	dangerous mechanism	
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NEXUS II

abnormal alertness	persistent vomiting	age 65+	evidence of skull fracture	coagulopathy	neuro deficit			scalp hematoma	abnormal behavior
--------------------	---------------------	---------	----------------------------	--------------	---------------	--	--	----------------	-------------------

Canadian CT Head Rule

(LOC, amnesia, or disorientation; NO anticoagulants, seizure, focal neuro deficit, etc.)

GCS <15 at 2 hours	recurrent vomiting	age 65+	suspected skull fracture			retrograde amnesia		dangerous mechanism	
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New Orleans

(LOC or amnesia; NO anticoagulants; NO focal neuro deficits)

GCS <15	vomiting	age > 60	injury above clavicles			retrograde amnesia	severe headache	drug or alcohol use	seizure
---------	----------	----------	------------------------	--	--	--------------------	-----------------	---------------------	---------

Decision Rules

ACEP Clinical Policy - Level A Recommendations (LOC or amnesia)

GCS <15	vomiting	age > 60	visible trauma above clavicle	coagulopathy	focal neuro deficit	headache	memory deficit	intox-ication	post-traumatic seizure
---------	----------	----------	-------------------------------	--------------	---------------------	----------	----------------	---------------	------------------------

ACEP Clinical Policy - Level B Recommendations (*no* LOC or amnesia)

GCS <15	vomiting	age 65+	signs of basilar skull fracture	coagulopathy	focal neuro deficit	severe headache	dangerous mechanism
---------	----------	---------	---------------------------------	--------------	---------------------	-----------------	---------------------

Conclusion & Clinical Implications

- Every applicable CDR would have indicated the need for CT in every case in which providers were found negligent
 - Know when CDR applies
 - Know elements of chosen CDRs in detail
 - Use common sense

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Next?

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Can I sue if the doctor has ordered an unnecessary test on my baby ...

www.lawqa.com/qa/can-i-sue-if-doctor-has-ordered-an-unnecessary-test-on-my-baby ▼

Feb 14, 2013 - Can I sue if the doctor has ordered an unnecessary test on my baby ... A simple x-ray will not reveal any injury to the head, while a CT scan will.

Doctors Ordering Unnecessary Tests | Medical Malpractice Attorneys

www.leiferlaw.com › Medical Malpractice Attorneys ▼

If your doctors are ordering unnecessary tests that you don't have then you should ... X-rays; Heart screening tests; CT scans; Colonoscopies; Endoscopies; CT ...

Avoiding Unnecessary CT Scans - TIME

content.time.com/time/health/article/0,8599,1698163,00.html ▼ Time ▼

Dec 24, 2007 - ... a CT scan. Getting sued for not ordering one is more likely. ... CT is absolutely necessary with head trauma and acute abdominal conditions.

Unnecessary Medical Tests and Treatments - Consumer Reports

www.consumerreports.org/cro/.../06/...unnecessary/index.htm ▼ Consumer Reports ▼

Consumer Reports has the top five examples of unnecessary medical tests and ... And doctors often comply to provide reassurance and to avoid lawsuits. ... And CT scans of the head can deliver a radiation dose that's the equivalent of 15 to ...

Radiation Overexposure Medical Devices Side Effects Lawsuits ...

www.yourlawyer.com › Topics › Environment / Toxic Substances ▼

Radiation Overexposure Medical Devices | Lawsuits, Lawyers | Side Effects, throughout the country may have undergone unnecessary double CT scans, ... and UC Davis looked at outcomes from 40,000 pediatric head injury cases in 25 ...

CAT CT Scan Radiation Overdose Side Effects Lawsuits | Side Effects ...

www.yourlawyer.com › Topics › Defective Medical Devices ▼

CAT CT Scan Radiation Overdose Side Effects Lawsuits | CT Scans have been ... hair (he had thick dark hair) and the scan left a halo around his head of lost hair. ... throughout the country may have undergone unnecessary double CT scans, ...

Minor head injury not reason enough for CT scan in children

References

- 1) Melnick ER, *et al.* CT overuse for mild traumatic brain injury. *The Joint Commission Journal on Quality and Patient Safety* 2012;38(11):483-9.
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Tribe mentality- Anthropology of over ordering

Jeffrey A. Kline MD

Agenda

- Explanations and examples of terms
- Scope of the problem
- Hypothesis statement
- Origins of magical thinking and hyperpenalization
- Actions that matter

Type II penalty paradox

- Refers to anthropological type II error.
Type I error: “Crying wolf”
Type II error: “Asleep while on guard”

Exaggerated and excessive guilt and shame caused by failure to diagnose a potentially fatal disease. Results from internal and external perceptions. Intertwined with magical thinking.

Magical thinking

- Generation of false beliefs as a product of non-scientific or irrational thought processing. Examples include belief in rituals, spells, superstition and mysticism.
- A normal quality of the childhood thought process until approximately age 7
- However, 90% of adults have mystical beliefs

Examples

- “He has a bad story for angina but has untreated hypertension so he needs a stress test”
- “The plaintiff’s attorney will have a field day with this”
- “Your primary job is to rule out the threats to life”

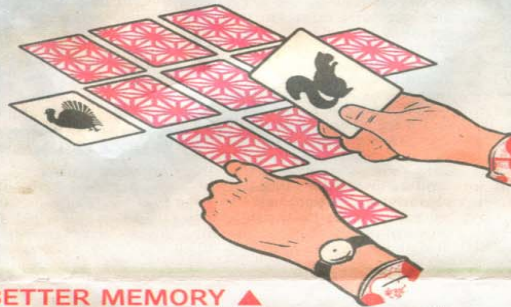
The Power of Lucky Charms

New Research Suggests How They Really Make Us Perform Better



MORE PERSISTENCE ▲

In an anagram game, in which participants had to make as many words as possible from a string of eight letters, participants with their lucky charms set higher goals (**16 more words**) and persisted longer (nearly **5½-minutes longer**) than participants whose lucky charms had been removed.



BETTER MEMORY ▲

When participants were asked to play a memory game, those with their 'lucky charms' on hand performed significantly better than those separated from their charms. Moreover, participants with their lucky charms reported that they felt **30% more capable** than participants without the charms.

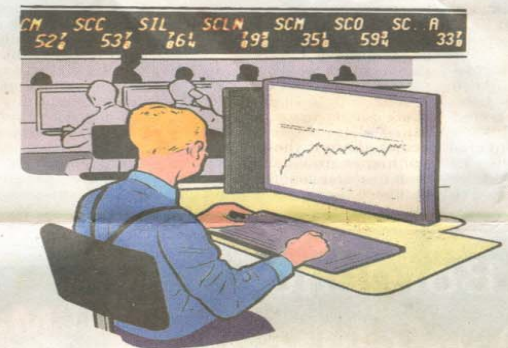
MORE ACCURACY ►

Participants who were handed a golf ball and told, 'Here is your ball. So far it has turned out to be a lucky ball,' were **35% more likely** to make a golf putt than participants who were told, 'This is the ball everyone has used so far.'

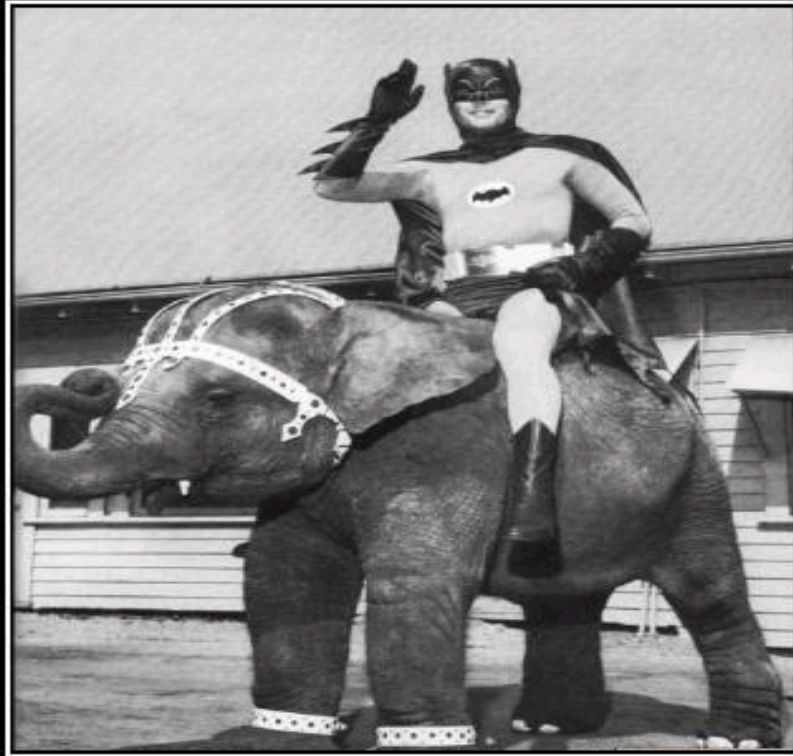


...BUT AT TIMES FALSE CONFIDENCE ▼

In a stock-market simulation, 107 traders were told that pressing the letters Z, X and C on a keyboard 'may have some effect on the index,' when in fact it didn't. Traders in the study who held the strongest belief that the keys made a difference had **lower salaries in real life**, suggesting that 'luck' may hurt their trading decisions.



Sources: University of Cologne, 2010; Journal of Occupational and Organizational Psychology, 2003



BATMAN IS RIDING AN ELEPHANT

This renders your argument invalid.

Importance of the problem to emergency physicians

- Patient-oriented: exposure to unnecessary testing.
- Physician compensation: HR 5970 will create CMS Center for Innovation which must respond to section 1302, calling for gating of advanced imaging
- Medical malpractice: a cause and an effect

For Venous Thromboembolism

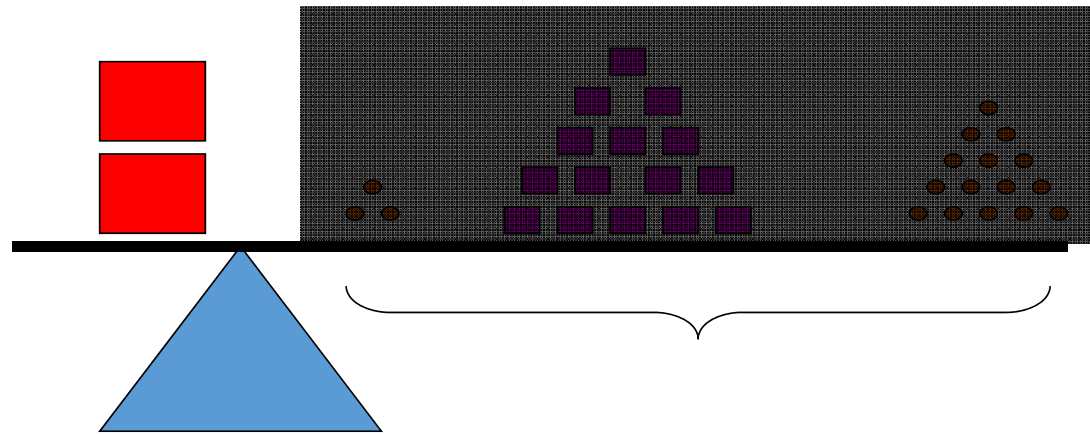
- Prevalence of disease (i.e., PE+) is now at close to the test threshold (2-3%)
- New oral anticoagulants, together with validation of algorithms will favor outpatient treatment of most patients with DVT and PE.
- This will be easy to do
- And the treatment threshold will decrease

QALYs

- Quality Adjusted Life Years
 - Unit of currency
 - Used in cost effectiveness studies
 - One QALY equals one year of perfect health
 - In cost effectiveness analyses, QALYs are adjusted downward by coefficients

Hypothesis

Physicians excessively discount future QALYs



The type II “paradox” is this

- Failure to diagnose a fatal disease results in the largest loss of QALYs possible
- Diagnostic error the most common cause of ED malpractice claims (37%), and 58% of these claims alleged failure to order a diagnostic test

Brown TE, Epidemiology
553-560, 2010

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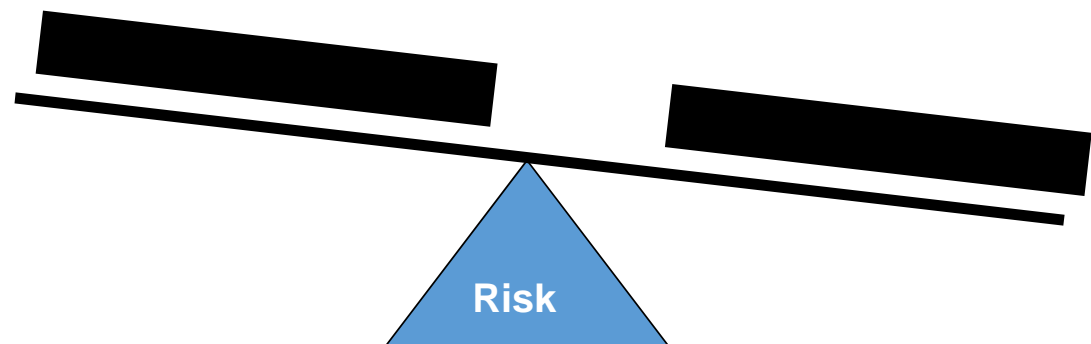
Kachalia A, et al Misser

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ADVANCING EMERGENCY CARE 

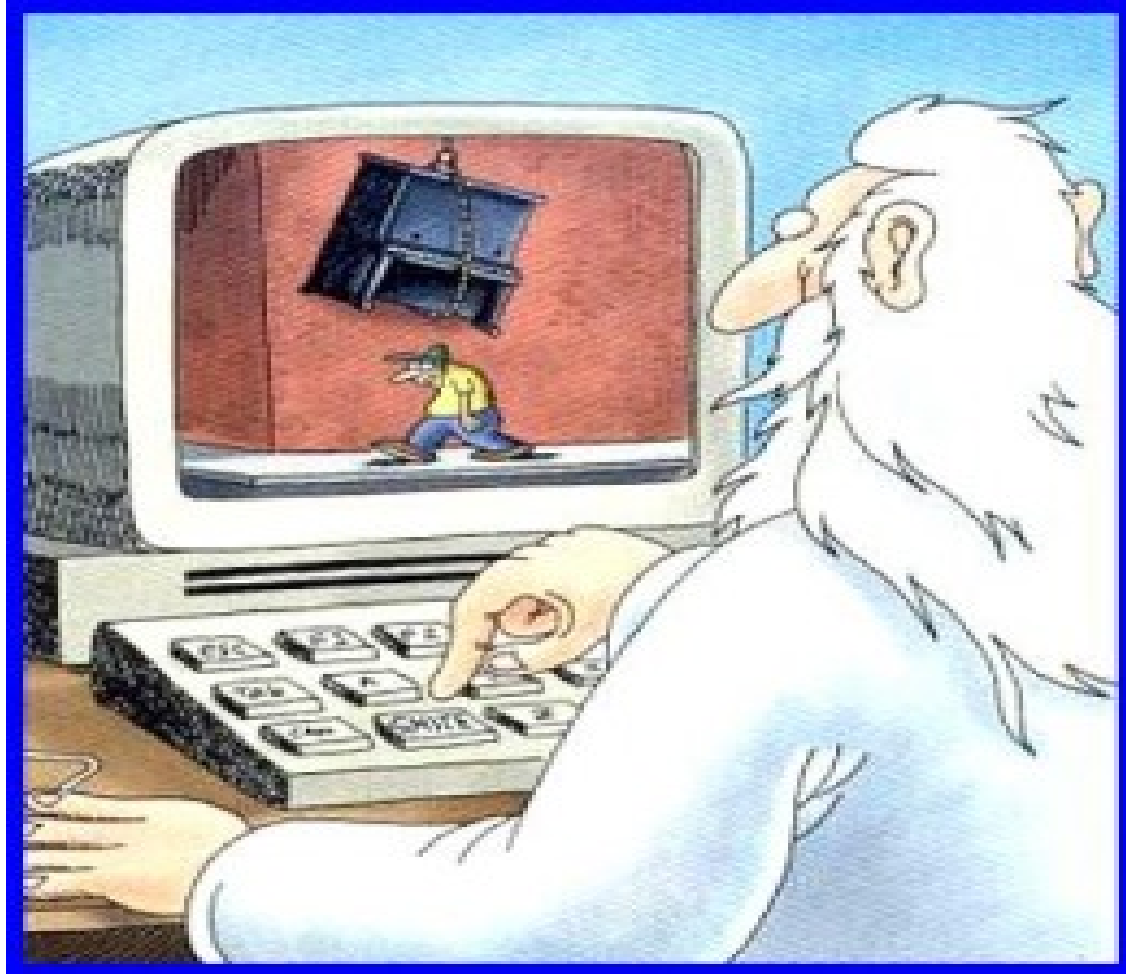
The type II “paradox” is this

- The QA, peer review, and legal system do not consider the loss of QALYs from type I (overtesting) error, but hammers the type II (negligence) error
- So, we teach and practice the worst-case framing heuristic
- The result:



Origins of the Paradox

- Evolution
- The Bible (Judges for example)
- Supersense-driven heuristics
 - Irrational reliance on superstition and charms
 - Irrational fear of contamination
 - The use of non-logical thinking, often influenced by our the fear of not following rules of normalcy
 - A boogeyman mentality



E•QUAL

EMERGENCY
QUALITY
NETWORK

Another Origin: Patternicity (Michael Shermer- Skeptic)

“I argue that our brains are belief engines: evolved pattern-recognition machines that connect the dots and create meaning out of the patterns that we think we see in nature. Sometimes A really is connected to B; sometimes it is not. When it is, we have learned something valuable about the environment from which we can make predictions that aid in survival and reproduction. We are the ancestors of those most successful at finding patterns. This process is called association learning, and it is fundamental to all animal behavior, from the humble worm *C. elegans* to *H. sapiens*.”

Unfortunately, we did not evolve a Baloney Detection Network in the brain to distinguish between true and false patterns.”

Scientific American, December 2008

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Drivers of the Paradox

- Guilt
 - “I made a mistake”
 - Primarily from external peer review processes
- Shame
 - “I am a mistake”
 - Primarily from internal processes
- Fear of being shunned

Driver #1: Medical Malpractice

- 2/3 of ED physicians admit to ordering tests solely because of concerns over medical malpractice
- One three-center study found that ED physicians estimated their PTP for ACS at <2% for 15% of patients placed in CPEC

Studdert DM, Defensive environment. *JAMA*. 2005;293:2763-2768.

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excludes acute coronary

Ann Emerg Med. 2006;47:1-10.

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DON'T BE A WUSS

This looks legit

Medical Malpractice—Cardiologists

- More than 27% of respondents reported ordering a cardiac catheterization if a colleague would in the same situation frequently or sometimes, and nearly 24% reported doing so out of fear of malpractice.
- We do what we think others would do, not what we believe is right: **Magical thinking**.



Another Driver: Reimbursement

- In general, MDM complexity goes up when considering threats to life such as PE; evaluation for these requires a test, usually imaging.
- But take note of HR 3590 Section 3021: “Varying payment to physicians who order advanced diagnostic imaging services according to the physician’s adherence to appropriateness criteria of such services as determined in consultation with physician specialty groups and other relevant stakeholders.”

What can be done?

- **Acknowledge** the paradox exists
- **Balance the QA process** to consider the context of overtesting in cases of missed diagnosis
- Acknowledge heuristics that over-weight the risk of **medical malpractice**
- Increase research of **shared clinical decision making** using pretest clinical data.
- **Research and development** of patient-oriented presentation of data of disease and test risk

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Avoidable Imaging Webinar:
Thursday, November 17
1:00pm-2:00pmEST

ACEP E-QUAL Network Resources and More
Information:

www.acep.org/equal

Contact Nalani Tarrant (Project Manager):
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