Defending YOUR Report

Effective Use of Objective Medical Evidence

California Orthopaedic Associaion
Qualified Medical ExaminerCourse

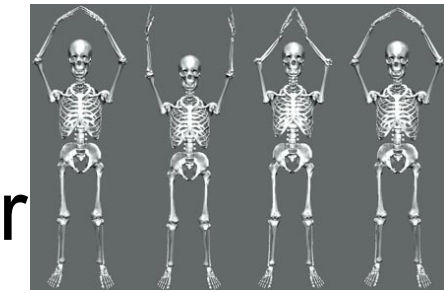
April 22, 2012
1:00 pm

Jim Talmage MD

Questions ?

James B. Talmage MD,

Occupational Health Center



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Cookeville, TN 38501

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olddrt@occhealth.md

Should Your IME **Report** Be the SAME, REGARDLESS of the Requesting Source???

AAOS 2012 Code of Ethics

- http://www6.aaos.org/news/PDFopen/PDFopen.cfm?page_url=http://www.aaos.org/about/papers/ethics/code.asp

- **§ II. A.** The orthopaedic surgeon should maintain a **reputation for truth and honesty.**

AAOS 2012 Code of Ethics

- http://www6.aaos.org/news/PDFopen/PDFopen.cfm?page_url=http://www.aaos.org/about/papers/ethics/code.asp
- **§ V. C.** -Orthopaedic surgeons are frequently called upon to provide expert **medical testimony** in courts of law.
- In providing testimony, the orthopaedic surgeon should exercise **extreme caution** to ensure that the testimony provided is **nonpartisan, scientifically correct, and clinically accurate.**

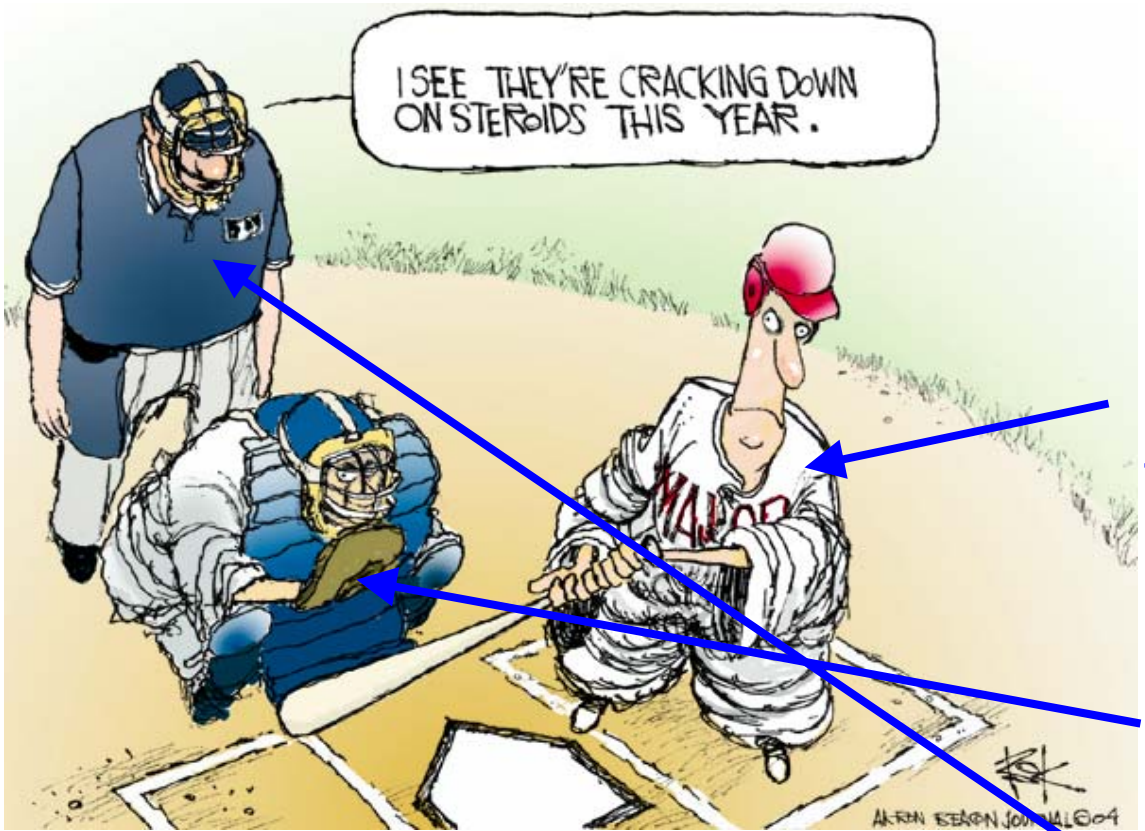
AAOS 2012 Code of Ethics

- http://www6.aaos.org/news/PDFopen/PDFopen.cfm?page_url=http://www.aaos.org/about/papers/ethics/code.asp
- The orthopaedic surgeon should **not testify** concerning **matters** about which the orthopaedic surgeon is **not knowledgeable.**
- It is unethical for an orthopaedic surgeon to accept compensation that is **contingent upon the outcome of litigation.**

Physician Advocacy

- In NON-legal matters,
  physicians are advocates
  for their patients.
- In legal matters, we are to be **neutral.**

IME Doctor's Role



Paradigm Shift

Not "at bat"
for plaintiff/patient

Not the defense
Catcher

Role EXPECTED of physicians is to be a NEURTAL "umpire",
and to rate impairment "by the book",
NOT favoring either side.

Opinion versus **EVIDENCE**

- Opinion [Wikipedia]:
  - In general, an **opinion** is a subjective belief, and is the result of emotion or interpretation of facts. An opinion may be supported by an argument, although people may draw opposing opinions from the same set of facts.
  - However, it can be reasoned that **one opinion is better supported by the facts** than another by analysing the supporting arguments.[1]

Opinion versus EVIDENCE

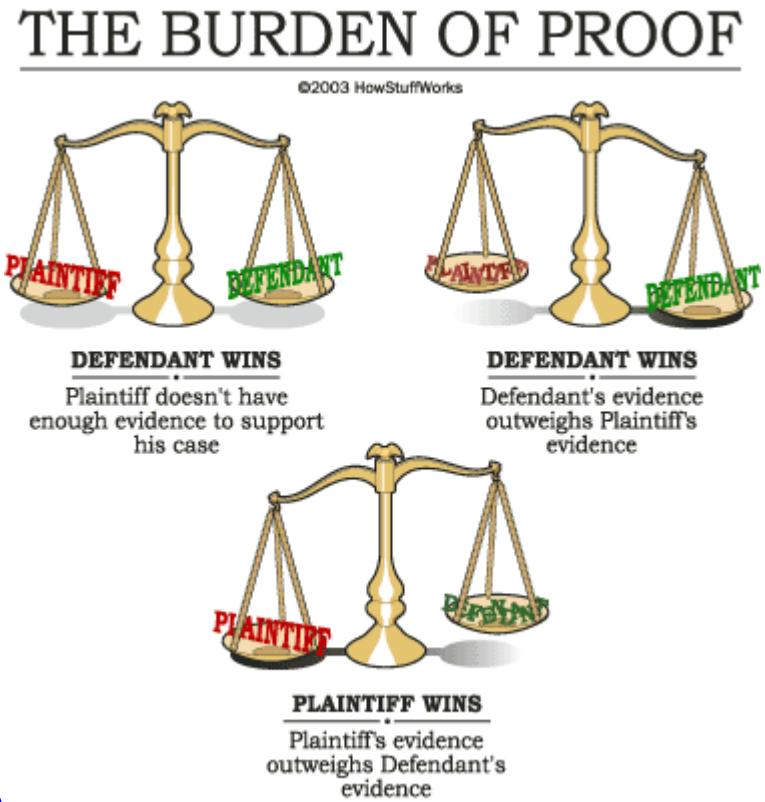
- Opinion [Wikipedia]:
  - In casual use, the term *opinion* may be the result of a person's perspective, understanding, particular feelings, beliefs, and desires.
  - It may refer to unsubstantiated information, *in contrast to knowledge and fact-based beliefs.*

Opinion versus EVIDENCE

- Evidence [Wikipedia]:
  - **Evidence** in its broadest sense includes everything that is used to determine or demonstrate the truth of an assertion.
  - Giving or procuring evidence is the process of **using those things** that are either (a) presumed to be true, or (b) were themselves **proven via evidence**, to demonstrate an assertion's truth.
  - Evidence is the currency by which one fulfills the burden of proof.

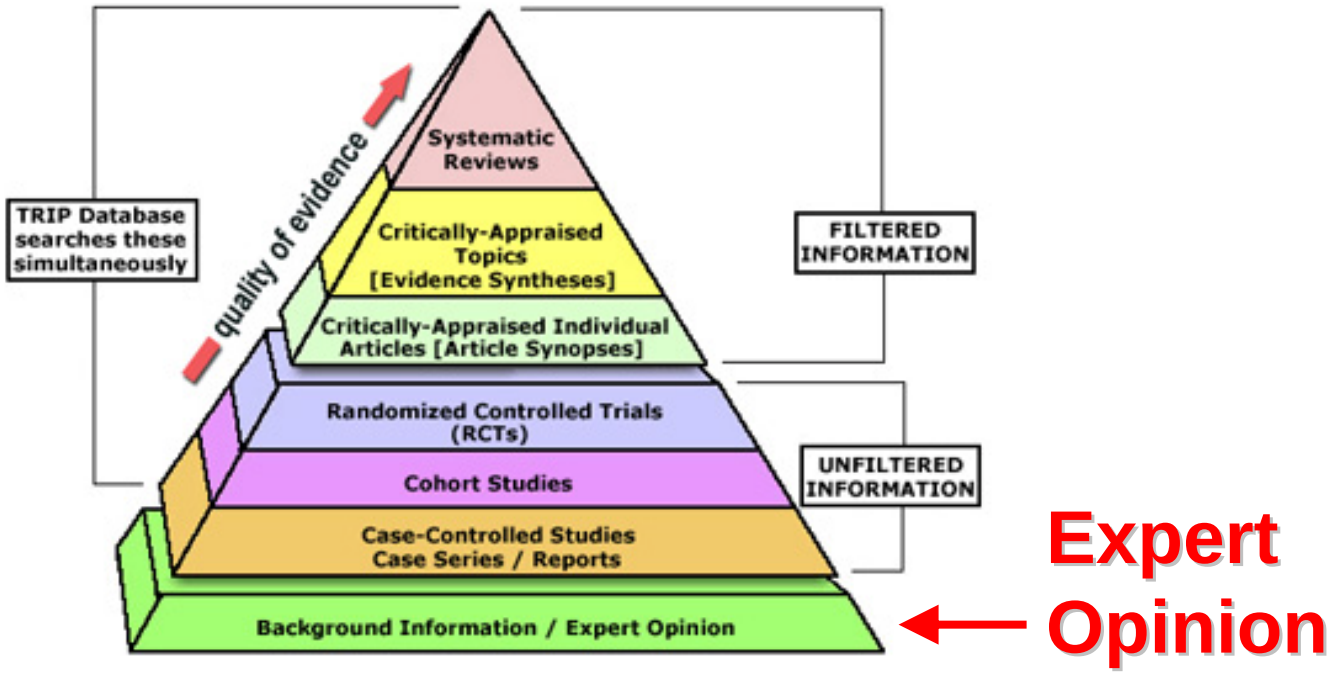
Opinion versus EVIDENCE

- Evidence [Wikipedia]:
- In **scientific research** evidence is accumulated through observations of phenomena that occur in the natural world, or which are created as experiments in a laboratory or other controlled conditions. Scientific evidence usually goes towards supporting or rejecting a hypothesis.



Opinion versus EVIDENCE

- Evidence [Wikipedia]:
- The **rules** for evidence used by science are collected systematically in an attempt to **avoid** the bias inherent to anecdotal evidence.



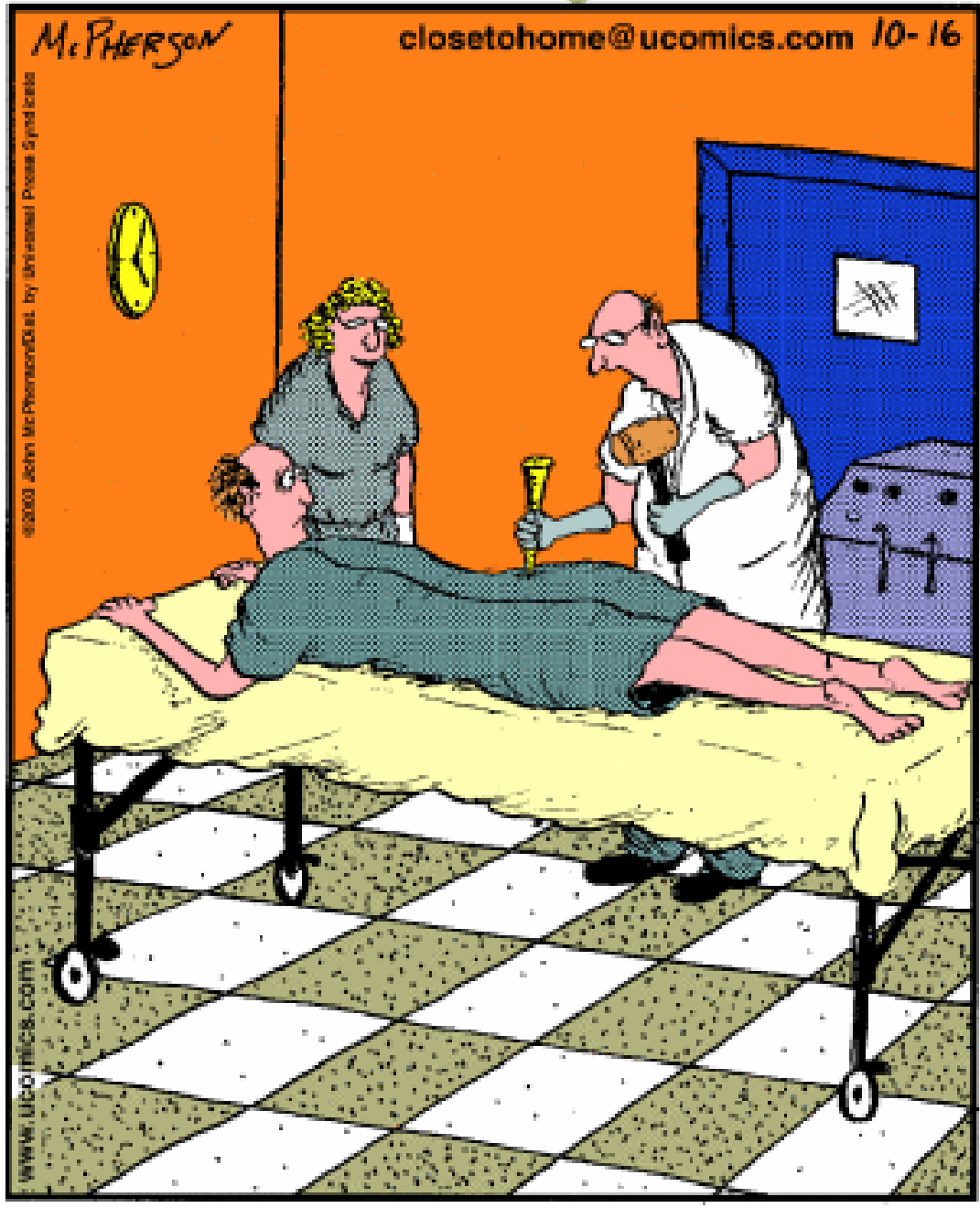
http://www.ejbjs.org/misc/public/instrux.shtml
(*JBJS*)

Levels of Evidence for Primary Research Question

Levels of Evidence for Primary Research Question

	Types of Studies			
	Therapeutic Studies—Investigating the Results of Treatment	Prognostic Studies—Investigating the Effect of a Patient Characteristic on the Outcome of Disease	Diagnostic Studies—Investigating a Diagnostic Test	Economic and Decision Analyses—Developing an Economic or Decision Model
Level I	• High-quality randomized controlled trial with statistically significant difference or no statistically significant difference but narrow confidence intervals • Systematic review[2] of Level-I randomized controlled trials (studies were homogeneous)	• High-quality prospective study[4] (all patients were enrolled at the same point in their disease with ≥80% follow-up of enrolled patients) • Systematic review[2] of Level-I studies	• Testing of previously developed diagnostic criteria in series of consecutive patients (with universally applied reference "gold" standard) • Systematic review[2] of Level-I studies	• Sensible costs and alternatives; values obtained from many studies; multiway sensitivity analyses • Systematic review[2] of Level-I studies
Level II	• Lesser-quality randomized controlled trial (e.g., <80% follow-up, no blinding, or improper randomization) • Prospective[4] comparative study[5] • Systematic review[2] of Level-II studies or Level-I studies with inconsistent results	• Retrospective[6] study • Untreated controls from a randomized controlled trial • Lesser-quality prospective study (e.g., patients enrolled at different points in their disease or <80% follow-up) • Systematic review[2] of Level-II studies	• Development of diagnostic criteria on basis of consecutive patients (with universally applied reference "gold" standard) • Systematic review[2] of Level-II studies	• Sensible costs and alternatives; values obtained from limited studies; multiway sensitivity analyses • Systematic review[2] of Level-II studies
Level III	• Case-control study[7] • Retrospective[6] comparative study[5] • Systematic review[2] of Level-III studies	• Case-control study[7]	• Study of nonconsecutive patients (without consistently applied reference "gold" standard) • Systematic review[2] of Level-III studies	• Analyses based on limited alternatives and costs; poor estimates • Systematic review[2] of Level-III studies
Level IV	Case series[8]	Case series	• Case-control study • Poor reference standard	• No sensitivity analyses
Level V	Expert opinion	Expert opinion	Expert opinion	Expert opinion

Some MDs prefer the "old methods" of treatment to the concept of Evidence Based Treatment



"When it comes to bustin' a kidney stone, the old methods are still the best."

Editorial: "Evidence Based Medicine" W.P. Cooney MD, Editor, ***JAAOS*** 2005; 13 (4): 219

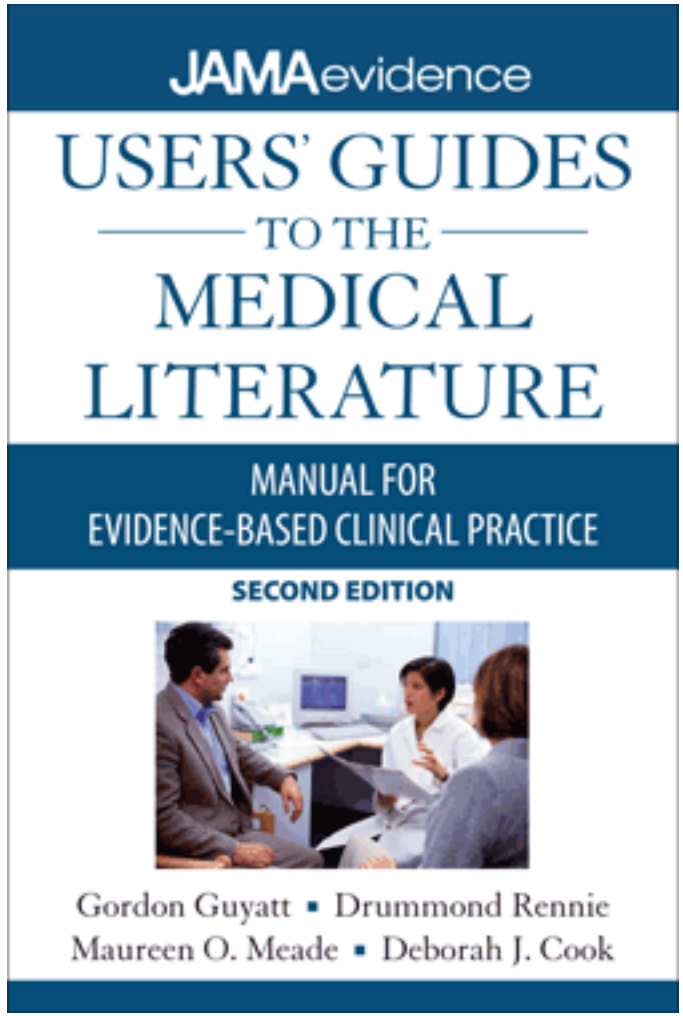
- "As I recall from my training and subsequent practice at a leading medical center, there are four or five reasons **for choosing** or proceeding with a certain surgical or medical treatment:

1. **We've always done it this way**
2. **The chief recommends this** type of treatment, and he or she is as experienced as they come
3. This treatment is the best one, considering the circumstances, and "it appeared to be good idea at the time
4. We just thought we'd try this new technique. It's written up in one of the journals, isn't it?
5. Under the circumstances, we did not have other options."

Users' Guide to the Medical Literature

Gordon Guyatt MD and
Drummond Rennie MD
Editors,
AMA publication
www.amapress.com
1-800-621-8335

I have NO financial interest in this book

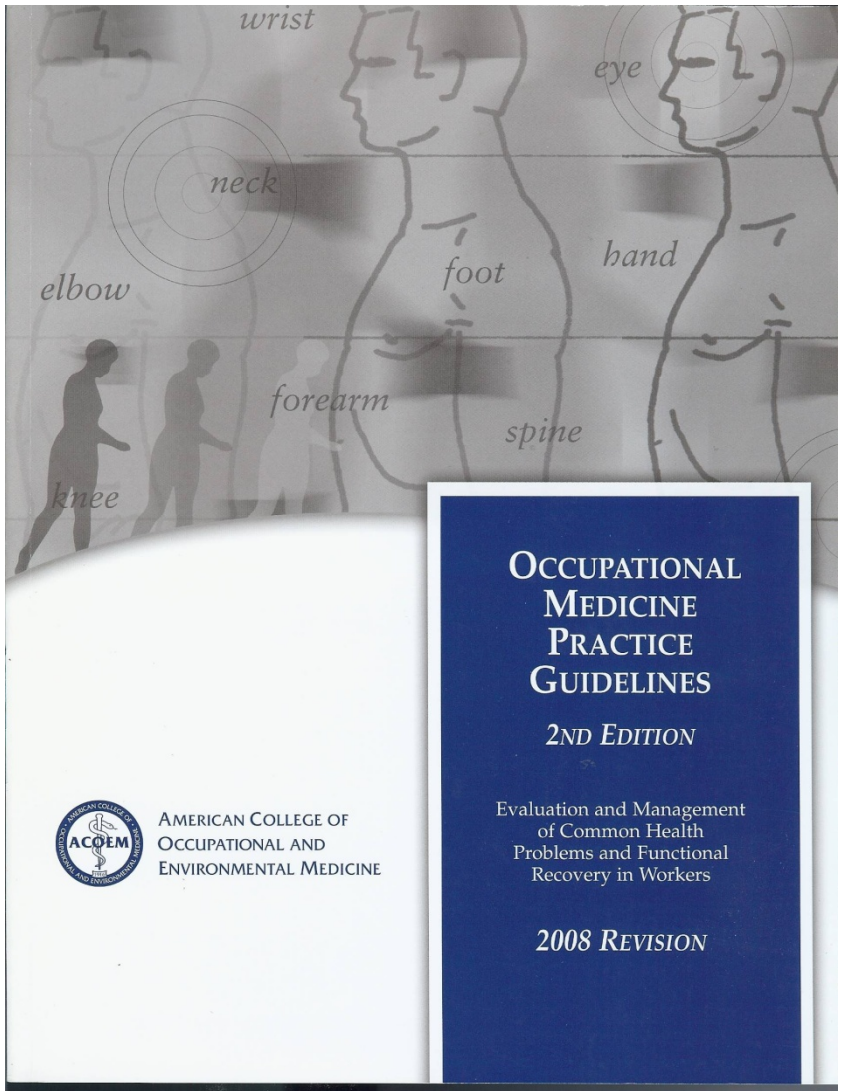


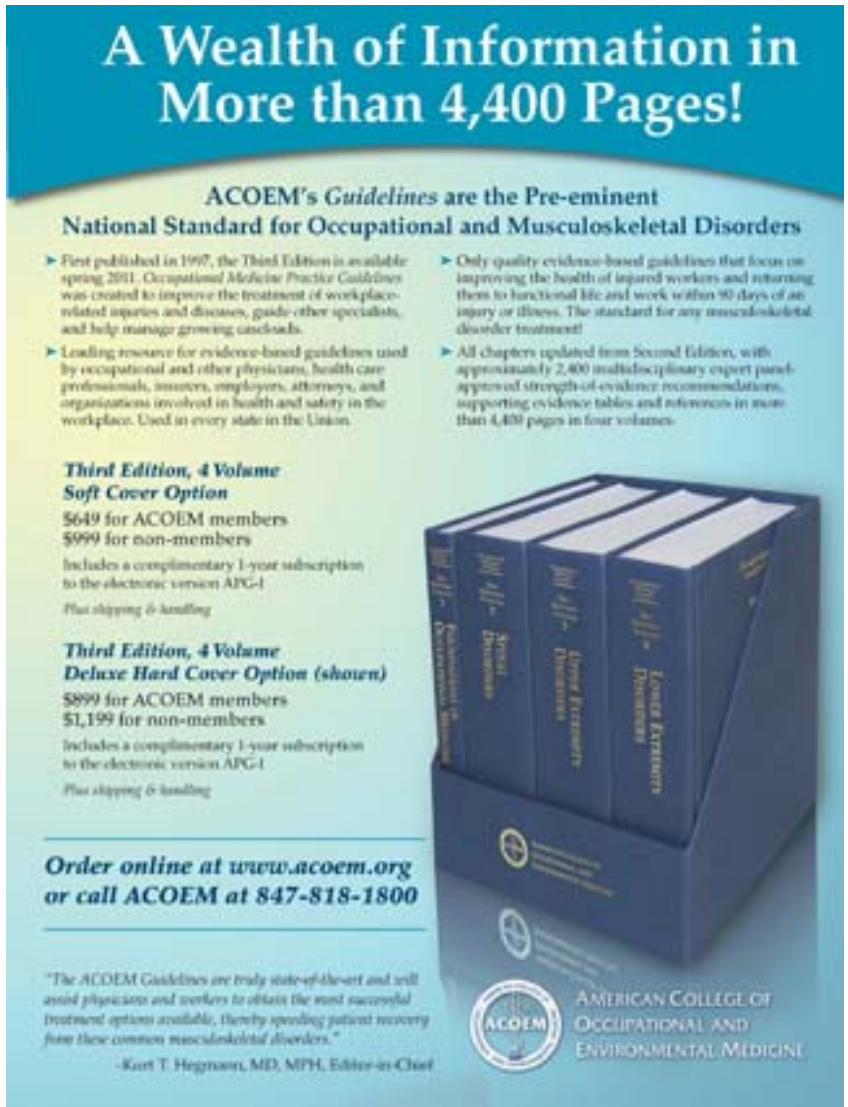
Single BEST REFERENCE on this subject

ACOEM Guidelines

www.acoem.org

847-818-1800



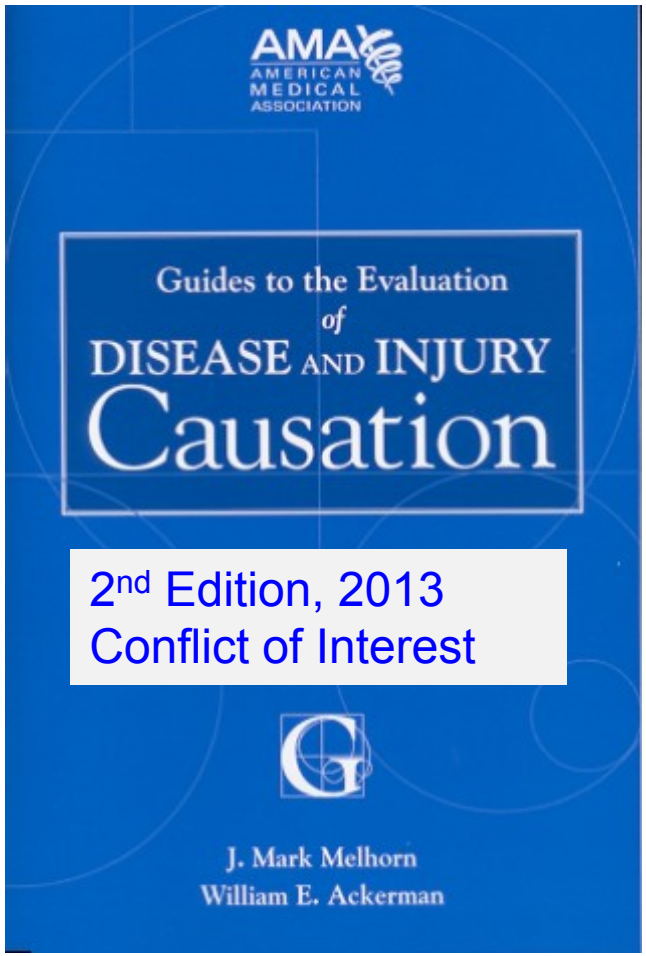


www.disabilitydurations.com

Privately held, for profit company

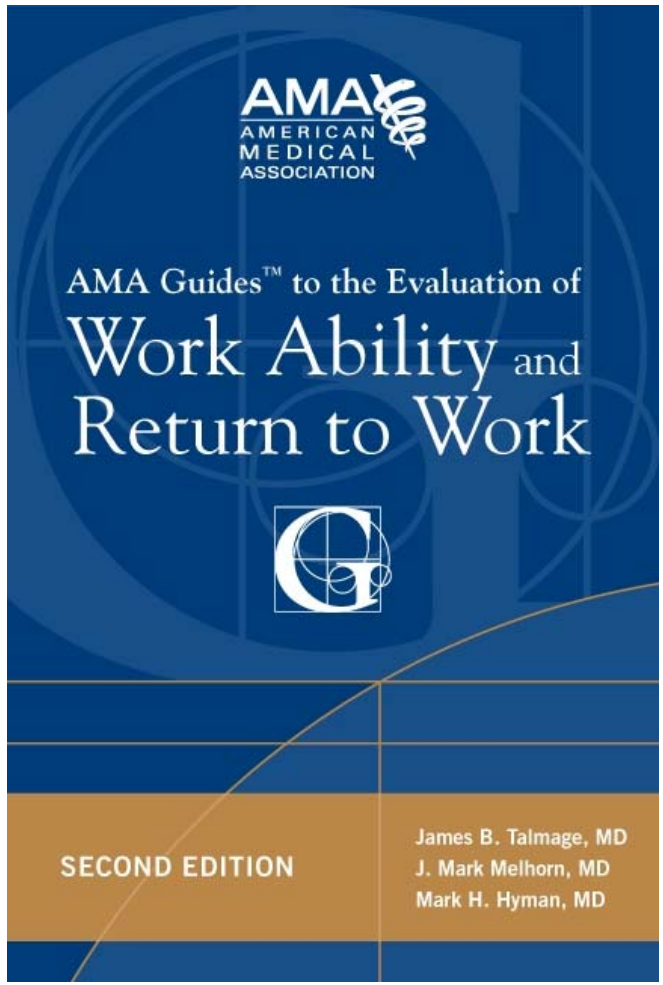
AMA Press

https://catalog.ama-assn.org/Catalog/fragments/product/childProduct.jsp?childName=Impairment+and+disability+assessment+and+treatment&parentCategory=cat230022&categoryName=Guides+Impairment+Resources&prodId=cat760015&start=1&parentId=cat230022



2nd Edition, 2013
Conflict of Interest

FINANCIAL CONFLICT OF INTEREST



www.mdguidelines.com

FINANCIAL CONFLICT OF INTEREST

MDGuidelines™

Return to work is the best measure of healthcare outcomes.

Search by keyword or medical code

Directory Print Email Advanced Search SHARE

Top 20 Diagnoses

1. Low Back Pain
2. Lumbar Strains
3. Knee Disorders
4. Depression, Major
5. Disc Displacement
6. Knee Sprains
7. Back Strains
8. Osteoarthritis
9. Ankle Fracture
10. Neck Strains
11. Rotator Cuff Tear
12. Ankle Sprains
13. Hernia
14. Carpal Tunnel Syndrome
15. Shoulder and Upper Arm Sprains
16. Radius and Ulna Fracture
17. Lumbar Disc Disorder
18. Back Pain
19. Disc Degeneration
20. Pregnancy, Normal

MDGuidelines is your one-stop portal for return-to-work and treatment guidelines!

Content Sources

Medical Disability Advisor (MDA)
American College of Occupational and Environmental Medicine Practice Guidelines (ACOEM APGi)
Colorado Treatment Guidelines
New York Treatment Guidelines
Washington Treatment Guidelines

Indexes for Medical Disability Advisor

Anatomical Regions (MDA)
Diagnostic Categories (MDA)
Medical Specialists (MDA)
ICD-9-CM Codes
Job Titles

New Topics

1. Femoral Acetabular Impingement
2. Gluteus Medius Tear
3. Hip Dysplasia
4. Ligamentum Teres Rupture
5. Meralgia Paresthetica
6. MRSA
7. Pronator Syndrome
8. TFCC
9. Trochanteric Bursitis

Revised Topics

1. Abdominal Adhesions
2. Abdominal Aneurysm
3. Abdominoperineal Resection of Rectum
4. Abortion, Surgical
5. Abscess
6. Abscess, Peritonsillar
7. Actinomycosis
8. Anemia

- https://www.dir.ca.gov/dwc/DWCPropRegs/MedicalTreatmentUtilizationSchedule/MTUS_FinalCleanCopy.pdf

TITLE 8. INDUSTRIAL RELATIONS
DIVISION 1. DEPARTMENT OF INDUSTRIAL RELATIONS
CHAPTER 4.5. DIVISION OF WORKERS' COMPENSATION
SUBCHAPTER 1. ADMINISTRATIVE DIRECTOR -- ADMINISTRATIVE RULES

June 15, 2007

Add the following new Article to Subchapter 1:

ARTICLE 5.5.2 MEDICAL TREATMENT UTILIZATION SCHEDULE

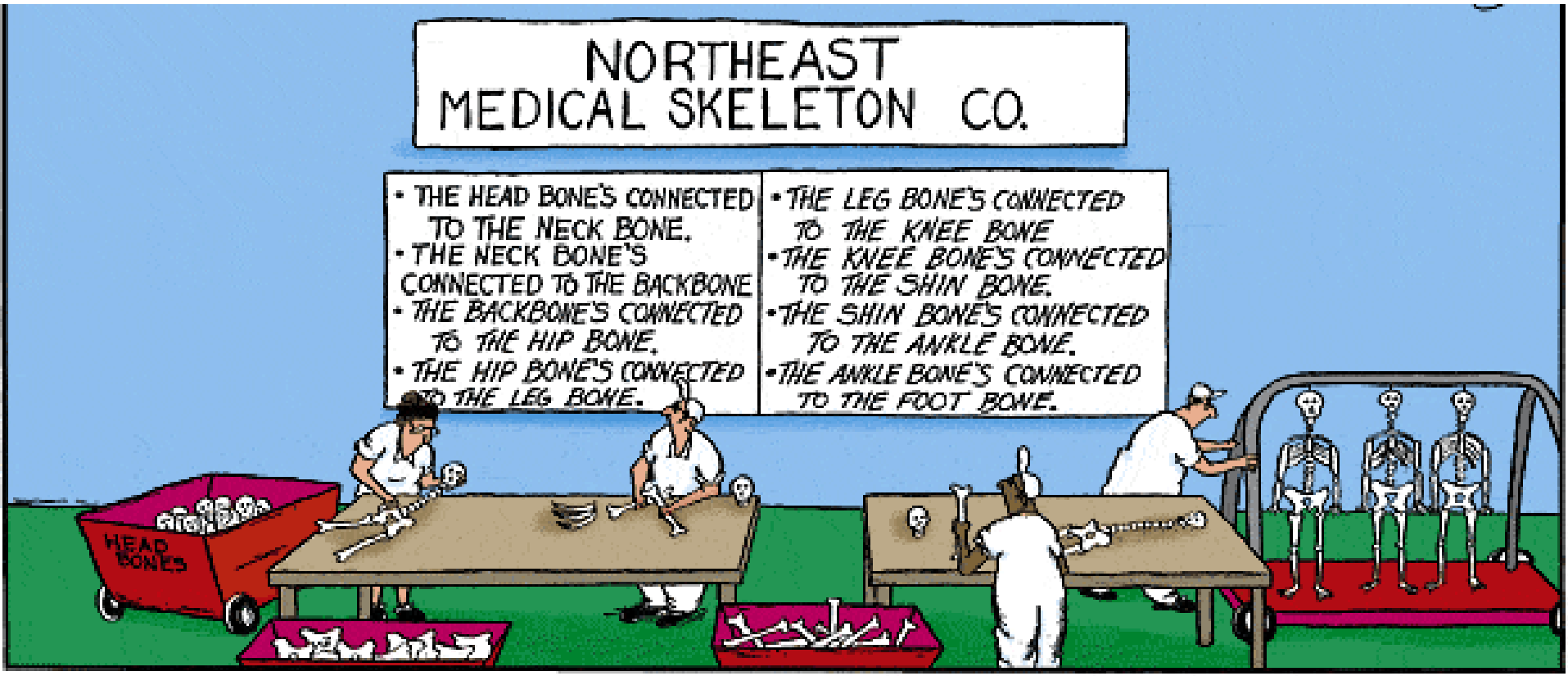
§ 9792.20. Medical Treatment Utilization Schedule—Definitions

As used in this Article:

(a) "American College of Occupational and Environmental Medicine (ACOEM)" is a medical society of physicians and other health care professionals specializing in the field of occupational and environmental medicine, dedicated to promoting the health of workers through preventive medicine, clinical care, research, and education.

(b) "ACOEM Practice Guidelines" means the American College of Occupational and Environmental Medicine's Occupational Medicine Practice Guidelines, 2nd Edition (2004). The Administrative Director incorporates the ACOEM Practice Guidelines by reference. A copy may be obtained from the American College of Occupational and Environmental Medicine, 25 Northwest Point Blvd., Suite 700, Elk Grove Village, Illinois, 60007-1030 (www.acoem.org).

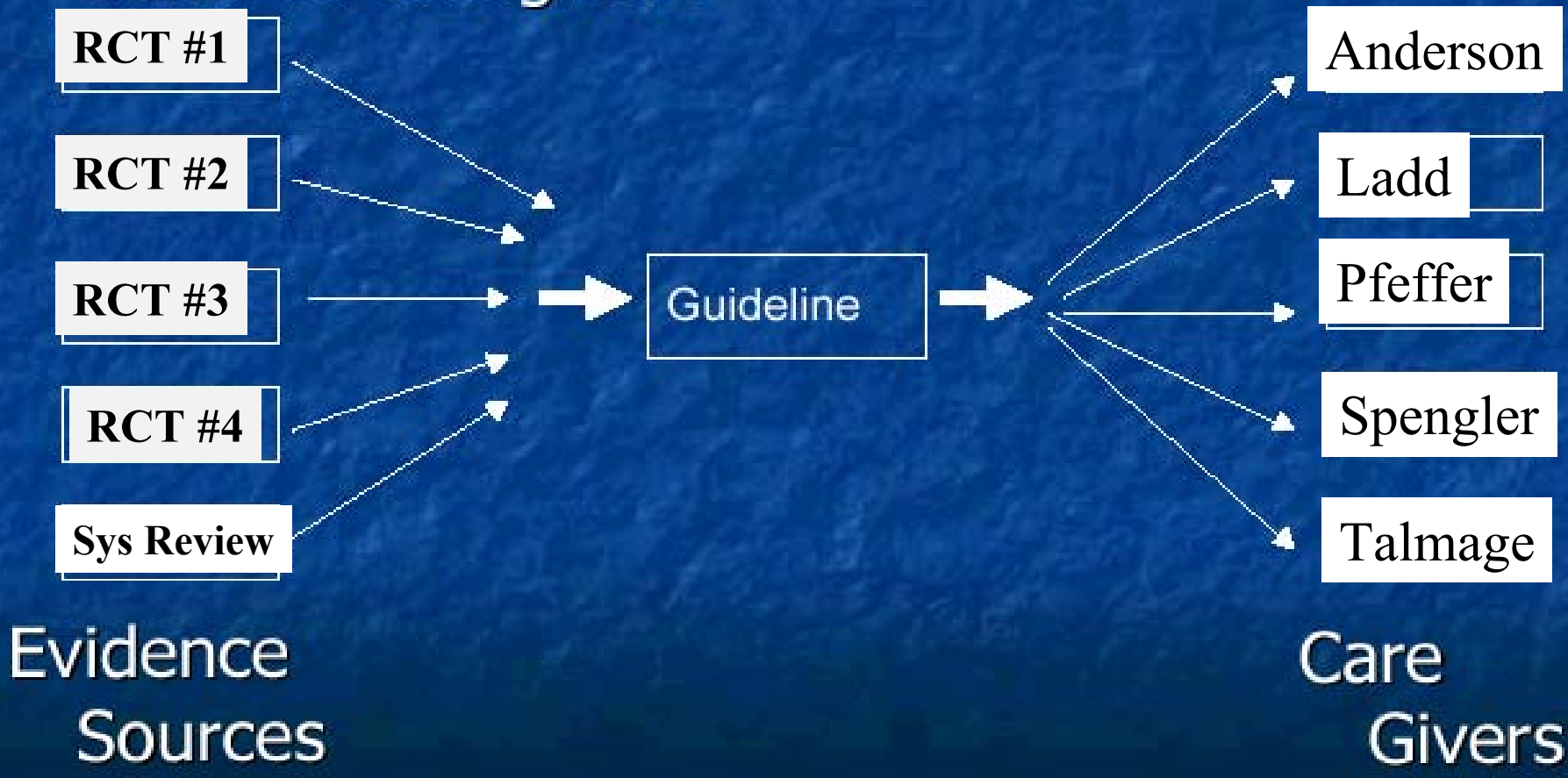
Guidelines: “How to do it”



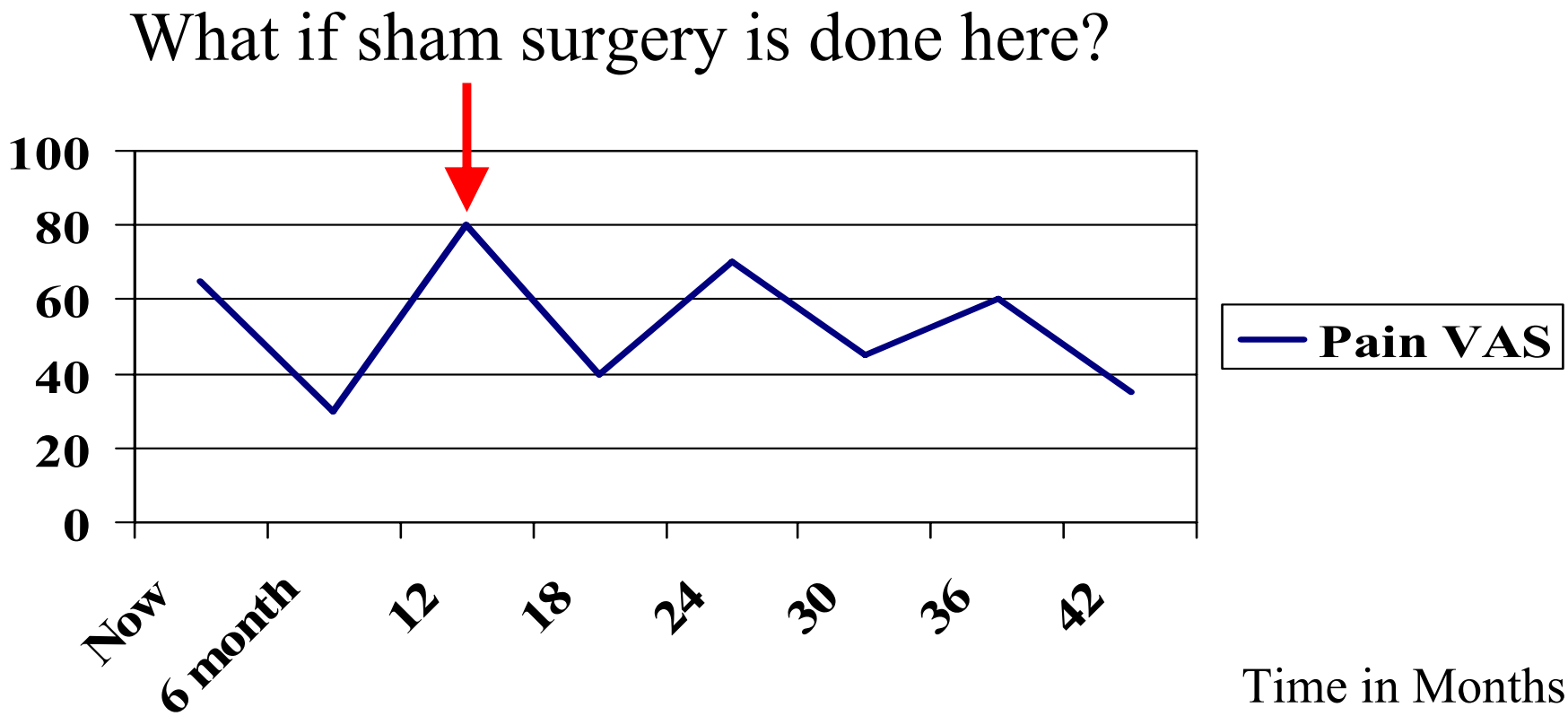
How to put the evidence together

What are Guidelines?

Translation of medical evidence into a useable form for caregivers

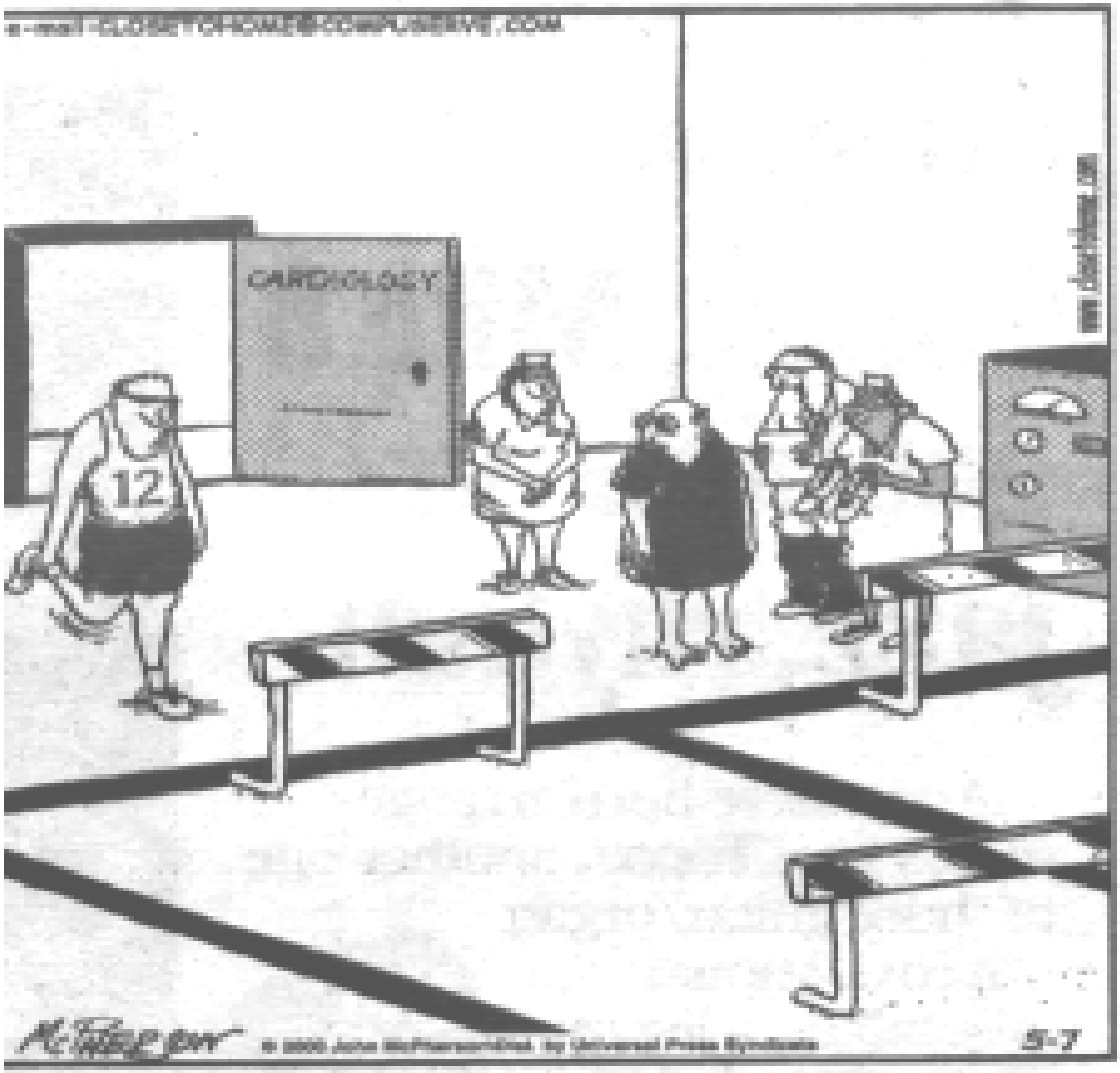


Surgery is done when patients are "at their worst", assessment is done later, when natural cycling of symptoms would suggest improvement, **even if surgery is ineffective.**

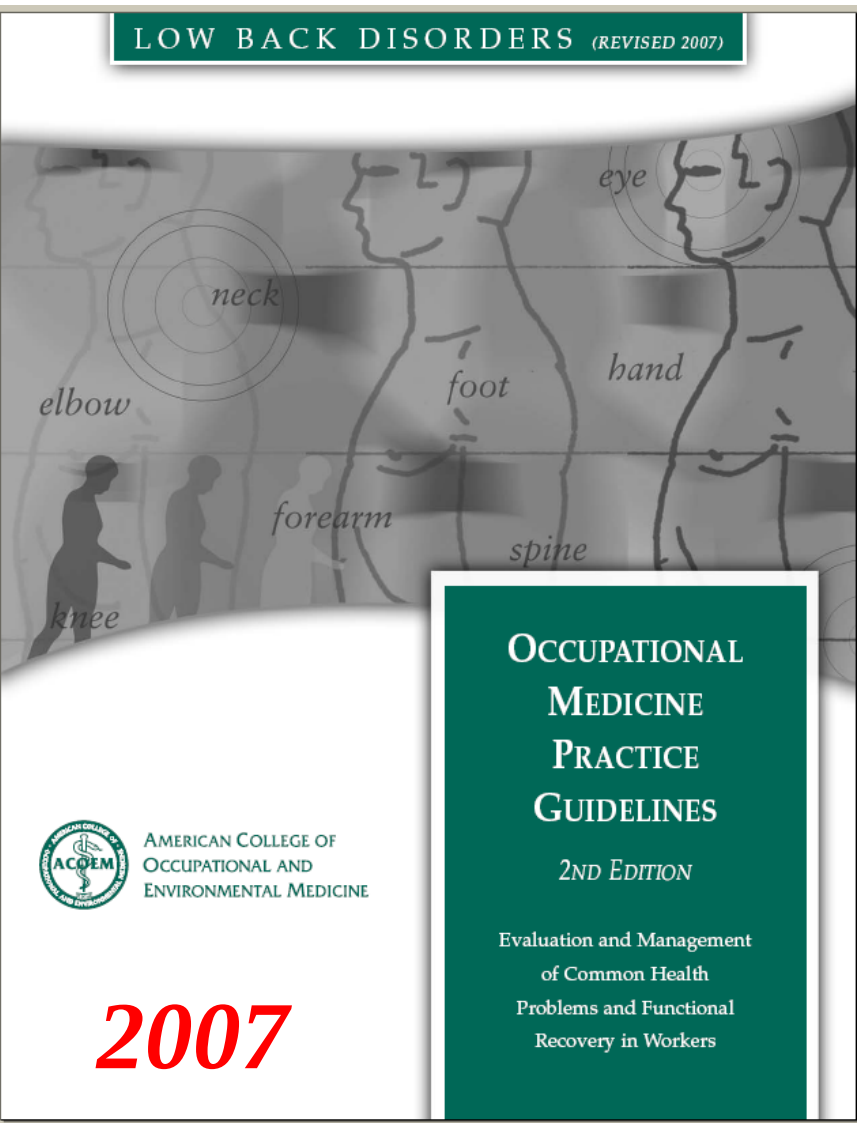


Natural cyclic history of back pain getting better and worse

Only RCTs have valid controls

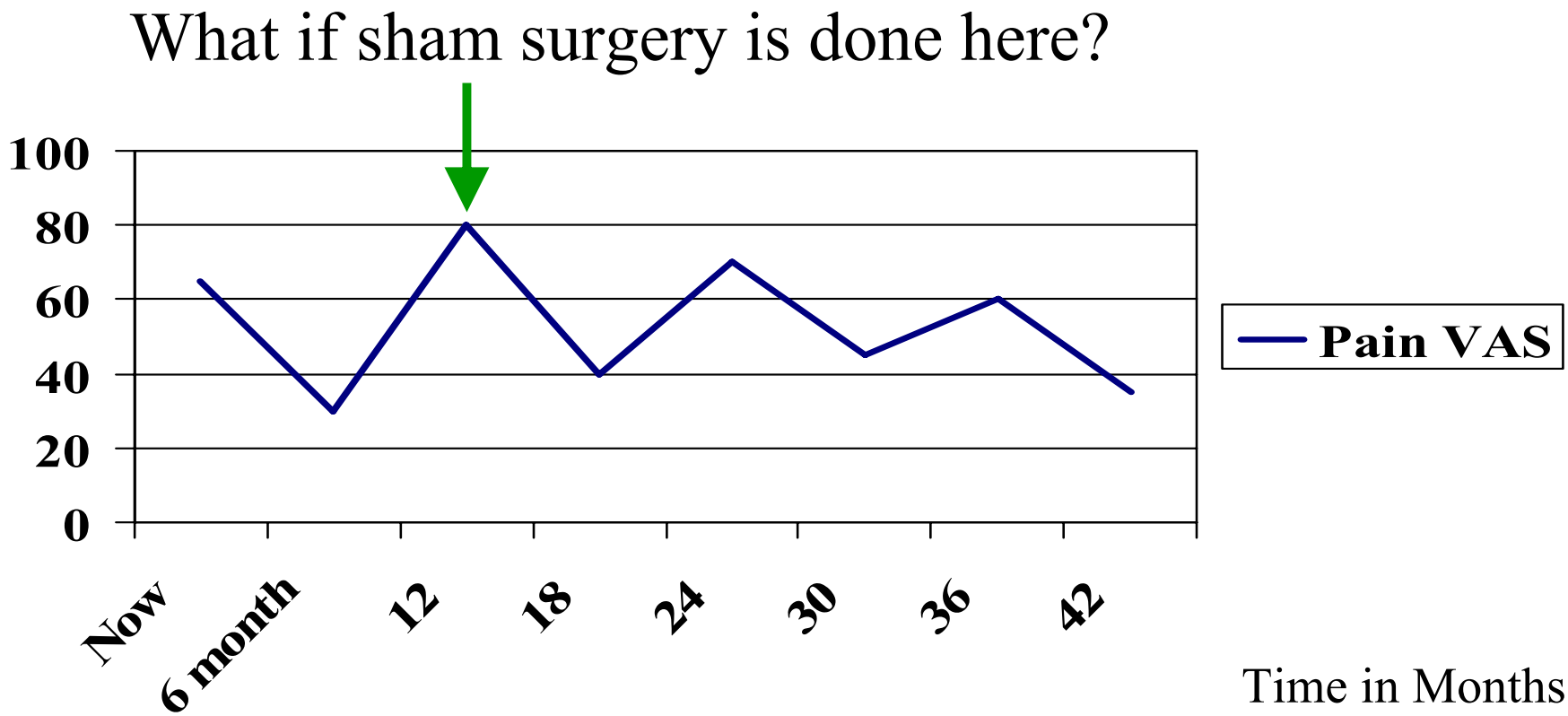


UNPAID CHAIR: Spine Committee



- *ACOEM Guidelines*
  - 366 pages
  - 1320 articles reviewed and referenced.
  - Over **550 RCTs** used
  - **< 10** had a **placebo group that failed to improve**

Surgery is done when patients are "at their worst", assessment is done later, when natural cycling of symptoms would suggest improvement, **even if surgery is ineffective.**



Natural cyclic history of back pain getting better and worse

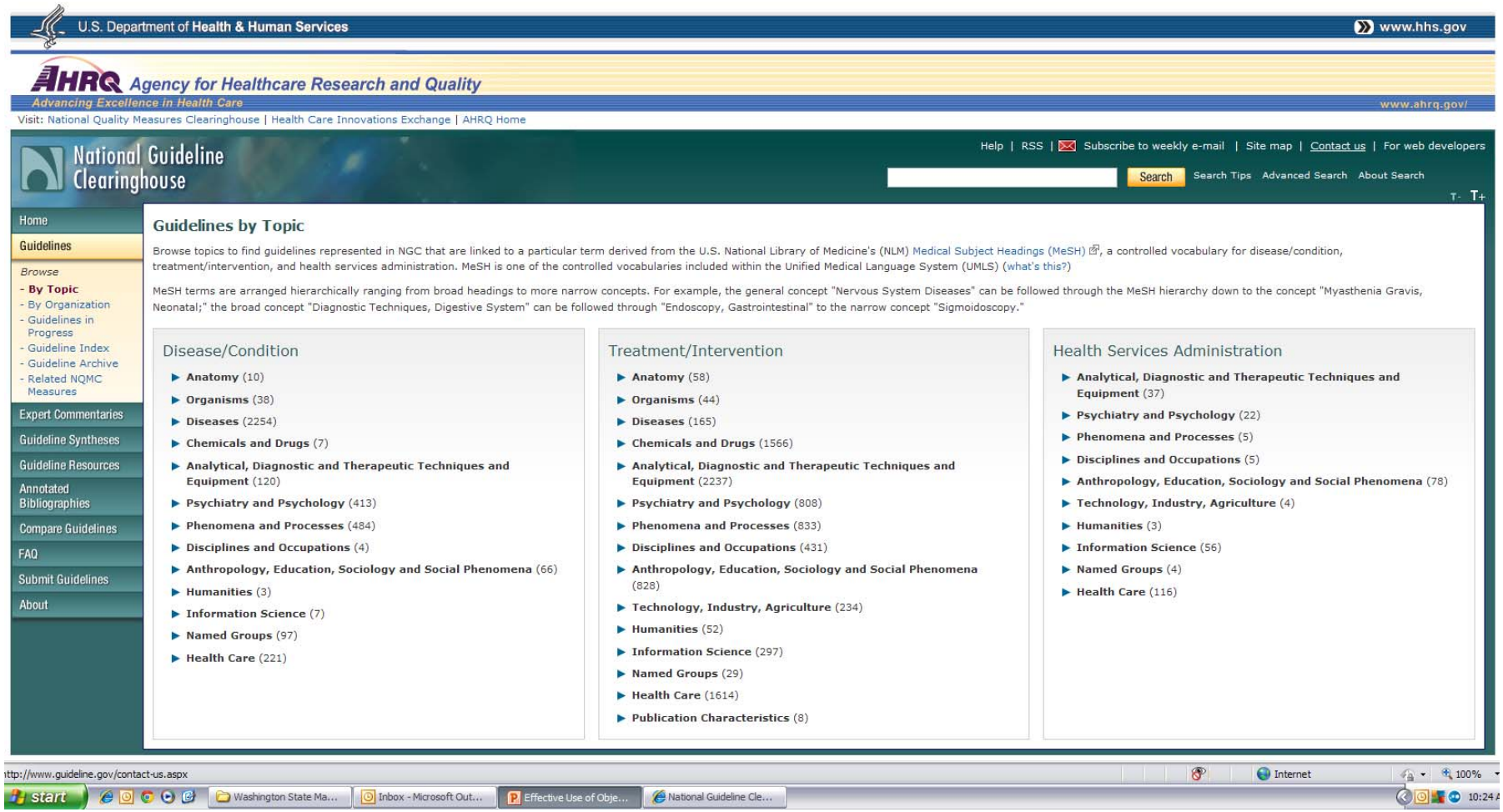
Definition

- **Practice Guidelines:** Guidelines are systematically developed statements to assist practitioner and patient decisions about appropriate health care for specific clinical circumstances. They are a set of statements, directions, or principles presenting current or future **clinical rules** or policy concerning the **proper indications for performing a procedure or treatment or the proper management for specific clinical problems.**

Guidelines

- **Guidelines** may be developed by government agencies, institutions, organizations such as **professional societies** or governing boards, or by the convening of expert panels.
- My **Bias**: "**Unfortunately**", Guidelines are also developed by private companies:
  - Milliman
  - McKesson
  - ODG (WLDI)

http://www.guideline.gov/browse/by-topic.aspx



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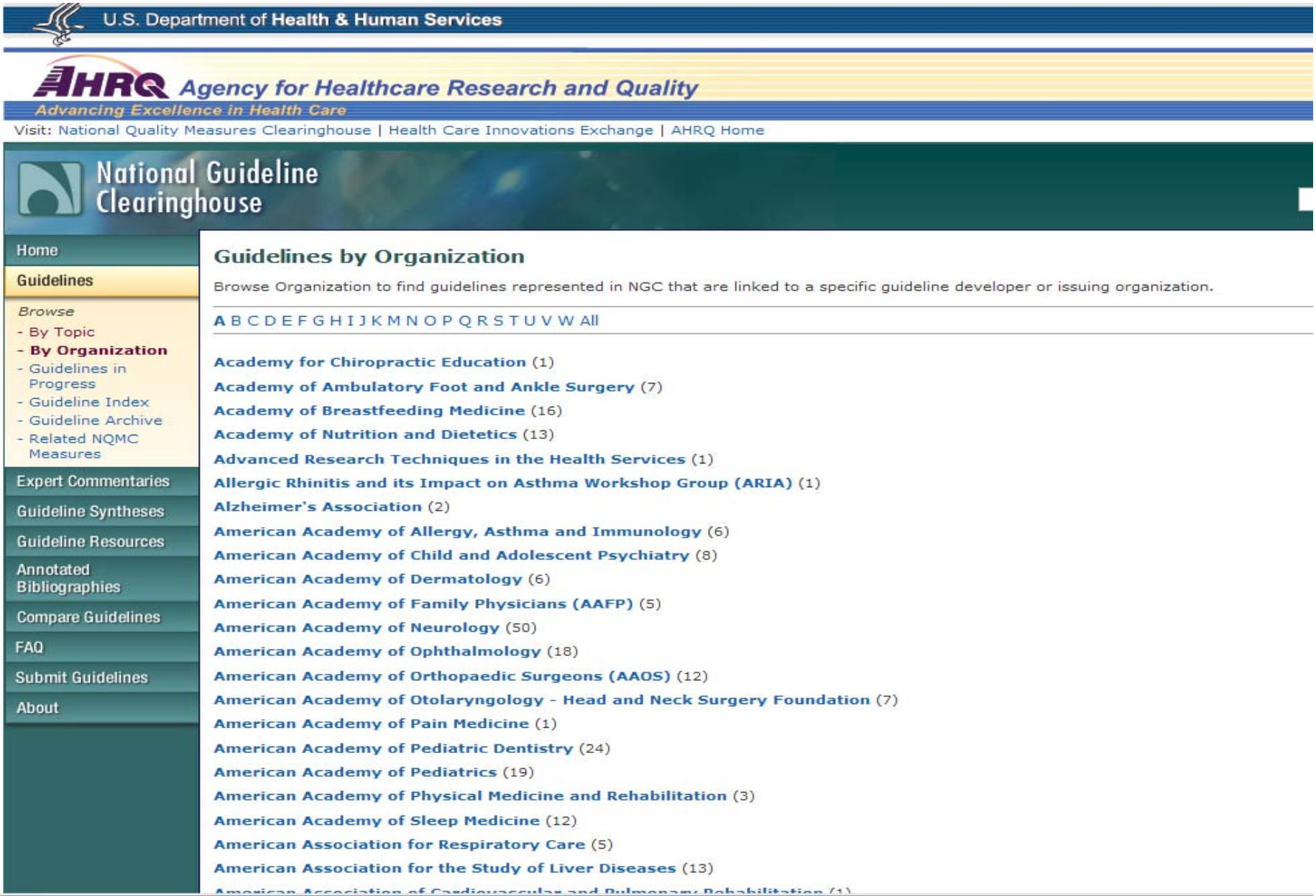
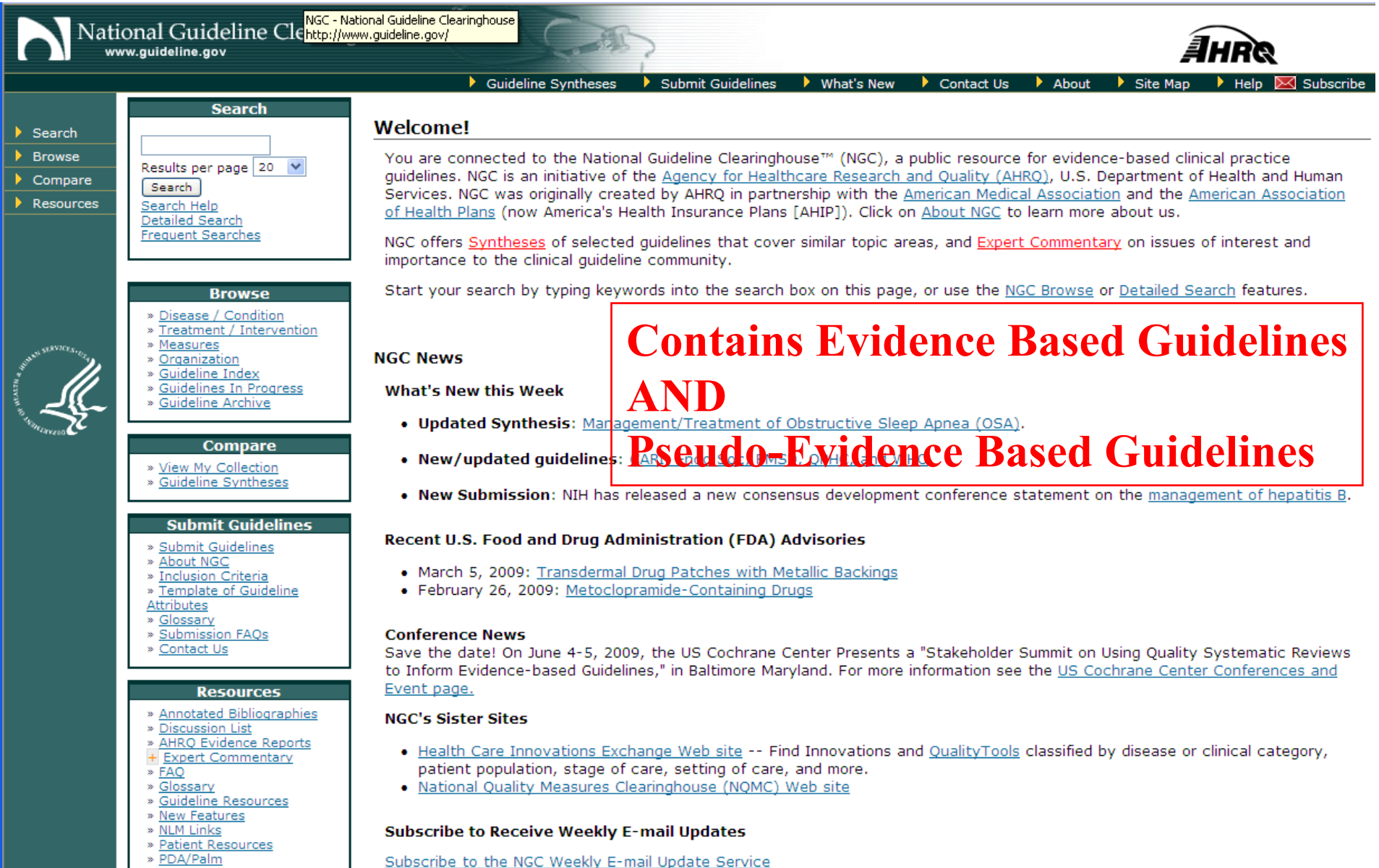


www.guideline.gov



Pain Physician 2008; 11: S5-S62

- Results: After an extensive review and analysis of the literature, which included systematic reviews and all of the available literature, the evidence for the effectiveness of long-term opioids in reducing pain and improving functional status for 6 months or longer is **variable.**
- The evidence for **BEWARE**
  - transdermal fentanyl and sustained-release morphine is **Level II-2**,
  - oxycodone the level of evidence is **II-3**,
  - hydrocodone and methadone is **Level III**.

Table 1. *Quality of evidence.*

I:	Evidence obtained from at least one properly randomized controlled trial.
II-1:	Evidence obtained from well-designed controlled trials without randomization.
II-2:	Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group.
II-3:	Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of the introduction of penicillin treatment in the 1940s) could also be regarded as this type of evidence.
III:	Opinions of respected authorities, based on clinical experience descriptive studies and case reports or reports of expert committees.

Adapted from the Agency for Healthcare Research and Quality U.S. Preventive Services Task Force (USPSTF) (Ref. 24)

“Guidelines”: The Devil is in the Details

- **ALWAYS READ** the **METHODS** Section

Anesthesiology 2010; 112:810–33

Practice Guidelines for Chronic Pain Management

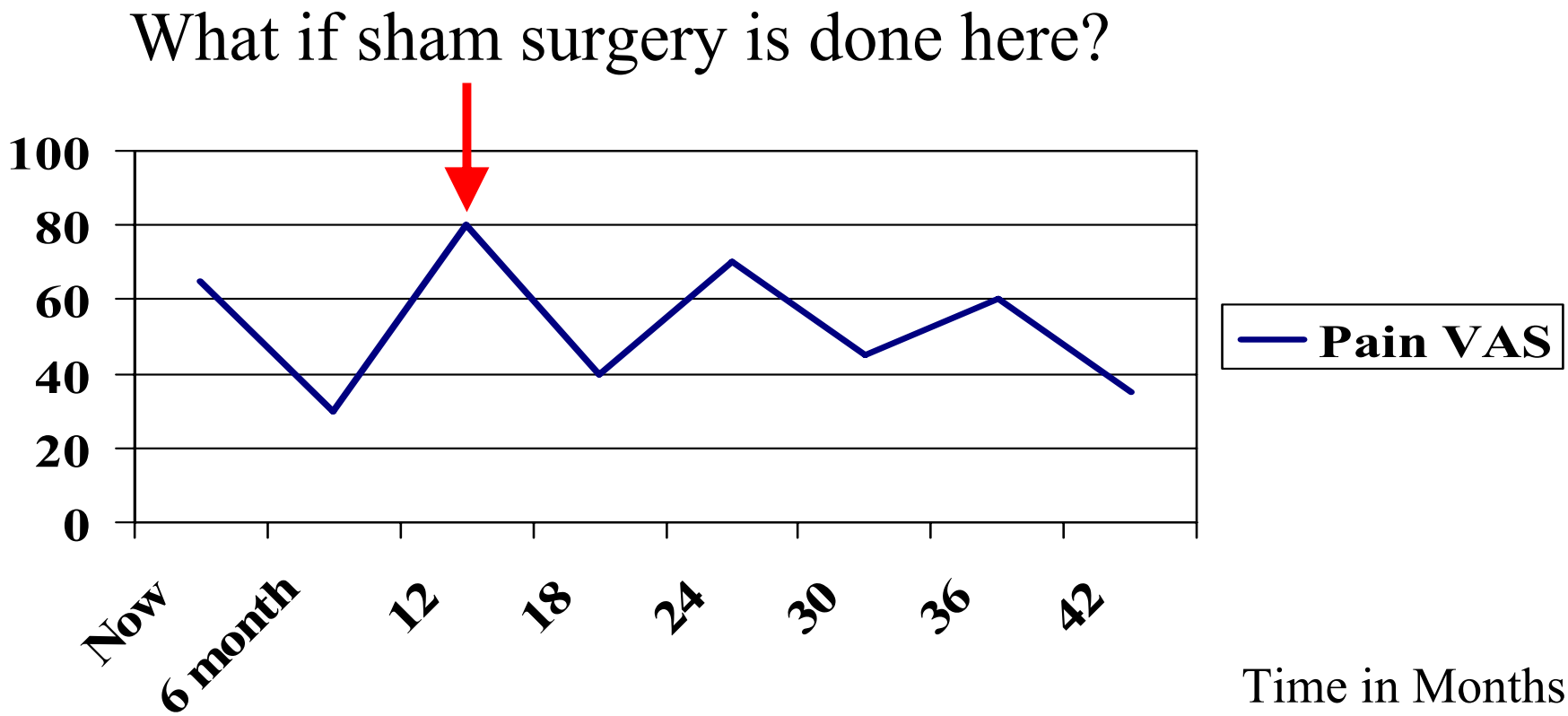
*An Updated Report by the American Society of Anesthesiologists Task Force on Chronic Pain Management and the American Society of Regional Anesthesia and Pain Medicine**

Anesthesiologist's “Guidelines”: The Devil is in the Details

- Observational Case Series can TRUMP RCTs.
- Example IDET:
  - 2 RCTs not effective, Evidence “C2”
  - Observational studies show it is effective, evidence “B2”
  - Thus, “equivocal evidence”, and no recommendation.
- **Recommend almost everything** imaginable (**billable**) for chronic pain

Anesthesiology 2010; 112: 810-833

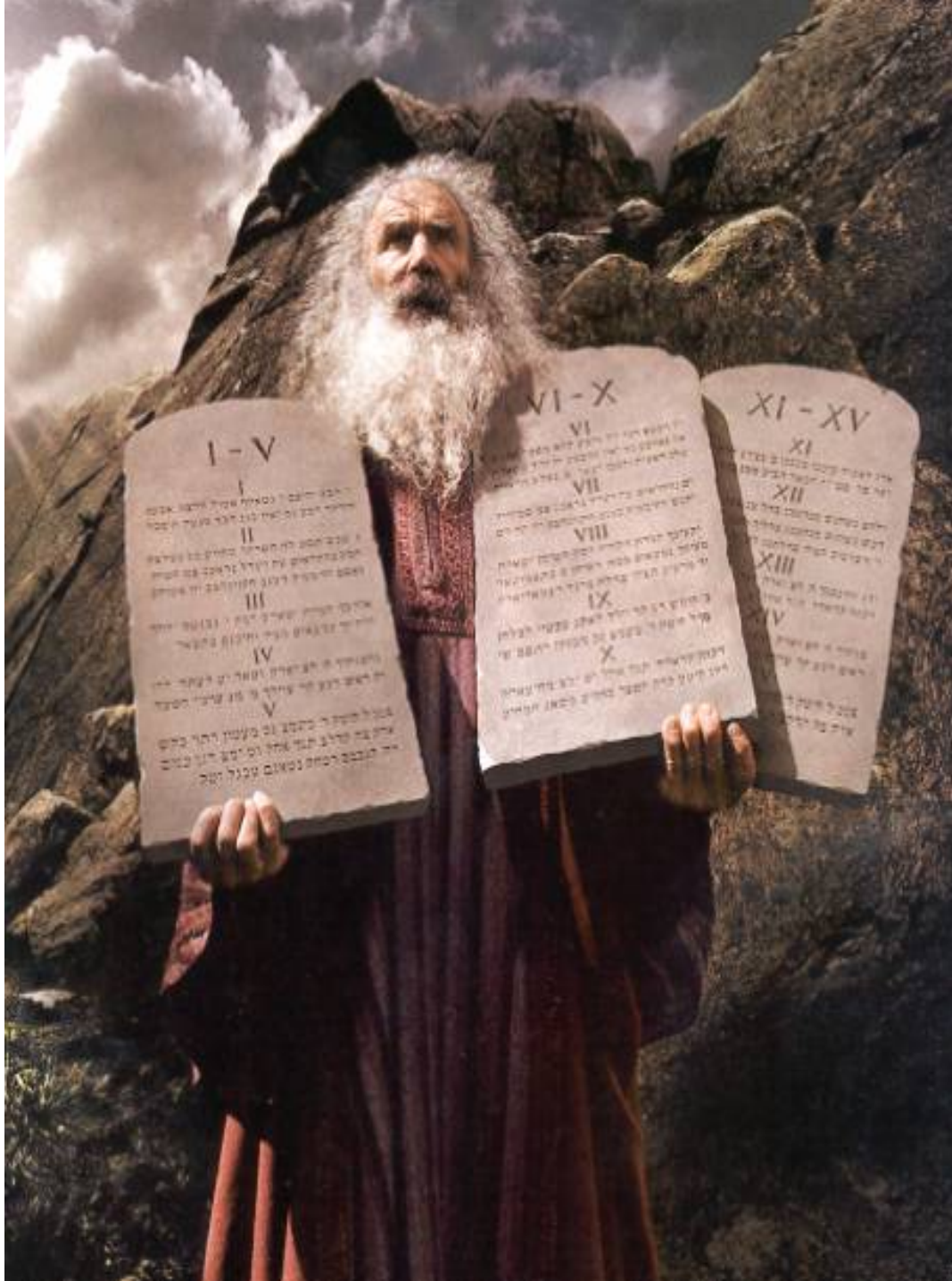
Surgery is done when patients are "at their worst", assessment is done later, when natural cycling of symptoms would suggest improvement, **even if surgery is ineffective.**



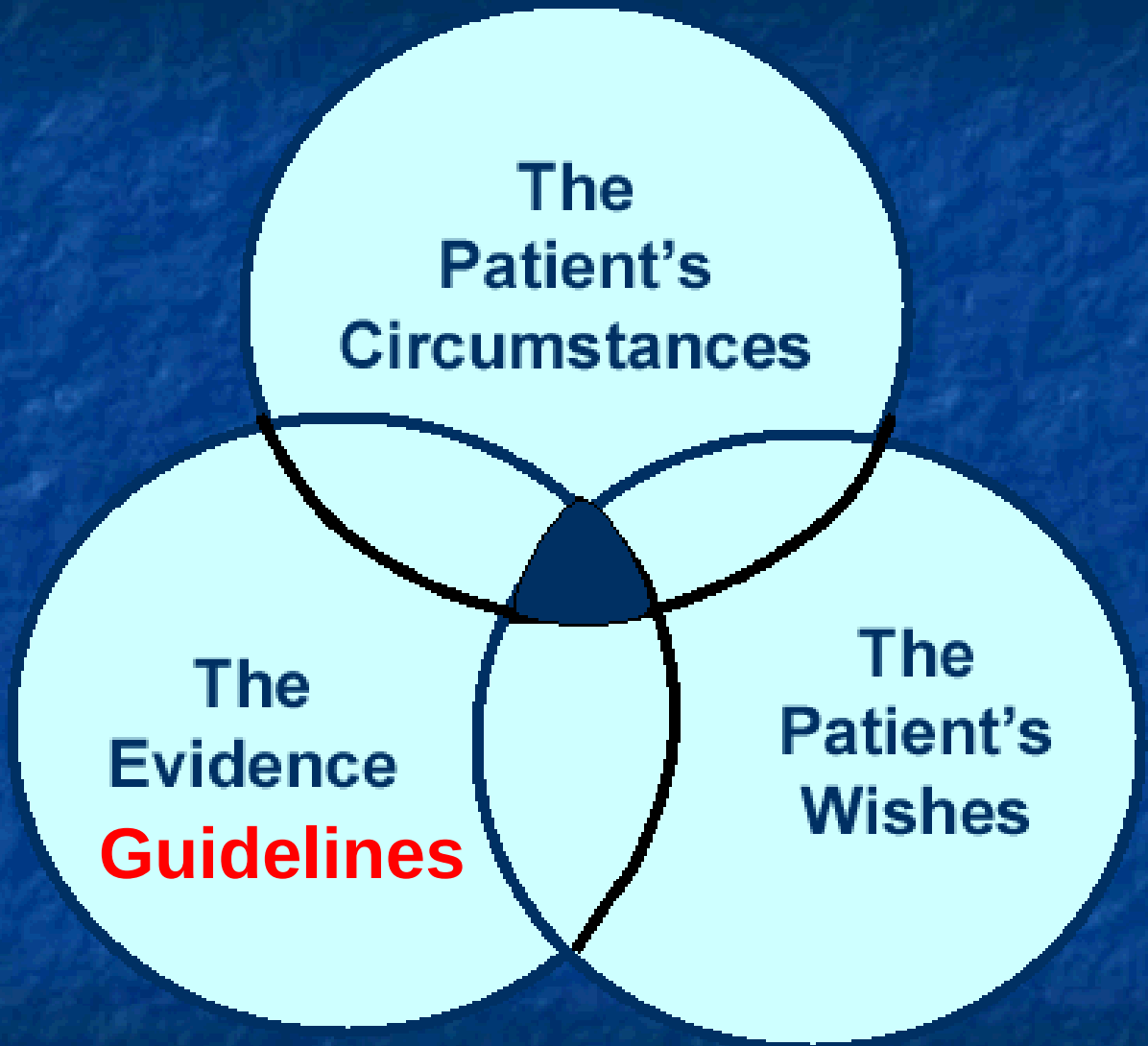
Natural cyclic history of back pain getting better and worse

Treatment GUIDELINES, are NOT commandments set in stone. They are a cookbook, for a

thinking cook.



Making Medical Decisions



Individual Articles: Conditions Uncommon, and thus NO Guidelines

Acute Carpal Tunnel Syndrome

J Am Acad Orthop Surg 2008;16:276-282

Kent A. Schnetzler, MD

Abstract

Carpal tunnel syndrome is considered the most common of the chronic compressive neuropathies. Its cause is generally unknown. Acute carpal tunnel syndrome, which is much less common, is more often directly related to fractures and fracture-dislocations about the wrist, hemorrhagic conditions, and vascular disorders involving the wrist. Many rare and unusual causes have been described, including chronic conditions that may be associated with acute carpal tunnel syndrome, such as rheumatologic disorders and anomalous anatomy. In contrast to the more common chronic idiopathic form, the acute form of carpal tunnel syndrome requires urgent surgical intervention to avoid or diminish serious sequelae.

How Does the Physician Use Guidelines ??

- Treating Physician
- **IME/2nd Opinion/File Review Physician**
- Hospital Quality Assurance/Utilization Review Committee Member Physician

Treating Physician

- Educate Yourself
- Educate Your Patient
- Educate (~~do battle with~~) a “third party”
  - Case manager
  - Insurer
  - Employer

Engage in civil conflict resolution with

How Does the Physician Use Guidelines ??

- Treating Physician
- **IME or 2nd Opinion or File Review Physician**
- Hospital Quality Assurance/Utilization Review Committee Member Physician

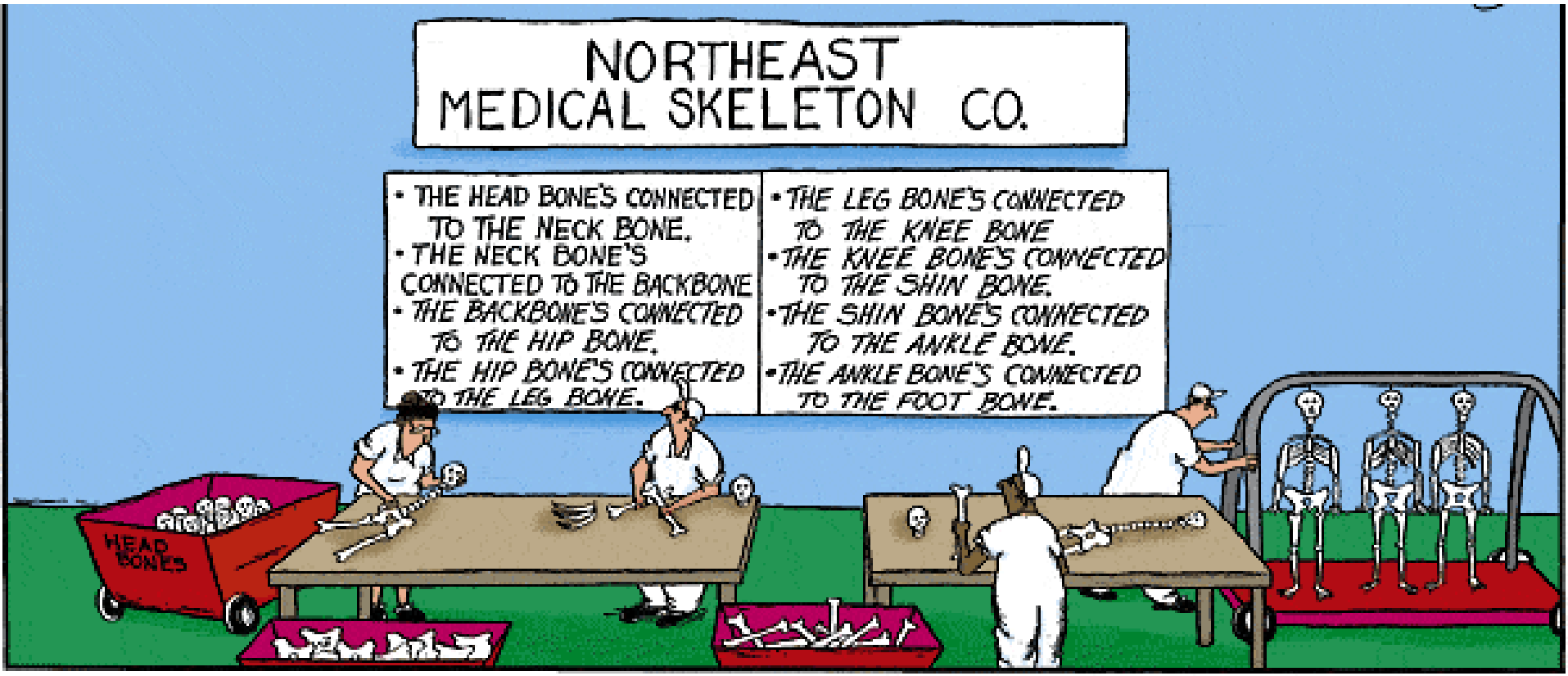
IME/File Review Physician

- Citing published, reputable guidelines **enhances the credibility** of your report and testimony.
- **Which sounds better ?**
  - **"In my opinion**, the correct treatment is …"
  - "**According to all 6 of the published guidelines** I have cited, the correct treatment is …"
- How helpful is citing guidelines in IMEs ?

IME/File Review Physician

- When I am the treating physician, and for some reason especially when I am the IME or File Review physician, **I feel better** when I use evidence (guidelines) to recommend for or against treatment.
  - "It's not just me, it's the evidence"
    - **lets me sleep better.**

Guidelines: “How to do it”



How to **USE evidence** in Reports

DIAGNOSIS

- Is the treatment based on
  - an accurate,
  - inaccurate,
  - or incomplete/equivocal diagnosis?

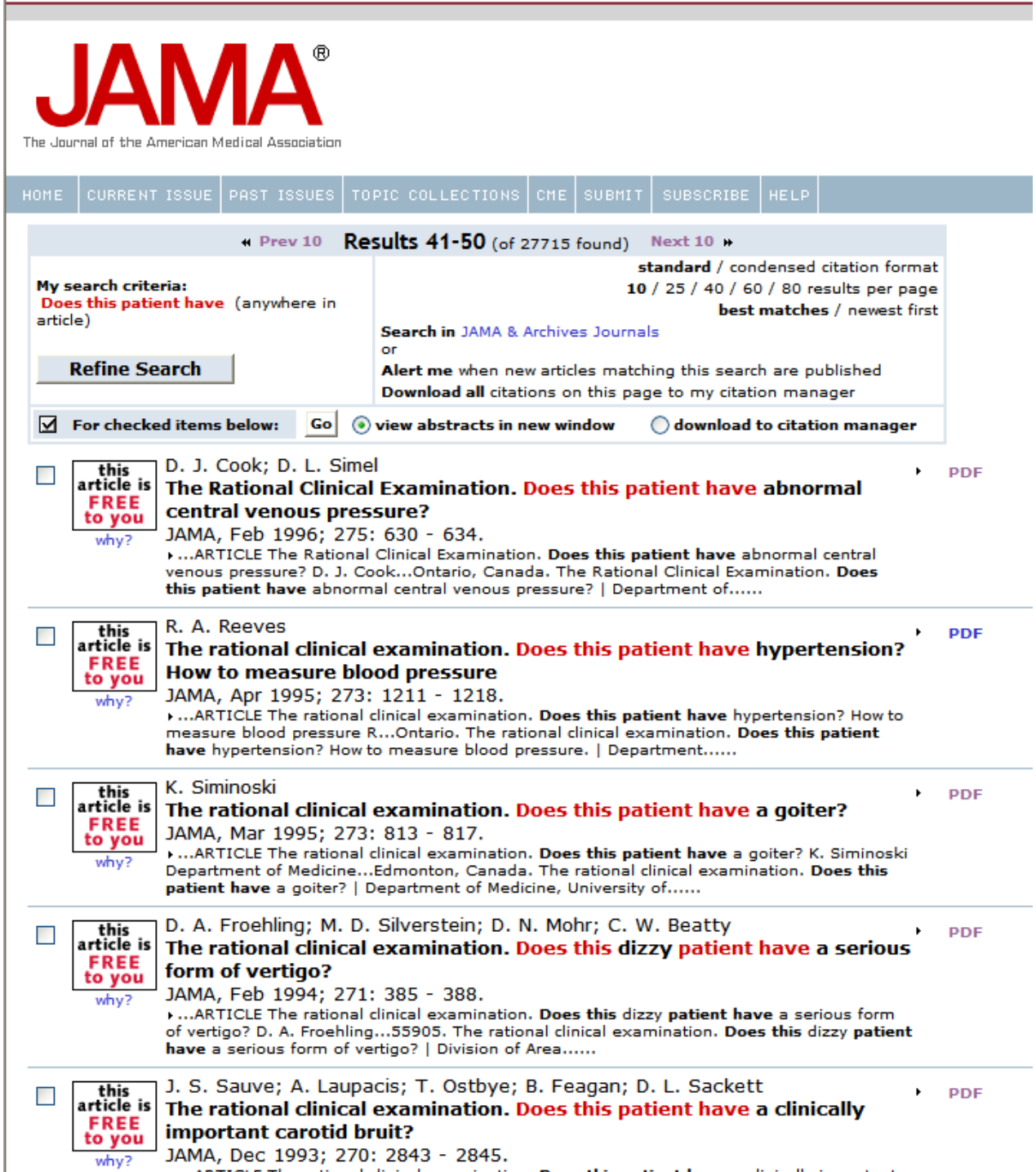
How is this determined ?

First of all…

Upon what do you base a diagnosis?

- Symptoms
- Physical exam
- Diagnostic studies

(Medical Records AND Your exam)



JAMA Series

- Entire series may be downloaded free from the AMA web site.


JAMA 2--7 Does this Pt have Pericardial Tamponade
Adobe Acrobat 7.0 Document
JAMA 1992 Does this Pt have Ascites
Adobe Acrobat 7.0 Document
JAMA 1993 Does this Pt have an Important Carotid Bruit
Adobe Acrobat 7.0 Document
JAMA 1993 Does this Pt have Sinusitis
Adobe Acrobat 7.0 Document
JAMA 1993 Does this Pt have Splenomegaly
Adobe Acrobat 7.0 Document
JAMA 1994 Does this Pt have a Serious Form of Vertigo
Adobe Acrobat 7.0 Document
JAMA 1994 Does this Pt have an Alcohol Problem
Adobe Acrobat 7.0 Document
JAMA 1995 Does this Pt have a Goiter
Adobe Acrobat 7.0 Document
JAMA 1996 Does this Pt have Abnormal CVP
Adobe Acrobat 7.0 Document
JAMA 1996 Does this Pt have Appendicitis
Adobe Acrobat 7.0 Document
JAMA 1997 Does this Pt have an Abnormal Systolic MURMUR
Adobe Acrobat 7.0 Document
JAMA 1997 Does this Pt have Community Acquired PNEU...
Adobe Acrobat 7.0 Document
JAMA 1998 Does this INFANT have Pneumonia
Adobe Acrobat 7.0 Document
JAMA 1998 Does this Pt have Melanoma
Adobe Acrobat 7.0 Document
JAMA 1998 Is this Pt Having a Myocardial Infarction
Adobe Acrobat 7.0 Document
JAMA 1999 Does this Pt have AAA
Adobe Acrobat 7.0 Document
JAMA 1999 Does this Pt have Acute MENINGITIS
Adobe Acrobat 7.0 Document
Jama 1999 Does this Pt have Aortic Regurgitation
Adobe Acrobat 7.0 Document
JAMA 1999 Does this Pt have Breast Cancer
Adobe Acrobat 7.0 Document
JAMA 1999 Is this Pt Hypovolemic
Adobe Acrobat 7.0 Document
JAMA 2000 Does this Pt have CTS
Adobe Acrobat 7.0 Document
JAMA 2000 Does this Pt have Strep Throat
Adobe Acrobat 7.0 Document
JAMA 2001 Does this Pt have a KNEE meniscus or ligament tear
Adobe Acrobat 7.0 Document
JAMA 2001 Does this Pt have Clubbing
Adobe Acrobat 7.0 Document
JAMA 2001 Is this Pt Allergic to PCN
Adobe Acrobat 7.0 Document
JAMA 2002 Does this Pt have Acute Thoracic Aortic Dissection
Adobe Acrobat 7.0 Document
JAMA 2002 Does this Pt have Pulmonary Embolism
Adobe Acrobat 7.0 Document
JAMA 2002 Does this Pt have Temporal Arteritis
Adobe Acrobat 7.0 Document
JAMA 2002 Does this WOMAN have an UTI
Adobe Acrobat 7.0 Document
JAMA 2002 Is this Pt Depressed
Adobe Acrobat 7.0 Document
160 KB
JAMA 2003 Does this CHILD have Acute Otitis Media
Adobe Acrobat 7.0 Document
JAMA 2003 Does this Pt have Acute CHOLECYSTITIS
Adobe Acrobat 7.0 Document
JAMA 2003 Does this Pt have Parkinson's Disease
Adobe Acrobat 7.0 Document
JAMA 2004 Does the Pt have Shoulder Instability
Adobe Acrobat 7.0 Document
JAMA 2004 Does this Pt have a Family History of Cancer
Adobe Acrobat 7.0 Document
JAMA 2004 Does this Pt have Shoulder Instability or a Labr...
Adobe Acrobat 7.0 Document
JAMA 2004 Does this WOMAN have Osteoporosis
Adobe Acrobat 7.0 Document
JAMA 2004 Is this Pt DEAD or Vegetative
Adobe Acrobat 7.0 Document
JAMA 2005 Does this ER Pt have Acute CHF
Adobe Acrobat 7.0 Document
JAMA 2005 Does this Pt have Influenza
Adobe Acrobat 7.0 Document
JAMA 2005 Does this Pt have Myasthenia Gravis
Adobe Acrobat 7.0 Document
JAMA 2005 Is this Pt Having a STROKE
Adobe Acrobat 7.0 Document
JAMA 2006 Does this Pt have DVT
Adobe Acrobat 7.0 Document
JAMA 2006 Does this Pt have Hearing Impairment
Adobe Acrobat 7.0 Document
JAMA 2006 Does this Pt have Migraine of need head imaging
Adobe Acrobat 7.0 Document
JAMA 2007 Does this CHILD have an UTI
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JAMA 2007 Does this CHILD have Appendicitis
Adobe Acrobat 7.0 Document
JAMA 2007 Does this Pt have DEMENTIA
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JAMA 2007 Does this Pt have Erythema Migrans
Adobe Acrobat 7.0 Document
JAMA 2007 Does this Pt have SEPTIC ARTHRITIS
Adobe Acrobat 7.0 Document
JAMA 2007 Does this Pt have Ventilator Associated Pneumonia
Adobe Acrobat 7.0 Document
JAMA 2008 Does this Diabetic have LE Osteomyelitis
Adobe Acrobat 7.0 Document
JAMA 2008 Does this Pt have Bacterial Peritonitis or Port...
Adobe Acrobat 7.0 Document
JAMA 2008 What Type Urinary Incontinence Does this Wom...
Adobe Acrobat 7.0 Document
Medical History Barsky
Adobe Acrobat 7.0 Document
68 KB
Spine 2008 Reliability of Waddell's signs
Adobe Acrobat 7.0 Document

Likelihood Ratio

an attribute of a test

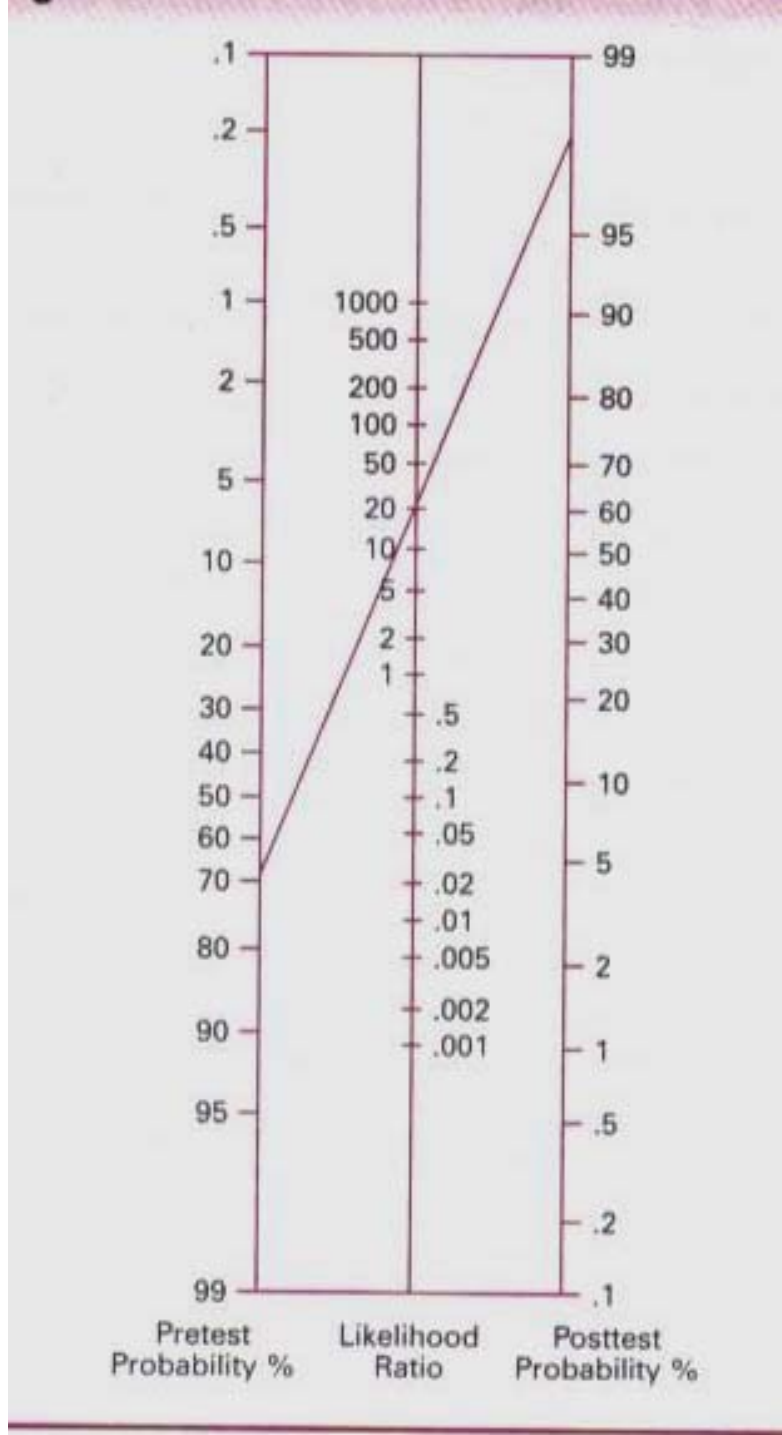
Changes

Pretest probability

to

Posttest probability

Ratio if positive of > 10 means a test is VERY useful.



κ = Kappa

- **Cohen's kappa coefficient** is a statistical measure of inter-rater reliability. It is generally thought to be a more robust measure than simple percent agreement calculation since κ takes into account the agreement occurring by chance. Cohen's kappa measures the agreement between two raters who each classify *N* items into *C* mutually exclusive categories.
- The equation for κ is:

$$\kappa = \frac{\Pr(a) - \Pr(e)}{1 - \Pr(e)},$$

- where Pr(*a*) is the relative observed agreement among raters, and Pr(*e*) is the probability that agreement is due to chance. If the raters are in complete agreement then κ = 1. If there is no agreement among the raters (other than what would be expected by chance) then κ ≤ 0.
- The seminal paper introducing kappa as a new technique was published by Jacob Cohen in the journal *Educational and Psychological Measurement* in 1960. [Jacob Cohen, A coefficient of agreement for nominal scales, *Educational and Psychological Measurement* 20: 37–46, 1960.]
- Note that Cohen's kappa measures agreement between **two** raters only. For a similar measure of agreement (Fleiss' kappa) used when there are more than two raters, see Fleiss (1981).

κ = Kappa

- You can **not** reliably compare kappa values from different studies because **kappa is sensitive to the prevalence** of different categories.
  - i.e. if one category is observed more commonly in one study than another then kappa may indicate a difference in inter-rater agreement which is not due to the raters.
  - Low kappa values will be found when the prevalence of a finding is either very high or very low.

Reproducibility of Examination

κ = Kappa	**Agreement**
> 0.20	fair
> 0.40	moderate
> 0.60	good
> 0.80	excellent
1.00	perfect

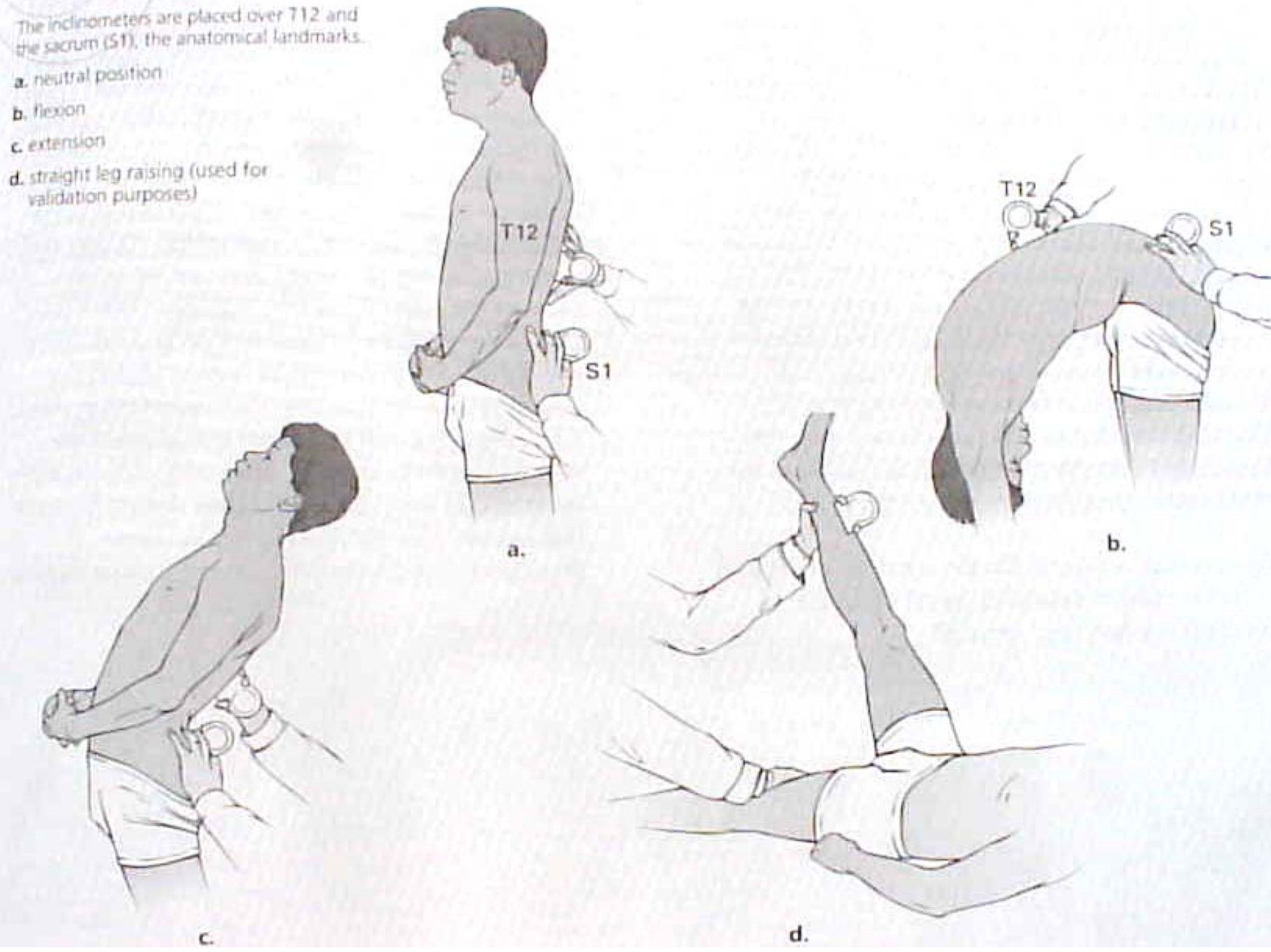
The inclinometers are placed over T12 and the sacrum (S1), the anatomical landmarks.

a. neutral position

b. flexion

c. extension

d. straight leg raising (used for validation purposes)



Reliability of Lumbar ROM "Embedded" in a Physical Exam

Spine 2001; 26 (24): 2714-2718 &2735-2737

- Studies on Lumbar ROM done as isolated research project.
- First study where **ROM measured during a general exam.** (Cybex electronic inclinometer)
- 45 Normal People examined by 2 examiners.
- *AMA Guides* validity 3 measurements within larger of ± 5° or ± 10 % of their mean. Crtieria met by 67 % of sets of 3 flexion, and 73 % of sets of 3 extension measurements.
- Repeat exams on days 2 & 7,
  - only 33 % passed validity check on all 3 flexion exams,
  - only 53 % passed extension exam validity checks.

Reliability (in General Exam)

Spine 2001; 26 (24): 2714-2718 &2735-2737

Measure	Intra-Rater Reliability*	Inter-Rater Reliability†
Lumbar Flexion	0.48	0.56
Lumbar Extension	0.53	0.37
Straight Leg Raise, Left	0.81	0.54
Straight Leg Raise, Right	0.79	0.48

*Pearson's correlation, † Intra-class correlation

Physical Exam

Table 9. Reliable Cervical Non-organic Signs and the Criteria for a Positive Test

Sign	Test Site	Criteria for a Positive Test
Palpation Superficial tenderness	Palpation of cervical spine region and upper thoracic region	Patient complains of pain with light touch or light pinching of the skin
Nonanatomic tenderness	Deep palpation of the cervical, thoracic, lumbar, and brachial regions	Patient complains of widespread tenderness, i.e., outside of the cervical and upper thoracic region
Simulation Rotation of head/shoulders/ trunk/pelvis while standing	Examiner rotates patient's head, shoulders, trunk, and pelvis	Patient complains of neck pain with rotation.
Cervical Range of Motion	Patient rotates head as far as possible to the right and then left	Rotation is less than 50% of normal in each direction
Regional Disturbance Sensory loss	Light touch or pinprick	Patient reports diminished sensation in a pattern that does not correspond to a specific dermatome of a nerve root(s) or peripheral nerve(s)
Motor loss	Formal manual muscle testing, observation	Weakness detected in a nonanatomic pattern; the hallmark being "giveaway weakness" Also positive if patient is observed to have normal muscle strength but on formal test exhibits weakness
Overreaction	Examiner's observation	Examiner feels the patient is "overreacting" during the examination. Reliable behaviors include: 1. Moderate to extremely stiff, rigid, or slow movements 2. Rubbing the affected area for more than 3 sec 3. Clutching, grasping, or squeezing the area for more than 3 sec 4. Grimacing due to pain 5. Sighing

***Arch Phys Med Rehabil, 81,* 170-5**

Physical Exam

- Reliability (Reproducibility)
- INTER-Rater reliability

Table 5. The reliability of neck physical examination tests has been reported below. These data suggest a wide range in reproducibility.

Test	Inter-rater reliability: Kappa
Range of motion	0.05 – 0.61
Neck and Upper Limb Strength Testing	≤ 0.60
Trigger Point Palpation	0.24 – 0.56
Sensory Exam: Light touch and pin prick	0.16 – 0.67
"Non-Organic" Signs	0.08 – 1.00
Composite exam: inspection, range of motion, palpation, and provocative tests	-0.18 – 0.52

Adapted from Nordin M, Carragee E, Hogg-Johnson S, et al. Assessment of neck pain and associated disorders: results of the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and Its Associated Disorders. *Spine*. 2008;33(4S):S101-22.

Myelopathy

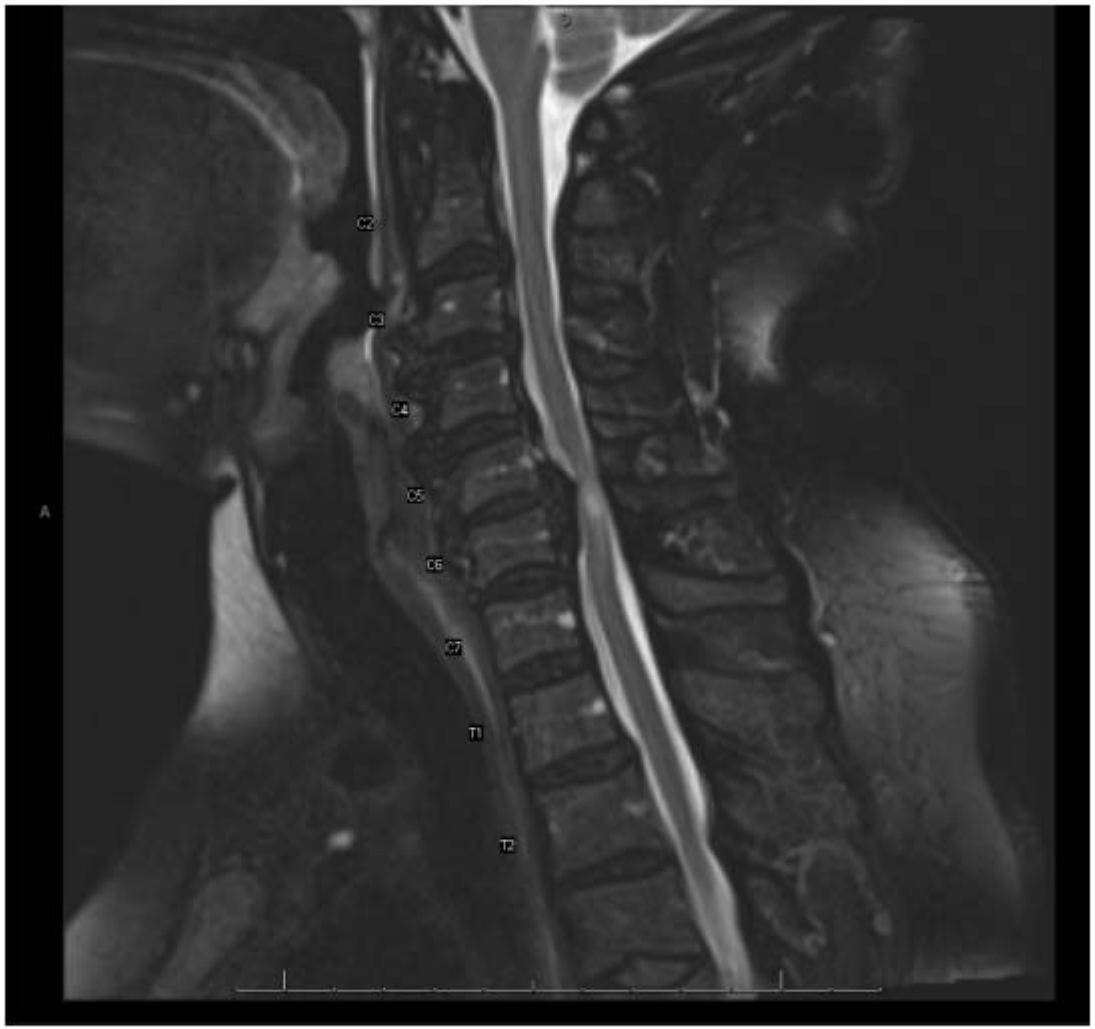


Figure 1. Sagittal T2-weighted MRI of the cervical spine spinal cord with compression at C5–C6 disc space from spondylosis and ossification of the posterior longitudinal ligament. Note the increased T2 signal intraparenchymal.

Myelopathy: Accuracy of Exam

	CM n = 39	Control n = 37	P*	Sensitivity	Specificity
Any (≥1) myelopathic sign	79%	57%	0.05†	79%	43%
Any (≥1) provocative sign	69%	32%	0.003†	69%	68%
Hoffman	59%	16%	0.0001†	59%	84%
IBR	51%	19%	0.004†	51%	81%
Babinski	13%	0%	0.05†	13%	100%
Clonus	13%	0%	0.05†	13%	100%
Any (≥1) hyperreflexia	72%	57%	0.2	72%	43%
Biceps	62%	51%	0.5	62%	49%
Triceps	36%	22%	0.2	36%	78%
Brachioradialis	21%	11%	0.3	21%	89%
Patella	33%	24%	0.5	33%	76%
Achilles	26%	19%	0.6	26%	81%
No myelopathic signs	21%	43%	0.05†	21%	57%

*Fisher exact test.
†Indicates statistically significant at the 0.05 level.

Rhee JM, Heflin JA, Hamasaki T, et al. Prevalence of physical signs in cervical myelopathy. *Spine*. 2009;34:890-5. Reprinted with permission from Wolters Kluwer Health.[95]

Myelopathy

Spine 2010;35:620–624

Table 1. Clinical Signs Present in Myelopathic Patients

Clinical Sign	No. Patients	% of Patients	Standard Error
Gait abnormality	49	90.74%	3.94%
Any hyperreflexia (LE or UE)	46	85.19%	4.83%
Hoffman	45	83.33%	5.07%
LE hyperreflexia	44	81.48%	5.29%
Cross-abductor	41	75.93%	5.82%
UE hyperreflexia	36	66.67%	6.42%
Babinski	24	44.44%	6.76%

Diagnosis

- Do NOT put in your report
  - "The treating physician blew it, and the diagnosis is incorrect."
  - "The treating physician missed the actual diagnosis."
  - Be aware of jurisdictional rules that once a diagnosis is accepted, it is administratively correct, and must be used.

Diagnosis: Review Of Records

- Are known/expected *symptoms:*

___ present
___ absent
___ non- organic
___ mixed
___ suggestive of another dx
___ not documented

(sensitivity, specificity, Predictive Value issues)

Diagnosis: ROR (Rx MD)

- Are known/expected *physical findings*:

___ present
___ absent
___ non- organic
___ mixed
___ suggestive of another dx
___ not documented

(sensitivity, specificity, Predictive Value issues)

Diagnosis: Your exam

- Are known/expected *symptoms*:

___ present
___ absent
___ non- organic
___ mixed
___ suggestive of another dx

(sensitivity, specificity, Predictive Value issues)

Diagnosis: Your exam

- Are known/expected *physical findings*:

___ present
___ absent
___ non- organic
___ mixed
___ suggestive of another dx

(sensitivity, specificity, Predictive Value issues)

Diagnosis: Diagnostic study

- Is/are the study/studies and findings:

  __ valid, specific, and sensitive
  __ normal or abnormal
  __ symptomatic or asymptomatic
  __ acute or chronic
  __ non-specific/incomplete

Is there a "Gold Standard" test (MRI, Operation Report, Pathology Report)??

Statistical correlation of test in question to Gold Standard test?

Diagnosis: Diagnostic Study

Diagnostic study and Physical Exam:

__ correlate well

__ correlate partially

__ do not correlate

Diagnosis: Diagnostic Study

- By the way, if a Diagnostic study is your recommendation…

Is there a high likelihood it will:

__ change diagnosis

__ change long term treatment plan

__ change the prognosis

__ confirm equivocal diagnosis

CAUSATION

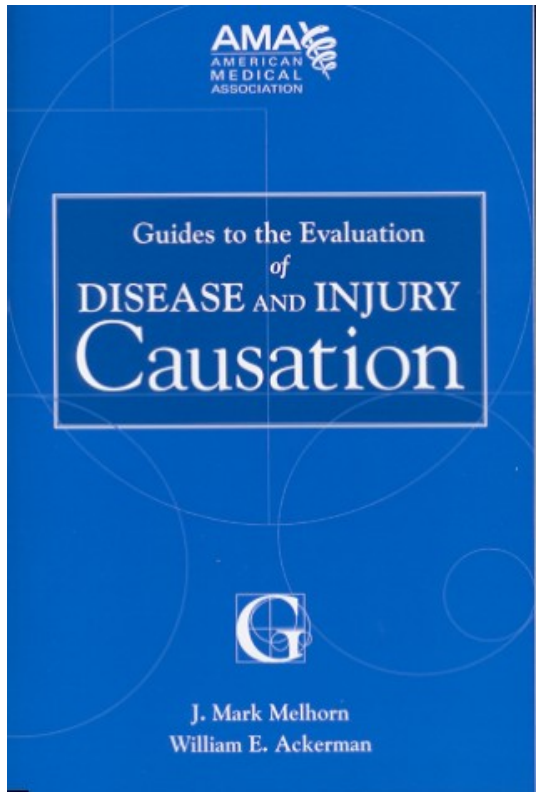
- Is the proposed treatment based on a condition that is:

___ fully related to IEIQ [Inciting Event In Question]
___ partially related to IEIQ
___ unrelated to IEIQ
___ not enough information available

How is this determined ??

CAUSATION:

1 – Mechanism of Injury
2 - Temporal issues
3 - Competing risk factors
4 - Interval/subsequent events
5 - Subjective components



Epidemiology

Does this condition occur more often in people who do this job?

CAUSATION

- Is the Mechanism Of Injury:

  __ typical

  __ atypical

CAUSATION

- Is the temporal relationship:

___ typical [Exposure before illness]
___ atypical
___ Confusing
[Current history not confirmed by the review of medical records]

CAUSATION

- If present, are the competing risk factors:

  __ less problematic than Causation In Question (CIQ)

  __ potentially as much or more problematic than Causation In Question

  __ equivocal

(Vocational, avocational, systemic/constitutional)

CAUSATION

- If present, is the Interval/subsequent event:

  __ less problematic than Cause In Question

  __ just as much or more problematic than the Cause in Question

  __ equivocal

(sub-analysis required as follows)

Interval/subsequent event questions:

- Who was at fault?
- Was there liability coverage for Interval Event?
- Has the subsequent or interval event been settled?
  - What was the legally determined outcome?

Causation: “subjective” issues:

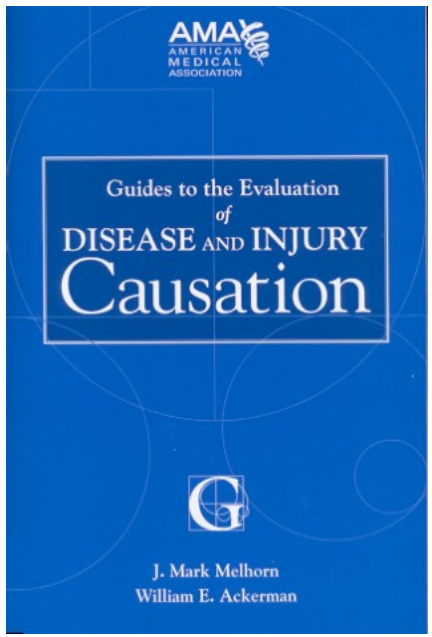
__ causation of this condition is largely dependent on individual’s subjective reports: (how valid is individual's subjective reporting ability?)

__ Pre-existing or current “red flags”

__ Current complaint is new and not even mentioned by RX MD (expanding symptom profile)

Causation

- Is the Causation in Question
  - Currently accepted in evidence based reviews (eg Melhorn and Ackerman)?
  - Currently accepted in systematic review articles?



Example:
Non-Specific Low Back Pain

Spine 2009; 34 (8): E281-E293

- Dutch SYSTEMATIC REVIEW
- Search strategy, multiple databases
  - High quality prospective cohort studies of working aged adults
  - NON-specific Low Back Pain.

SPINE Volume 34, Number 8, pp E281–E293

Spinal Mechanical Load as a Risk Factor for Low Back Pain

A Systematic Review of Prospective Cohort Studies

Eric W. P. Bakker, PhD,*† Arianne P. Verhagen, PhD,* Emiel van Trijffel, MSc,†
Cees Lucas, PhD,† and Bart W. Koes, PhD*

Spine 2009; 34 (8): E281-E293

- Dutch SYSTEMATIC REVIEW
- 4487 articles retrieved.
- 18 studies in 29 publications used as the database.
- 24,315 subjects.
- 133 dichotomized exposures.

Spine 2009; 34 (8): E281-E293

- Dutch SYSTEMATIC REVIEW
- HEAVY PHYSICAL WORK
  - 12 studies reporting on 34 exposures.
  - 5 studies found an association, but
    - 1 only in smokers, 2 only in men, 1 only in women
  - 7 studies found no statistical association
- **Conclusion: Conflicting Evidence**

Spine 2009; 34 (8): E281-E293

- Dutch SYSTEMATIC REVIEW
- SPORT OR EXERCISE IN LEISURE TIME
  - 7 studies reporting on 24 exposures.
  - 5 found no statistical association
- Conclusion: **STRONG Evidence** that leisure time sport and physical exercise is **not** associated with the development of LBP.

Spine 2009; 34 (8): E281-E293

- Dutch SYSTEMATIC REVIEW
- ACTIVITIES IN LEISURE TIME
  - 2 studies found an increased risk
    - Gardening and home repair.
  - 2 studies found no increased risk, and specifically no increased risk with gardening and home repair.
  - 2 studies found a DECREASED risk found no statistical association
- **Conclusion: Conflicting Evidence.**

Spine 2009; 34 (8): E281-E293

- Dutch SYSTEMATIC REVIEW
- SITTING AT WORK
  - 6 studies
  - 5 studies found no increased risk.
  - 1 study found a DECREASED risk in women sitting > 2 hours/day at work.
- **Conclusion: Conflicting Evidence.**

Spine 2009; 34 (8): E281-E293

- Dutch SYSTEMATIC REVIEW
- WHOLE BODY VIBRATION AT WORK
  - 6 studies
  - 1 study found an increased risk 10-14 & 15-19 hours/week.
  - 1 study found a DECREASED risk for riding a fork lift > 10 hours/week at work.
  - 4 studies found no statistical association
- **Conclusion: Conflicting Evidence.**

Spine 2009; 34 (8): E281-E293

- Dutch SYSTEMATIC REVIEW
- BENDING/TWISTING AT WORK
  - 5 studies
  - 1 study found an increased risk.
  - 1 study found a DECREASED risk.
  - 3 studies found no statistical association between LBP and 13 different bending or twisting exposures
- **Conclusion: Conflicting Evidence.**

Spine 2009; 34 (8): E281-E293

- Dutch SYSTEMATIC REVIEW
- NURSING TASKS AT WORK
  - 3 studies on 23 different exposures
  - 1 study found an increased risk with heavy exposure.
  - 1 study found an increased risk, for medium exposures, but NOT for light or heavy exposures.
  - 1 studies found no statistical association **Conclusion: Conflicting Evidence.**

The Spine Journal 2010:10; 76–88

- Wai et al. Causal assessment of **occupational bending or twisting** and low back pain: results of a systematic review
- CONCLUSIONS: A summary of existing studies was **not able to find** high-quality studies that satisfied more than three of the Bradford-Hill criteria for causation for either occupational bending or twisting and LBP. **Conflicting evidence in multiple criteria** was identified. This suggests that specific subcategories could contribute to LBP. However, the evidence suggests that **occupational bending or twisting in general is unlikely to be independently causative of LBP.**

The Spine Journal 2010: 10; 89–99

- Roffey et al. Causal assessment of awkward **occupational postures** and low back pain: results of a systematic review
- CONCLUSIONS: There was **strong evidence** from six high-quality studies that there was **no association between awkward postures and LBP**. Similarly, there was strong evidence from three high-quality studies that there was **no temporal relationship**. Moreover, subgroup analyses identified only a handful of studies that demonstrated only weak associations and no evidence for other aspects of causality in certain specific subcategories. It is therefore unlikely that awkward occupational postures are independently causative of LBP in the populations of workers studied.

The Spine Journal 2010; 10: 262-272

Roffey et al. Causal assessment of **occupational standing or walking** and low back pain: results of a systematic review

RESULTS: This search yielded 2,766 citations. Eighteen studies met the inclusion criteria.

For **occupational standing** and LBP,

- there was moderate to strong evidence **against** the **association** criterion,
- the only study examining **dose response** did **not** support this criterion,
- four studies examining **temporality** **failed** to support this criterion, and
- only one study discussed the biological plausibility criterion.

The Spine Journal 2010; 10: 262-272

Roffey et al. Causal assessment of **occupational standing or walking** and low back pain: results of a systematic review

RESULTS: This search yielded 2,766 citations. Eighteen studies met the inclusion criteria.

- For **occupational walking and LBP**, there was **moderate evidence against a causal relationship** with respect to the association, temporality, dose response, and biological plausibility criteria.

The Spine Journal 2010; 10: 262-272

Roffey et al. Causal assessment of **occupational standing or walking** and low back pain: results of a systematic review

- CONCLUSIONS: A summary of existing studies was **not** able to find any high-quality studies that satisfied more than two of the Bradford-Hill causation criteria for occupational standing or walking and LBP. Based on the evidence reviewed, **it is unlikely that occupational standing or walking is independently causative of LBP** in the populations of workers studied.

The Spine Journal 2010; 10: 252-261

- Roffey et al. Causal assessment of **occupational sitting** and low back pain: results of a systematic review
- RESULTS: This search yielded 2,766 citations.
  - Twenty-four studies met the inclusion/exclusion criteria and five were high-quality studies, including two case-controls and three prospective cohorts.
  - Strong, consistent evidence was found for **no association between occupational sitting and LBP.**
  - A moderate level of evidence was found for the **absence of any dose-response trend.**
  - Risk estimates evaluating **temporality** were **not statistically significant**.

The Spine Journal 2010; 10: 252-261

- Roffey et al. Causal assessment of **occupational sitting** and low back pain: results of a systematic review
- CONCLUSIONS: This review **failed** to uncover high-quality studies to support any of the Bradford-Hill criteria **to establish causality** between **occupational sitting and LBP.**
- Strong and consistent evidence did **not support** criteria for **association, temporality, and dose response.** Based on these results, **it is unlikely that occupational sitting is independently causative of LBP** in the populations of workers studied

The Spine Journal 2010; 10: 639-651

- CAUSAL ASSESSMENT **OF WORKPLACE MANUAL HANDLING** OR **ASSISTING PATIENTS** AND LOW BACK PAIN: RESULTS OF A SYSTEMATIC REVIEW
- Conclusions: **The studies reviewed did not support a causal association between workplace manual handling or assisting patients and LBP** in a Bradford-Hill framework. Conflicting evidence in specific subcategories of assisting patients was identified, suggesting that tasks such as assisting patients with ambulation may possibly contribute to LBP. It appears unlikely that workplace manual handling or assisting patients are independently causative of LBP in the populations of workers studied.

Treatment

- **NOT** “This treatment is illogical and should not be authorized.”
- Not likely to “win friends” with treating doctor
- Focus on Science

Treatment : General Questions

- Proposed treatment is:

__ compatible with *current evidence based treatment* guidelines

__ **not** compatible with *current evidence based treatment* guidelines

Treatment : General Questions

- Evidence Based Literature suggests that the proposed treatment, in the best of circumstances (a correct diagnosis and valid pain profile) is:

__ associated with primarily good outcomes

__ associated with variable outcomes

__ **associated with primarily poor outcomes**

Treatment : General Questions

(re-phrase previous question)

Proposed treatment may be acceptable but can be associated with certain risk factors for less than ideal outcome.

In this case the:

__ risk factors are absent

__ risk factors are present

Treatment : General Questions

- Proposed treatment is:

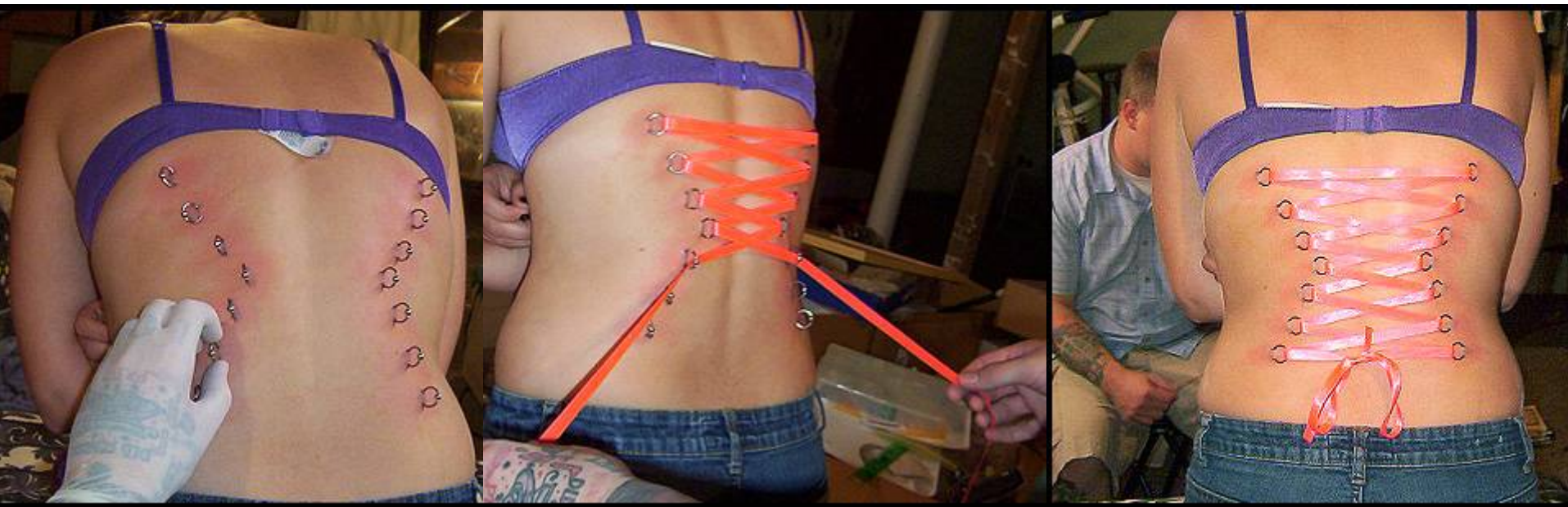
  __ congruent with *statutorily* accepted guides (note: not necessarily EB !!)

  California MTUS

  __ incongruent with *statutorily* accepted guidelines

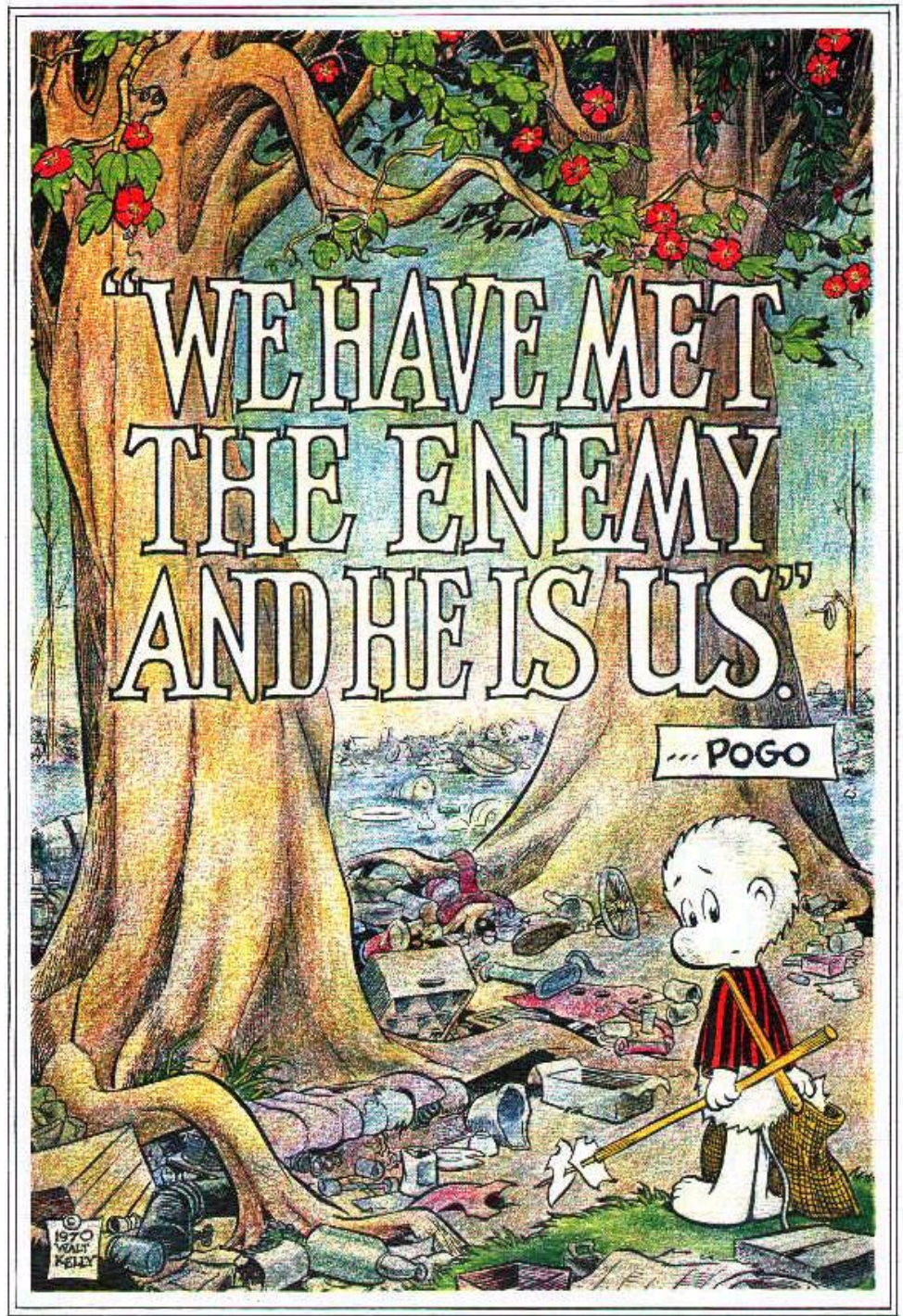
(ex.- venue or state specific)

Summary: *Guidelines*
are a neat way to "wrap up"
how to treat low back pain,
and other work related problems.



We want to do "What's Right" for our patients.

At times in
the history of medicine,
Pogo has been right.
We've acted from bias,
Rather than science.



Remember

Law TRUMPS Medicine

Your Job is NOT to WIN

Remember

Law TRUMPS Medicine

Your Job is to TELL the TRUTH