Avoiding Unnecessary Surgery in Workers' Compensation

JAMES MANNING, MD, MPH
BONE AND JOINT SPECIALISTS
LAS VEGAS, NV

Medical Causation

Medical Causation

Bubonic Plague –"The Black Death"

- 1350 – 1650
- Killed half the population of Europe – 75 million
- Cause – completely unknown at the time
- "The Church" had no answer
- Burned itself out by the middle of the 17th century
- Yersinia Pestis – discovered in 1890
- Vector – rat fleas

Bubonic Plague –"The Black Death"

- Putative Causes –
  - Alignment of Jupiter and Mars - University of Paris
  - Evil vapors from inside the earth released from earthquakes
  - Punishment from God
  - Warm Winters before the onset
  - Jews poisoning wells

James Manning. MD, MPH

- Started Orthopaedic career 35 years ago
- NIH Research Fellowship – U of Washington
- Residency, U of Utah
- Sports Medicine Fellowship - ORV
- Practiced in Las Vegas for 28 years
- Completed a MPH in 2014 – U of Washington
  - Clinical Epidemiology
  - Biostatistics
  - Study Design
  - Thesis – Opioids, Surgical Outcomes

Structure of this Talk

- Tell you what I'm going to tell you
- Tell you
- Tell you what I've told you

Today's Presentation

- History of Causation
- Scientific Method
- Evidence-Based Medicine
  - Definition
  - Applications
- Causation Analysis
- Practical Approach to Evaluation and Treatment in WC
- IME's, 2nd Opinions

abc News

How Do Surgeons Decide the Appropriate Treatment for a Given Patient?

Traditional Approach

1. We've always done it this way
2. The chief recommends this treatment
3. This treatment is "the best" and it "appeared to be a good idea at the time"
4. We just thought we'd try this new technique
5. Under the circumstances, we did not have other options

Evidence-Based Medicine

- **Evidence-based medicine** (**EBM**) is an approach to medical practice intended to optimize decision-making by emphasizing the use of evidence from well-designed and conducted research. Although all medicine *based on science* has some degree of empirical support, EBM goes further, classifying evidence by its epistemological strength and requiring that only the strongest types (coming from meta-analyses, systematic reviews, and randomized controlled trials) can yield strong recommendations; weaker types (such as from case-control studies) can yield only weak recommendations.

The Scientific Method Is Used to Develop Evidence-Based Medicine Guidelines

The Scientific Method

- Developed over the past 4 centuries
- Applied to many fields including science, engineering and medicine (radar WWII)
- Epidemiology – the science of the causes of disease and the outcomes of treatment
- Responsible for the rapid advancement of medicine and technology

Scientific Method

- Hypothesis
- Controlled Experiments
- Precise Measurements
- Mathematical Analysis of Results

Controlled Experiment Example

- Research Question: "How does the daily duration of exposure to sunlight affect the growth of pea plants"

Controlled Experiment Example

- Two Plants (two groups)
- Different Light Exposure Duration
- Measure Effect

Controlled Experiment

Plant A
(control)

Plant B
(test)

Factors

- Plant Type
- Plant Size
- Soil Quality
- Moisture
- Fertilizer
- Atmosphere
- Temperature
- Light Exposure Intensity
- Light Exposure Duration (e.g. 4 vs 8 hours/day)

Which Factors Remain Constant?

- Plant Type
- Soil Quality
- Moisture
- Fertilizer
- Atmosphere
- Temperature
- Light Exposure Intensity

Which Factor Changes?

Only Light Exposure Duration!!!

Measure Outcomes

- Total Weight of plants
- Dry weight of plants
- Surface Area of Leaves
- Number of Seeds Produced

The Point

- The only way to truly know the effect of a given factor is to vary it while all keeping all other factors constant and compare outcomes between the control group and the test group.
- Control group can be a separate group of subjects or the same subjects
  - Sequential treatment
  - Contralateral body part – knee or shoulder

Statistical Inference

- Findings can only be applied to the population represented in the original group of subjects
- Should make sure study subjects are appropriate before starting the study

Outcomes

- No study is perfect
- Absolute certainty is not attainable in science
- Conclusions are based on probability (p-value)

Ideal Medical Outcome Study

- Large, diverse population of subjects with the same diagnosis
- Randomly Divide into 2 groups
- One group gets the test treatment (e.g. SLAP repair) , the other gets sham surgery (arthroscopy only)
- Follow the 2 groups over time
- Patients blinded to the type of treatment
- Compare outcomes in the two groups
- Often Impractical

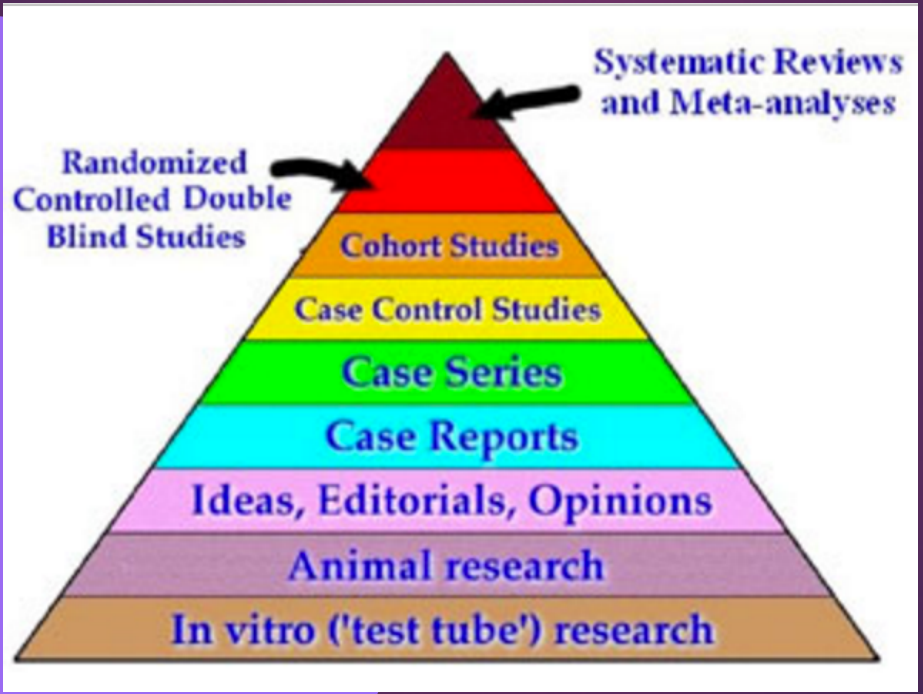
Surgical RCT's!, Placebo Effect

- European Study – Laminotomy
  - Done before MRI
  - Negative findings – no further surgery
  - Substantial % of patients reported improved symptoms
- Arthroscopic chondroplasty of the knee
  - Multiple studies show no better than sham surgery
  - Sham surgery – incisions only
  - Requires a research team
  - Requires patient consent!
- Often cannot be done in workers' comp because of legal constraints

SLAP Repairs – Proposed Study

- Test subjects – shoulder pain
- No other pathology
  - No rotator cuff disease
  - No biceps disease
  - No AC arthrosis
  - No glenohumeral arthrosis
  - Workers comp?
- Randomize into treatment and sham surgery groups
- Compare outcomes
- Impractical - no, Difficult – yes!

Evidence Pyramid



Types of Epidemiological Studies

- Case-Control Studies – smoking -> lung CA
- Prospective Cohort Studies - causation
- Randomized Controlled Trials - treatment

Causation

Physician Dysfunction

- Most know little about workers' comp or causation
- Taught in medical school to listen to the patient
- Adjusters assume the doctor will assess causation
- Physicians assume the case has been accepted when they see the claimant
- Physicians make a statement that indicates causation, without any analysis

"Mrs. X is a 56-year-old guest room attendant who injured her left shoulder throwing a bedspread on a bed at work 4 weeks ago."

Who Are the "Experts"

- Insurance adjusters?
- Attorneys?
- Orthopaedic Surgeons?
- Neurosurgeons?
- Primary Care Physicians?
- Physiatrists?
- Occupational Medicine Physicians?

Occupational Medicine Clinics

- Providers have variable levels of training in workers' comp
- Sometimes do not document findings, both positive and negative
- PA's and NP's
- Physician may be asked later for causation analysis and not have adequate data

Factors Related to Poor Outcomes

- Adversarial System " They did this to me!!"
- Psychosocial Factors – personality disorders, secondary gain
- Attorney Involvement
- Appeals Officers/judges – little medical knowledge
- Aggressive Doctors – Unproven Treatments
- Opioid Narcotics – pre and post treatment

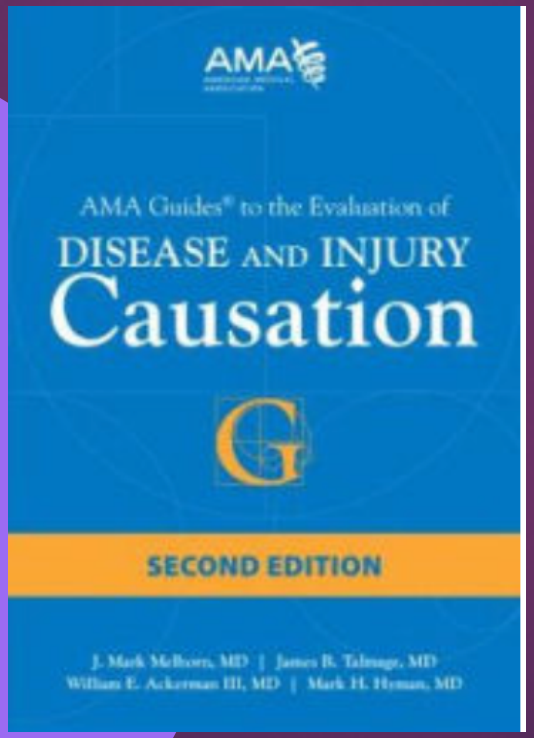
Why Is Causation Important in Workers Comp?

- Outcomes
  - Same Pathology, Worse Outcomes
  - Only one study out of 211 showed better outcomes in injured workers than in group health patients
  - Injured workers as a group are different from the general public!!!
  - Work injuries -> changes in beliefs/behavior
- Costs - accepting inappropriate claims

E. J. Bernacki, MD, MPH et. al.

- Louisiana workers comp private insurer
- 2% of cases -> 30% of costs
- Most cases were thought to involve minor injuries – low reserves set aside
- Variety of factors

AMA Causation Book



Scenarios

- One violent event – not usually disputed
- Incident but no violence (normal work activiies) e.g. picked up a pencil
- Cumulative Trauma - evidence?

Incident But No Violence

- Normal person?
- Abnormal person?
  - Family history
  - Other conditions
  - Previous injury
  - Psychosocial Problems – prior WC claims?
- "Egg Shell", "Fragile Skull" - legal doctrine
- Law, Not Medicine

Method of Causation Determination

- NIOSH
- ACOEM
- AMA Causation Book

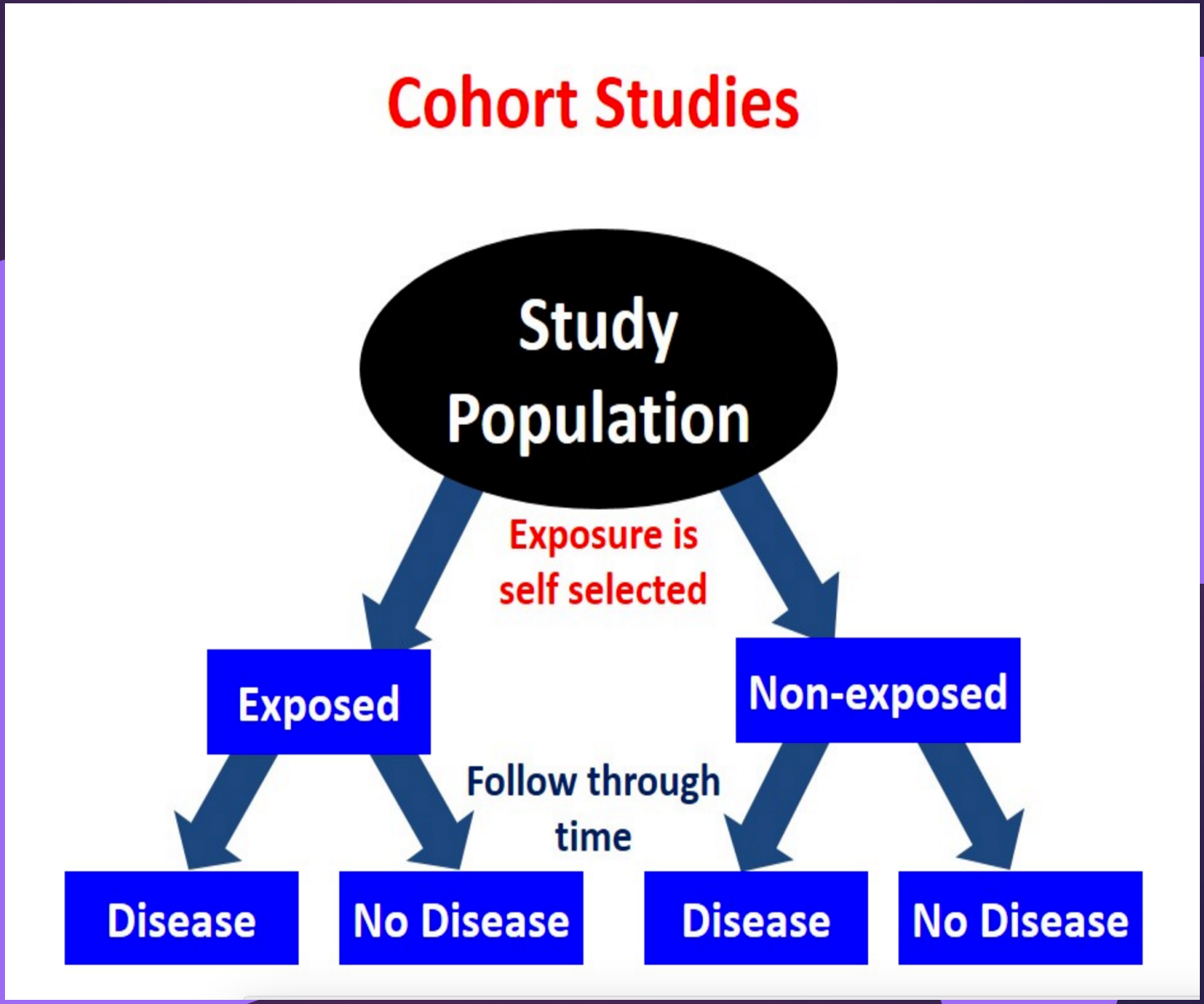
6 Steps in Determination

1. Is the diagnosis correct? MRI? EMG? Other diagnostic tests?
2. Can this exposure cause this outcome in anyone? (AMA Causation Book)
3. Is there evidence of exposure in this individual that is adequate to produce this outcome?
4. Are there any individual risk factors for this outcome? (eg diabetes, obesity in carpal tunnel syndrome)
5. Validity of evidence – review of the literature
6. Conclusion

Relative Risk

- Reflects the probability that the factor in question will be associated with the disease in question
- A relative risk of 1.O means that the two groups are equal and the factor does not change the probability that someone will contract the disease.

Cohort Studies



Relative Risk

	Outcome	No Outcome
Exposed	a	b
Unexposed	c	d

$$\text{Relative risk} = \frac{\text{Incidence in exposed}}{\text{Incidence in unexposed}} = \frac{a/a+b}{c/c+d}$$

Epidemiological Question Example

- Should rotator cuff disease in guest room attendants be considered work compensable?
- Do guest room attendants have a higher risk of rotator cuff disease than other normally active people?
- If it does, what level of increased risk should we consider significant?

Physician Statements

- "The level of violence is/is not sufficient to cause the purported injury/condition."
- "There is/is not evidence of a comorbidity or preexisting condition that renders the claimant unusually susceptible to injury."
- Example: picking up a pencil -> back pain

Legal Standards

- California – 1%
  - Impossible to Determine
  - CA has the highest cost of WC claims in the US by far
- Nevada – "To a Reasonable Degree of Medical Certainty" (more likely than not)
  - Usually interpreted as > 50%
  - Relative Risk > 2.0
  - Common Standard
  - 50% of accepted cases will actually be non work-comp

Legal Trumps Science!!

Association ≠ Causation

- Gray Hair – Myocardial Infarction (heart attack)
- Coffee – Pancreatic Cancer
- Inoculations – Autism?

Post Hoc Ergo Propter Hoc

- Latin – "after this, therefore resulting from it"
- Logical Fallacy
- Frequently Used in Law, Not in Medicine

- This is 14th century thinking!!!

Post Hoc Ergo Propter Hoc

- Car – 10 years old, 150,000 miles
- Overheats when I pull into the parking lot at Walmart
- Walmart is responsible to replace my water pump! ???
- Most people don't believe their bodies are wearing out with time even though they see it in the mirror every day – "Change Blindness"

Post Hoc Ergo Propter Hoc

- Claimant can articulate
  - Date
  - Time
  - Place
  - Incident
- This information does not prove causation!!!

Water Pump Metaphor - Examples

- Rotator cuff
- Glenoid Labrum
- Biceps Tendon
- Acromioclavicular Joint
- Lumbar and Cervical Disks
- Knee Meniscus

The Body's "Water Pumps"

- Don't behave like an injury
- Injuries improve with time
- Degenerative Conditions Worsen with Time
- Tend to be bilateral or involve multiple levels
- Should not let the fact that it is a work "injury" affect treatment

Practical Approach

- Initial Evaluation
- Imaging
- Diagnosis
- Treatment
- PT
- Rating

Initial Evaluation

- Detailed History –
  - What exactly happened? (describe in detail)
  - Was it witnessed?
  - Was it a normal work activity?
  - Was there anything unusual about how you did it?
  - Qualty of pain – sharp vs dull
    - Associated symptoms
    - Exacerbating/relieving factors
    - Intensity
    - Course – getting better, getting worse

Initial Evaluation

- Past History –
  - Prior injuries/surgeries to the same body part
  - Mental Illness
  - Drug addiction
  - Prior WC claims
  - Prior law suits
  - Prior personal injury claims

Initial Evaluation

- Detailed Physical Examination
  - Anatomic location of tenderness
  - Location and extent of swelling, bruising (ecchymosis)
  - Pain with motion
  - Range of motion
  - Disabling behavior
  - Gait

Initial Evaluation

- Radiographs
  - Initial radiographs are important
  - Should include appropriate views
    - Knee – weight bearing views
    - Shoulder – orthogonal and outlet views
    - Can obviate the need for MRI scans
  - Get MRI scans early in "red flag" cases to document the presence of absence of abnormal findings

2 Major Cost Drivers

- MRI
  - Major advance in imaging
  - Often over read
  - Some radiologists don't understand the natural history of musculoskeletal disease
- Arthroscopy
  - Major advance, especially in the knee
  - Minimal documentation required – videos
  - Ethically challenged surgeons
  - Generate unnecessary treatment!!

MRI

- Cost decreasing over time
- Should be done with contrast in workers' comp – do the last study first!
- Radiologist dependent – MS specialists
  - Not like ordering a blood test
  - Intra and inter observer variation
- Should consider a second opinion or repeat MRI in problem cases before approving surgery
- Abnormal findings are frequently seen in asymptomatic patients

Treatment

- Use Evidence-Based Guidelines
  - ACOEM
  - ODG
  - AAOS
- Utilization Review
- Medical Director

Treatment

- Avoid experimental/unproven procedures
  - Allograft ACL Reconstruction
  - Thermal Capsulorrhaphy
  - Thermal Chondroplasty
  - Superior Capsular Reconstruction
- Do the Last Procedure First!
- Minimize time off work

IME's/2nd Opinions

- Usually needed in cases where a mistake has been made in evaluation or treatment.
- Prevent the need by doing the above
- Fee should be determined by the amount of records and complexity of the case
- Make sure the 2nd opinion Dr. has all records, including videos, and knows what the salient questions are
- Make sure the 2nd opinion Dr. is familiar with the guidelines and causation

IME's/2nd Opinions

- Expect poor outcomes – they are the norm!
- A less than excellent outcome is not an indication for more surgery!!!
- Follow the Guidelines!!
- Utilization Review
- Medical Director – experience in workers' comp

Who Has an Incentive to Control Costs?

- Employers?
- Insurance Companies?
- TPA's?
- Attorneys?
- Doctors?
- Claimants?

Who Pays for Workers' Comp?

- Employers? – 3 choices
  - cut costs
  - go out of business
  - pass on expenses – hidden tax on everyone!

Summary

- Workers' comp is a dysfunction system
- Reform is needed
- Giving the IW the benefit of any doubt results in overtreatment and poor outcomes
- We can still work within the legal framework to control costs and provide the best outcomes for claimants – Practical Approach

Summary

- You don't have to be a scientist to think like one!
- Patients and Pathology Vary
- Tools are available – Use them!!

You don't have to be a scientist to think like one!

Consider all the factors in a given case

- Causation
- Diagnosis
- Primary care providers
- Imaging providers
- Surgeons. Other specialists
- Physical Therapists
- Rating Physicians

You don't have to be a scientist to think like one!

Consider all the factors in a given case

- Causation
- Diagnosis
- Primary care provider
- Imaging provide
- Surgeons. Other specialists
- Physical Therapists
- Rating Physicians

Use care when changing multiple variables

- Consider all the factors in a given case
  - Causation
  - Diagnosis
  - Primary care provider
  - Imaging provider
  - Surgeons, Other specialists
  - Physical Therapists
  - Rating Physicians
- They're not all the same!!!

Thank You!