Determining Medical Causation

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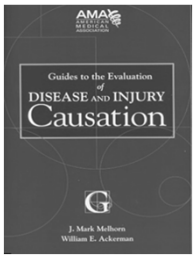
Declare

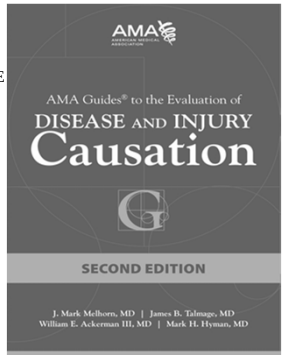
- The Hand Center
- MAP Managers, owner of CtdMAP
- PHI = Physical Health Index – Health Assessment
- Books: Physician's Guide to Return To Work, Guides to the Evaluation of Disease and Injury Causation, etc
- Professional Organizations: ABA, AMA, AADEP, AAOS, ACOEM, ASSH, AAHS, IAIABC, SDPM, etc
- Organizations: MDA, ODG, SEAK, etc
- Speaker: multiple national and state level organizations
- Reviewer: multiple journals and books
- Any other task or job that will improve outcomes for injured workers

AMA Press



Editors
WILL RECEIVE
Royalties

2nd



FINANCIAL CONFLICT OF INTEREST

Occupational Health

5 Primary Issues

1. Dx
2. Causation
3. Treatment
4. Return to Work
5. Impairment & Disability

Occupational Health

5 Primary Issues

1. Dx
2. Causation – who is responsible for costs
3. Treatment – cost of care & outcomes
4. Return to Work – disability duration
5. Impairment & Disability – final costs

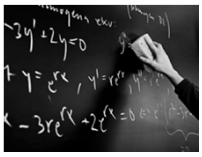
Causation Example

What type of tree is hit by lightning more frequently than others?

- Simple question
- Frequency established
- What is the cause?

Causation

- Medical – Science



- Legal – Social justice

Causation – Medical - Science

- Direct causal association = a causes b
- Indirect causal association = a causes b only if c is present (ie poverty does not cause disease)
- A noncausal relationship (correlation) exits when a factor other than the event in question is responsible for the outcome

Causation – Medical - Science

- Physicians and statisticians use statistics to arrive at suggestions from observational studies that A probably caused B.
- Biostatistics can never establish exact cause and effect but gives the probability (eg, $p < 0.05$) that A contributed to B.

Causation - Legal

- In a causation analysis, the law considers two separate and distinct components:

- cause in fact and
- proximate (or legal) cause.

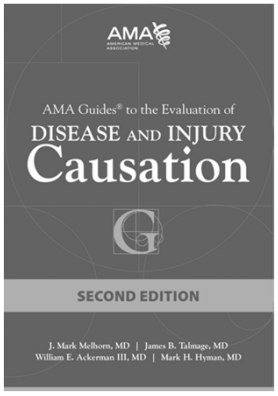
Causation - Legal

- cause in fact

- If one event brings about another, the former can be considered the cause in fact of the latter, regardless of the number of events involved.

Causation - Legal

- proximate (or legal) cause
- The second part of causation analysis seeks to determine whether two events that are linked in fact should also be linked in law.
- Are the two events so closely linked that liability should be attached.



Primary Source

- Chapter 1 to 7
- Provides the foundation for understanding the relative risk as established by epidemiology and the likelihood of developing the Dx after exposure

Risk

- We rarely have RCTs about causation risk factors, as we rarely can randomize people to risk (the left half of the room will smoke, the right half of the room will not smoke).
- Or use the parachute study

Prospective Cohort Study

- Outcome of interest, with no current evidence of outcome, now exposed to risk
- Outcome of interest, with no current evidence of outcome, not exposed to risk
- Outcome = Dx or Disease
- Risk = risk factor = toxin = work task
  = smoking = asbestos = etc
- Statistics = Relative Risk
- Weakness = usually not double blinded

Relative Risk

- Relative risks come from prospective cohort in which you know the denominators (how many are in each group you're following).
- You are dividing know risk (absolute risk) in the exposed group by the risk in the unexposed group.

Relative Risk = RR

RR is the probability of the event occurring in the exposed group vs the non exposed group – where # = probability = incidence

RR = # exposed / # non-exposed

Risk	Disease Status	
	Present	Absent
Smoker	A	B
Non-smoker	C	D

Relative Risk = RR

RR = # exposed / # non-exposed

- if lung CA is 20% in a smoker and 1% in a non smoker

Risk	Disease Status	
	Present	Absent
Smoker	A = 20	B = 80
Non-smoker	C = 1	D = 99

$$RR = \frac{a/(a+b)}{c/(c+d)} = \frac{20/100}{1/100} = 20$$

Hazard Ratio = HR

- Hazard ratios (HR) are cumulative over an entire study, "averaging" multiple outcomes at multiple times until a defined endpoint, while relative risk (RR) represents instantaneous risk over the ONE study time period

When graphs over time, like this, are in an article, they are usually reporting Hazard Ratios

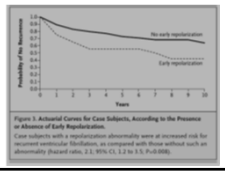
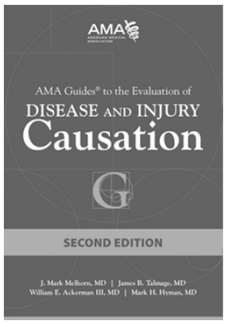


Figure 3. Actuarial Curves for Case Subjects, According to the Presence or Absence of Early Repolarization.

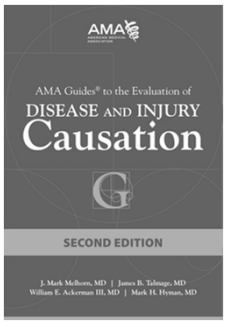
Case subjects with a repolarization abnormality were at increased risk for recurrent ventricular fibrillation, as compared with those without such an abnormality (hazard ratio, 2.1; 95% CI, 1.2 to 3.5; P=0.008).

Chapter 4 Methodology



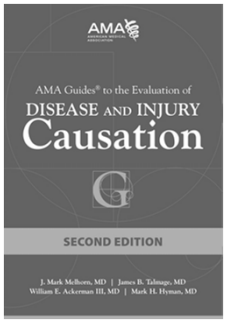
- Literature Search and Causations Analysis
- Strength of Evidence Definitions
- Study Design
- Strength of Evidence of Causation

Chapter 4 Methodology



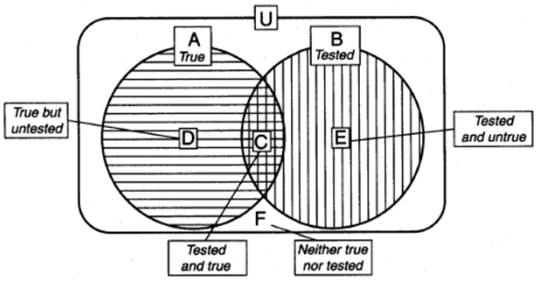
- Limitations and Other Considerations
- Epidemiologic surveillance studies and aggregate information about occupational risk and the development of specific medical conditions are commonly confounded by psychosocial factors.

Chapter 4 Strength of Evidence



- Very Strong
- Strong
- Some evidence
- Low Risk
- Insufficient
- Conflicted evidence
- No risk evidence

Chapter 4 Strength of Evidence



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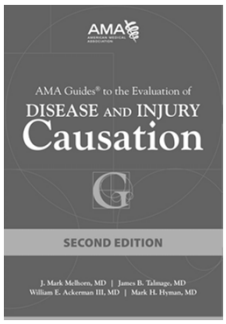


- Great
- So how do I use this information?

Step 1

Or use

The Causation Book

"Blue Book"

Table 3-1 Steps for Concluding a Causal Association Exists

1. Collect all epidemiologic literature on the disorder
2. Identify the design of each study, giving stronger consideration to superior study designs, provided each study has sound methodology
3. Assess the methods of each study, including the existence and degree of:
   a. Exposure assessment methods and potential biases
   b. Disease ascertainment methods and potential biases
   c. Absence of significant uncontrolled confounders; consideration of residual confounding
   d. Addressing of other potential biases or fatal flaws
   e. Adequacy of biostatistical methods and analytical techniques
4. Ascertain statistical significance and the degree to which chance may have produced the results
5. Assess the studies using the Updated Hill Criteria; apply the criteria to individual studies (especially 5a–5c) and to the studies as a whole (5a–5l)
   a. Temporality
   b. Strength of association
   c. Dose-response relationship
   d. Consistency
   e. Coherence
   f. Specificity
   g. Plausibility
   h. Reversibility
   i. Prevention/elimination
   j. Experiment
   k. Analogy
   l. Predictive performance
6. Conclusion about the degree to which a causal association is or is not present

Step 2 Table 3-2 NIOSH / ACOEM

1. Identify evidence of the disease = Dx
2. Review and assess the available epidemiological evidence for a causal relationship
3. Obtain and assess the evidence of exposure
4. Consider other relevant factors
5. Judge the validity of testimony
6. Form conclusions about the work-relatedness of the disease in the person undergoing evaluation

Step 3 Table 3-3 Exposure Hierarchy

1. Quantified personal or individualized measurement
2. Quantified surrogate of exposure (another worker doing same job)
3. Quantified pseudosurrogates of exposure (another worker doing similar job)
4. Employment in a defined job category
5. Employment in a defined job trade
6. Employment in a plant or obtained from employer

Step 4 Consider other relevant factors

1. Individual risk factors (listed in causation book)
2. Use Hill criteria to apply epidemiological data to specific individual

a. Temporality
b. Strength of association
c. Dose-response relationship
d. Consistency
e. Coherence

Step 4 Consider other relevant factors

Use Hill criteria to apply epidemiological data to condition in general less to specific individual

f. Specificity
g. Plausibility
h. Reversibility
i. Prevention/elimination
j. Experiment
k. Analogy
i. Predictive performance

Step 5 Judge the Validity of Testimony

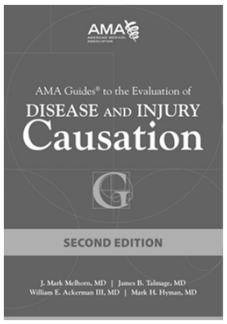
This step involves 2 main issues.

1. Is information that may suggest to the provider that there is a conflict regarding some important aspect, such as date of injury, mechanism, or prior injury status
2. The other may deal with broader issues, such as opinions given that are not evidence-based or whether analyses and/or tests performed were appropriate.

Step 6 Conclusions about work-related

1. Form conclusions about the work-relatedness of the disease in the person undergoing evaluation based on an
2. Understand of the legal threshold upon which your opinion must be based. (see chapter 2)

Causation

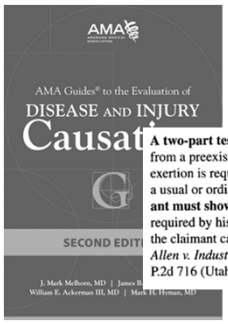


Utah	POTE / MPTN
Vermont	MPTN, RDOMP or RDOMC
Virginia	RDOMC, meaning at least a preponderance of the evidence, but not requiring absolute certainty or clear and unequivocal evidence
Washington	POTE / MPTN
West Virginia	POTE
Wisconsin	RDOMP or RDOMC
Wyoming	POTE / MPTN

Abbreviations: MPTN = more probable than not, includes states using a "probability > 50%" standard; POTE = preponderance of the evidence; RDOMC = reasonable degree of medical certainty; RDOMP = reasonable degree of medical probability.

Preponderance of the evidence = more probable than not

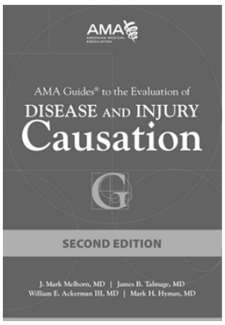
Causation

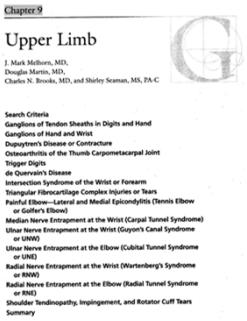


Utah

A two-part test is applied in determining causation: (1) Where the claimant suffers from a preexisting condition which contributes to the injury, an unusual or extraordinary exertion is required to prove legal causation; where there is no preexisting condition, a usual or ordinary exertion is sufficient. (2) Under the **medical cause test**, the **claimant must show by evidence, opinion, or otherwise** that the stress, strain, or exertion required by his or her occupation led to the resulting injury or disability, and in the event the claimant cannot show a medical causal connection, compensation should be denied. *Allen v. Industrial Comm'n*, 729 P.2d 15 (Utah 1986); *Smallwood v. Board of Review*, 841 P.2d 716 (Utah Ct. App. 1992).

Chapter 9 Upper Limb





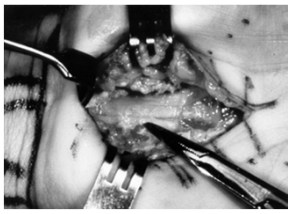
Chapter 9

Upper Limb

J. Mark Melhorn, MD,
Douglas Martin, MD,
Charles N. Brooks, MD, and Shirley Seaman, MS, PA-C

Search Criteria
Ganglions of Tendon Sheaths in Digits and Hand
Ganglions of Hand and Wrist
Dupuytren's Disease or Contracture
Osteoarthritis of the Thumb Carpometacarpal Joint
Trigger Digits
de Quervain's Disease
Intersection Syndrome of the Wrist or Forearm
Triangular Fibrocartilage Complex Injuries or Tears
Painful Elbow—Lateral and Medial Epicondylitis (Tennis Elbow or Golfer's Elbow)
Median Nerve Entrapment at the Wrist (Carpal Tunnel Syndrome)
Ulnar Nerve Entrapment at the Wrist (Guyon's Canal Syndrome or UNW)
Ulnar Nerve Entrapment at the Elbow (Cubital Tunnel Syndrome or UNE)
Radial Nerve Entrapment at the Wrist (Wartenberg's Syndrome or RNW)
Radial Nerve Entrapment at the Elbow (Radial Tunnel Syndrome or RNE)
Shoulder Tendinopathy, Impingement, and Rotator Cuff Tears
Summary

CTS - Causation



CTS - Causation

- 40 year old female
- 20 years on production line plastic cooler
- Recently switched to new line – larger jugs
- 2 year history of progress numbness at night thumb, index, and middle finger bilateral

CTS - Causation

- Symptoms are worse at end of day
- Awaken at night – shakes hands out
- BMI 29 (moderately overweight – age appropriate ?)
- Smokes 2 ppd
- Social EtOH
- Likes to play with grand children

CTS - Causation

- Treated with night splint – some improvement
- NSAID's – maybe help
- Wrist injection x 2 with improvement
- X-rays shown slight CMC thumb OA
- NCT consistent with median nerve entrapment wrist

CTS - Causation

- Filed WC claim
- Insurer is requesting a causation opinion.
- Is her work as a plastic production line employee the cause for her CTS for which you have recommend surgery?

CTS - Causation

- Patient said “the job is the cause”
- Many physician’s repeat this statement in their medical record
- The job then becomes “the cause”
- But what is the science?

Step 2 Table 3-2 NIOSH / ACOEM

1. Identify evidence of the disease = Dx
2. Review and assess the available epidemiological evidence for a causal relationship
3. Obtain and assess the evidence of exposure
4. Consider other relevant factors
5. Judge the validity of testimony
6. Form conclusions about the work-relatedness of the disease in the person undergoing evaluation

CTS - Causation

1. Identify evidence of the disease = Dx

Can you confirm her diagnosis as CTS?

2. Review and assess the available epidemiological evidence for a causal relationship

CTS - Causation

- Combination of force & repetition, force & posture = very strong evidence
- Vibration = low risk
- Highly repetitive work alone = conflicting
- Highly repetitive work in combination = strong evidence

CTS - Causation

- Forceful work = very strong evidence
- Awkward postures = low risk
- Keyboard = insufficient evidence
- Cold environment = insufficient evidence
- Length of employment = insufficient evidence
- Job satisfaction = some evidence

CTS - Causation

3. Obtain and assess the evidence of exposure

- Primary job is making jugs
- What does that involve?
- Hours per day
- Days per week
- Essential Functions of the Job

CTS - C

3. Obtain and assess the evidence of exposure

Standard forms can be helpful

CtdMAP™

Ergo Activities Form

Date:	Page 1 of 1
Job:	
Dept:	
Group:	
Area:	

Fingers/Hand	Circle the appropriate box for Hours of Exposure					
Repetition:	Intermittent	0	2	4	6	8	10
	Intensive	0	2	4	6	8	10
Force:	Pinch > 2 lbs	0	2	4	6	8	10
	Power > 10 lbs	0	2	4	6	8	10
Posture:	Flexed (knifing)	0	2	4	6	8	10
	Extended (pinch)	0	2	4	6	8	10
Contact Stress:	pinch points	0	2	4	6	8	10
Wrist							
Repetition: 4 - 20 motions/min		0	2	4	6	8	10
20 or more motions/min		0	2	4	6	8	10
Force: Pinch or extend > 10 lbs		0	2	4	6	8	10
Radial or Ulnar > 3lbs		0	2	4	6	8	10
Posture:	Flexed >20° or extended >30°	0	2	4	6	8	10
Radial or Ulnar deviation		0	2	4	6	8	10
Contact Stress:	or hammer in palm, sharp hook in palm	0	2	4	6	8	10
Forearm/Elbow							
Repetition: 4 - 20 motions/min		0	2	4	6	8	10
20 or more motions/min		0	2	4	6	8	10
Force: Pinch or extend > 10 lbs		0	2	4	6	8	10
Rotation > 10 lbs		0	2	4	6	8	10
Posture:	Pronation >120° or Extension >120°	0	2	4	6	8	10
Rotation > 45°		0	2	4	6	8	10
Contact Stress:	or lean on edge	0	2	4	6	8	10
Shoulder							
Repetition: 4 - 20 motions/min		0	2	4	6	8	10
20 or more motions/min		0	2	4	6	8	10
Force: >10° from side or >10lbs		0	2	4	6	8	10
90° from side >10 lbs		0	2	4	6	8	10
Posture: 45° side or unsupported		0	2	4	6	8	10
90° from side		0	2	4	6	8	10
Contact Stress:	or lean on edge	0	2	4	6	8	10

Neck						
Repetition: 4 - 10 motions/min		0	2	4	6	8	10
> 10 motions/min		0	2	4	6	8	10
Posture:	Forward >20°, backward >5°, rotate >20°	0	2	4	6	8	10
Activities							
Environmental:	Cold <60°F dry or humid or >87°F light or >20°F med heavy work	0	2	4	6	8	10
Vibration:	localized	0	2	4	6	8	10
	whole body	0	2	4	6	8	10
Keyboard, typing, data entry		0	2	4	6	8	10
Mouse or pads or mice		0	2	4	6	8	10
Use Hand or Digital Devices		0	2	4	6	8	10
Other						yes	no
Machine paced work?						yes	no
Incentive pay or piece rate work?						yes	no
Job rotation occurs?						yes	no
Task rotation occurs?						yes	no
Conduct job monitoring on direct management awards?						yes	no
Is there constant pressure to keep working?						yes	no
Does there seem to be a rush or urgency to avoid everything at work?						yes	no
Unpleasant physical conditions like noise, dust, fumes, etc.						yes	no
Poor lighting: bright or dark or glare computer						yes	no
Interventions							
Work Duties evaluation performed?						yes	no
Job redesigned for ergonomic build?						yes	no
Microsoft Ask Assessment completed?						yes	no
Ergo intervention completed?						yes	no
Other Intervention completed?						yes	no

Instructions:

Fill out the form, circle the appropriate box for Hours of Exposure, give an overall estimate of exposure to each activities, ergo activities, and Miscellaneous Ergo activities. Ergo activities are those activities that are designed to overcome the potential negative ergonomic factors associated with performing job task with regards to each ergo activities.

Step 1: In reviewing the essential functions of the job, (Above the line of the form) circle the appropriate box for Hours of Exposure. Circle the appropriate box for Hours of Exposure for a typical work day. Hours of exposure should be defined, i.e., activity time is defined as repetition, force, posture, contact stress, or combination of activities.

Review the job and rate exposure or adjustment for ergo tools the workers "follow" and "other workers" that cause the appropriate Yes or No.

Interventions: Review job improvements, tools, or equipment. If a review process or standard checklist has been used, review the results and rate the Hours of Exposure. Provide the "Other" section if "yes" and the process for "other workers" cause "No" for this task.

Ergo Activities Form Form 10-07Rev1

Definitions:

Repetition: Intermittent (Rep) < 20% of work period or intensive >= 20% of the time of the motion of the above part or tools.

Force: exposure (force) for pinch or power and may include a problem for the "Other" section.

Posture: Neutral, flexed, extend, ulnar or radial deviation, rotation, knifing (wrist or elbow up), radial or ulnar side, pinch or little finger side, or supported or unsupported (shoulder or upper arm).

Contact Stress: is any particular region of a body or a sharp or narrow edge, hammer, pressure points.

Environmental: example: cold, wet, light, dry, med heavy, vibration, rotation, exposure to moving parts or tools, sharp tools, or edge of plates

Vibration: Hand arm vibration is a frequency, amplitude, and/or duration

Keyboard: Keyboard, mouse, pads, mice, digitizer, etc.

Other: Other is a catch all for "Other" and "Other" section "Yes" and the process for "other workers" cause "No" for this task.

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CTS - Causation

3. Obtain and assess the evidence of exposure

- The jugs weight 15 lbs.
- Required knife to cut of plastic tails
- Forceful grasping and repetition
- Machine paced

CTS - Causation

3. Obtain and assess the evidence of exposure

- Is this her only risk exposure?
- Hobbies – watches TV with grandkids
- ROS and comorbidities are negative

CTS - Causation

4. Consider other relevant factors

- Age = very strong evidence
- BMI = very strong evidence
- Gender = very strong evidence = female
- Biopsychosocial factors = very strong evidence
- Diabetes = very strong evidence

CTS - Causation

4. Consider other relevant factors

- Dominant hand = insufficient evidence
- Smoking = low evidence
- Genetic = very strong evidence
- Alcohol consumption = insufficient evidence
- Carpal tunnel size (ratio) = some evidence

CTS - Causation

4. Consider other relevant factors

- Non occupational (gardening & knitting) = some evidence

CTS - Causation

5. Judge the validity of testimony

- Patients says “the job is the cause”
- Job description by patient
- Job description by employer
- Video of job
- Onsite viewing of job

CTS - Causation

5. Judge the validity of testimony

- Occupational risk factors would be

1. Combination of force & repetition, force & posture = very strong evidence
2. Highly repetitive work in combination = strong evidence

CTS - Causation

5. Judge the validity of testimony
- Occupational risk factors would be

3. Forceful work = very strong evidence
4. Job satisfaction = some evidence

CTS - Causation

5. Judge the validity of testimony
- Her nonoccupational risk factors would be

1. Age = very strong evidence
2. BMI = very strong evidence
3. Gender = very strong evidence
4. Biopsychosocial factors = very strong evidence

CTS - Causation

6. Form conclusions about the work-relatedness of the disease in the person undergoing evaluation.
- The scientific evidence would suggest that this individual has occupational and nonoccupational (individual) risk factors

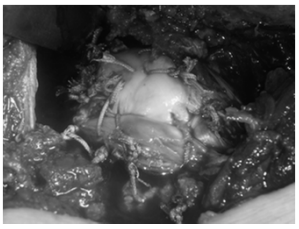
CTS - Causation

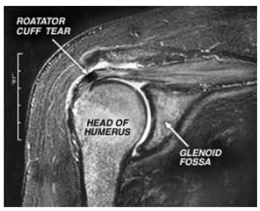
- So how to do you answer the original question –
- Is her work as a plastic production line employee the cause for her CTS for which you have recommend surgery?

CTS - Causation

- Remember
- Medical – Science
- Legal – Social justice
- The judge has the final say.

Rotator Cuff Disease = RC





RC - Causation

- 55 year old male
- 30 years as commercial electrician
- Recently changed jobs with new employer (6 months)
- 2 year history of progress pain in right should with decreasing ROM

RC - Causation

- Symptoms are worse at end of day
- Awaken at night when rolling on to right shoulder
- BMI 34 (Obese Class I = Moderately obese – age appropriate ?)
- Smokes 1 ppd
- Social EtOH
- Hunts & belongs to skeet shooting club

RC - Causation

- Treated with shoulder injection 2 years ago – some improvement
- NSAID's – maybe help
- Recent injection x 2 with improvement
- X-rays shown AC narrowing, slight glenohumeral OA
- MRI – degenerative tear, fatty infiltrate in retracted supraspinatus muscle

RC - Causation

- Filed WC claim with current employer
- Insurer is requesting a causation opinion.
- Is his work as a commercial electrician the cause for his rotator cuff tear (RC) for which you have recommend surgery?

RC - Causation

- Patient said “the job is the cause”
- Many physician’s repeat this statement in their medical record
- The job then becomes “the cause”
- But what is the science?

RC - Causation

Perhaps a better question is which job?

- 30 years with the first employer or 6 months with second employer
- No history of trauma
- Would history of injury with new employer change your answer?

Step 2 Table 3-2 NIOSH / ACOEM

1. Identify evidence of the disease = Dx
2. Review and assess the available epidemiological evidence for a causal relationship
3. Obtain and assess the evidence of exposure
4. Consider other relevant factors
5. Judge the validity of testimony
6. Form conclusions about the work-relatedness of the disease in the person undergoing evaluation

RC - Causation

1. Identify evidence of the disease = Dx

Can you confirm his diagnosis as RC?

2. Review and assess the available epidemiological evidence for a causal relationship

RC - Causation

- Combination of force & repetition, force & posture = some evidence
- Vibration = insufficient evidence
- Highly repetitive work alone = some evidence
- Highly repetitive work in combination = some evidence

RC - Causation

- Forceful work = insufficient evidence
- Awkward postures = strong evidence (>60 degrees flexion or abduction)
- Keyboard = insufficient evidence
- Cold environment = insufficient evidence
- Length of employment = insufficient evidence

RC - Causation

RC - Causation

3. Obtain and assess the evidence of exposure

- Primary job is install electrical items
- What does that involve?
- Hours per day
- Days per week
- Essential Functions of the Job

RC - Causatio

3. Obtain and assess the evidence of exposure

Standard forms can be helpful

CtdMAP™

Ergo Activities Form

Date:	Page 1 of 1
Job:	
Dept:	
Group:	
Area:	

Circle the appropriate box for Hours of Exposure						
Fingers/Hand						
Repetition	Intermittent	0	2	4	6	8	10
	Intensive	0	2	4	6	8	10
Force	Pinch > 2 lbs	0	2	4	6	8	10
	Power > 10 lbs	0	2	4	6	8	10
Posture	Flexed (knitting)	0	2	4	6	8	10
	Extended (typing)	0	2	4	6	8	10
Contact Stress	punch points	0	2	4	6	8	10
Wrist							
Repetition	4 - 20 motions/min	0	2	4	6	8	10
	20 or more motions/min	0	2	4	6	8	10
Force	Pinch or extend > 10 lbs	0	2	4	6	8	10
	Radial or Ulnar > 3lbs	0	2	4	6	8	10
Posture	Flexed >20° or extended >30°	0	2	4	6	8	10
	Radial or Ulnar deviation	0	2	4	6	8	10
Contact Stress	or hammer in palm, utility knife in palm	0	2	4	6	8	10
Forearm/Elbow							
Repetition	4 - 20 motions/min	0	2	4	6	8	10
	20 or more motions/min	0	2	4	6	8	10
Force	Pinch or extend > 10 lbs	0	2	4	6	8	10
	Rotation > 10 lbs	0	2	4	6	8	10
Posture	Flexion >120° or Extension >15°	0	2	4	6	8	10
	Rotation > 45°	0	2	4	6	8	10
Contact Stress	or less on edge	0	2	4	6	8	10
Shoulder							
Repetition	4 - 20 motions/min	0	2	4	6	8	10
	20 or more motions/min	0	2	4	6	8	10
Posture	>45° flexion, side or >30lbs	0	2	4	6	8	10
	90° flexion, side >20 lbs	0	2	4	6	8	10
Posture	45° side or unsupported	0	2	4	6	8	10
	90° flexion, side	0	2	4	6	8	10
Contact Stress	or less on edge	0	2	4	6	8	10

Circle the appropriate box for Hours of Exposure						
Neck						
Repetition	4 - 10 motions/min	0	2	4	6	8	10
	> 10 motions/min	0	2	4	6	8	10
Posture	Forward >20°, backward >5°, rotate >30°	0	2	4	6	8	10
Sedentary							
Posture/strength	Cold >60°F (for sedentary) or >45°F light or >20°F hard heavy work	0	2	4	6	8	10
Vibration	localized	0	2	4	6	8	10
	whole body	0	2	4	6	8	10
Keyboard, typing, data entry		0	2	4	6	8	10
Mouse or pinch screen		0	2	4	6	8	10
Use Blackberry or Digital Device		0	2	4	6	8	10
Other							
Machine paced work?						yes	no
Incentive pay or piece rate work?						yes	no
Job rotation, extra?						yes	no
Task rotation, extra?						yes	no
Overhead job monitoring or direct management pressure?						yes	no
Is there overhead pressure to keep working?						yes	no
Does there seem to be a rush or urgency about everything at work?						yes	no
Unpleasant physical conditions like noise, dust, heat, etc.						yes	no
Poor lighting, bright or dark or glare computer						yes	no
Interventions							
Work Hardening/Rehabilitation performed?						yes	no
Job redesigned for ergonomic benefit?						yes	no
Microsoft Assessment complete?						yes	no
Ergo Intervention completed?						yes	no
Other Intervention completed?						yes	no

Instructions:

The Ergo Activities Form of Hours of Exposure is a tool to be used in conjunction with the Ergo Activities Form. Ergo Activities Form Hours of Exposure is a job activities and is designed to correlate the number of hours per day spent in the job activities and is designed to correlate the number of hours per day spent in the job activities and is designed to correlate the number of hours per day spent in the job activities. It is a tool to be used with ergo Ergo Activities Form.

Ergo Activities Form Hours of Exposure

Definitions:

Repetition - where the 4 to 20 % of a work period or performance 11-20% of the time, or 20 or more motions per minute.

Force - is a force, force for pinch or power and may contain a product for ergo-ergonomics.

Posture - flexed, flexed, flexed, flexed or more, down, or alternate, or flexed, or extended, or flexed, or extended, or flexed, or extended

RC - Causation

4. Consider other relevant factors
- Age = very strong evidence
- BMI = strong evidence
- Gender = insufficient evidence
- Biopsychosocial factors = strong evidence
- Diabetes = some evidence

RC - Causation

4. Consider other relevant factors
- Dominant hand = insufficient evidence
- Smoking = low risk evidence
- Genetic = insufficient

RC - Causation

4. Consider other relevant factors
- Non occupational = shooting ? Any science? Can you extrapolate?

RC - Causation

5. Judge the validity of testimony
- Patients says “the job is the cause”
- Job description by patient
- Job description by employer
- Video of job
- Onsite viewing of job

RC - Causation

5. Judge the validity of testimony
- Occupational risk factors would be

1. Combination of force & repetition, force & posture = some evidence
2. Highly repetitive work in combination = some evidence

RC - Causation

5. Judge the validity of testimony
- Occupational risk factors would be

3. Awkward postures = strong evidence

RC - Causation

5. Judge the validity of testimony

- His nonoccupational risk factors would be

1. Age = very strong evidence
2. BMI = strong evidence
4. Biopsychosocial factors = strong evidence
5. Shooting

RC - Causation

6. Form conclusions about the work-relatedness of the disease in the person undergoing evaluation.

- The scientific evidence would suggest that this individual has occupational and nonoccupational (individual) risk factors

RC - Causation

- So how to do you answer the original question –
- Is his work as a commercial electrician the cause for her RC for which you have recommend surgery?

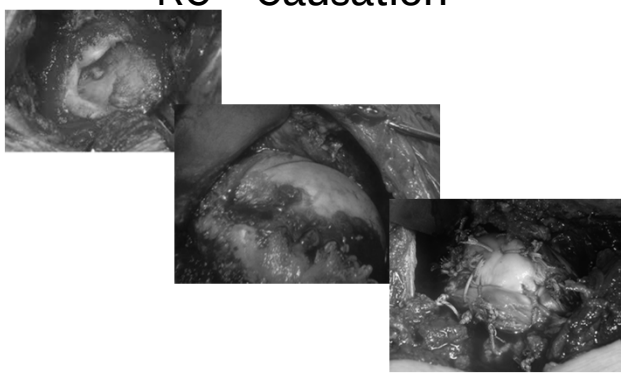
RC - Causation

- So how to do you answer the original question –
- Which employer?
- Do you do an apportionment?
- C. N. Brooks and J. M. Melhorn. Apportionment. In: Guides to the Evaluation of Disease and Injury Causation, edited by J. M. Melhorn, J. B. Talmage, W. E. Ackerman, and M. H. Hyman, Chicago, IL: American Medical Association, 2013, p. 139-148.

RC - Causation

- So how to do you answer the original question –
- Does the degenerative tear, fatty infiltrate and retracted supraspinatus muscle – change you opinion?

RC - Causation



RC - Causation

- Remember
- Medical – Science
- Legal – Social justice
- The judge has the final say.

Occupational Health

5 Primary Issues

1. Causation
2. cost of care & outcomes
3. Treatment Outcome
4. Return to Work
5. Impairment & Disability

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