

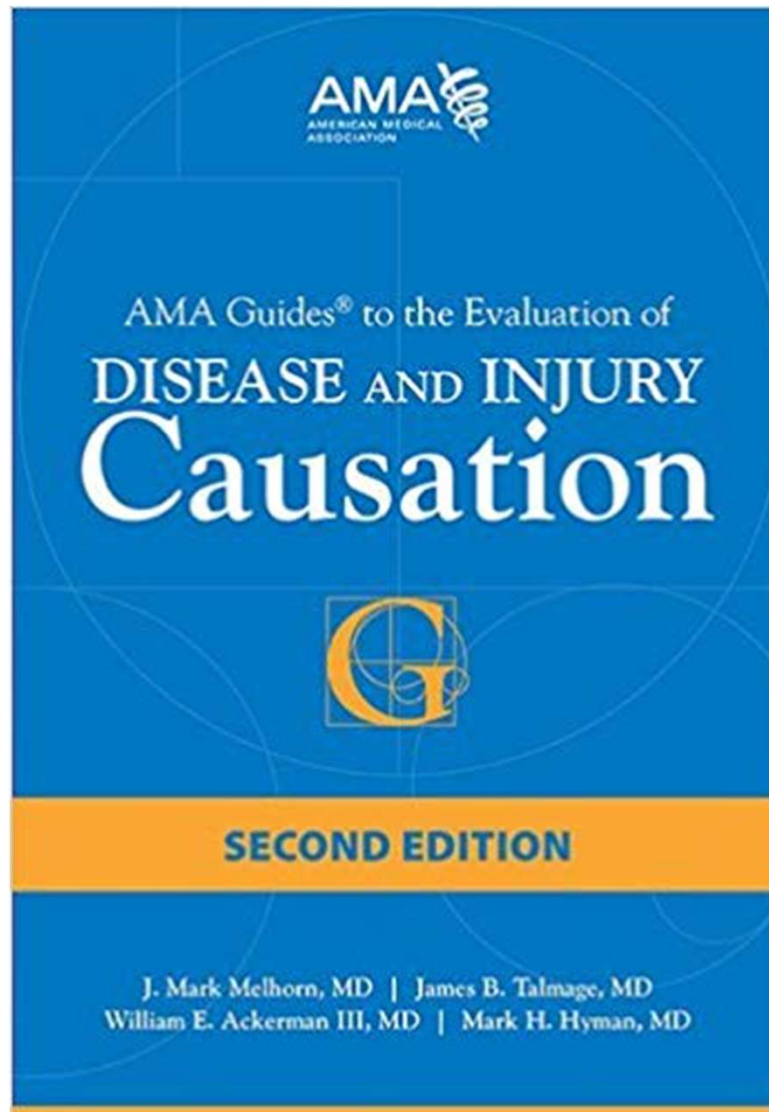


The Occ Med Perspective

Tom Winters, MD
Michael Kelley

Tuesday, March 29th, 2022
2:00-2:30 pm

References



Medical vs. Legal Definitions of Causality

- **Legal Definition of Causality**

- Law based
- Depends on burden of proof as defined by law



- **Medical Definition of Causality**

- Scientifically based
- Based on probabilities from scientific literature
- RDOMC, RDOMP, MPTN, POTE



Work related Conditions AOE/COE



Injury



Illness

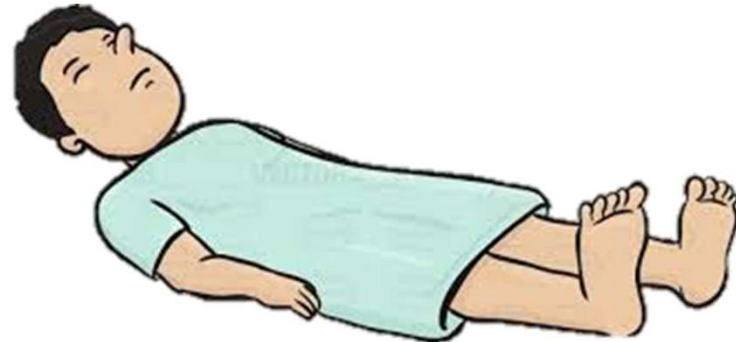
Incorrect Causation Associations

- *Post hoc ergo propter hoc*
- After this, therefore because of this

Examples

Correlation = ~~C~~ausation

- Fact – all persons who died drank water
- Conclusion – **drinking water causes death**



Scientifically based Causation Analysis

Causation may be direct or indirect

- Direct Causal Relationship – Action --> Injury
- Indirect Causal Relationship - Action --> worsening of pre-existing condition caused by other factors

Non Causal Relationship – Action has no association with condition

Indirect Causation

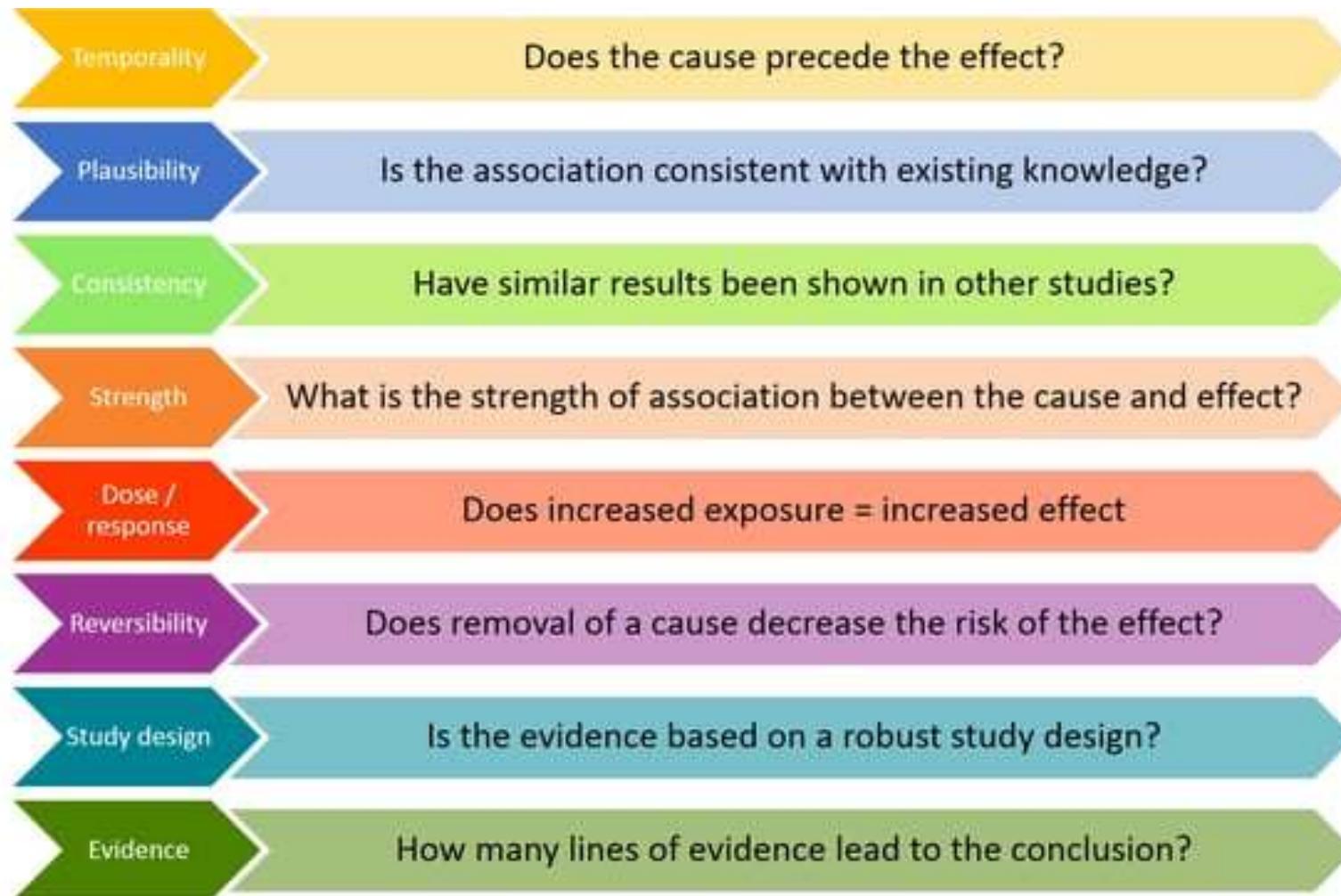
- Aggravation (permanent)
 - 1% rule in California
 - major cause but not necessarily the predominant cause in Mass.
- Exacerbation (temporary)
- Acceleration
- Precipitation (of latent process)
- Recurrence (without provocative event)

2022

**Work Related Injuries
Workshop**



Sir Austin Bradford Hill



Causal association

- 1) The **medical findings** of disease or injury are **compatible** with the effects of a disease producing agent or an injury producing **event** to which the worker has been exposed
- 2) **sufficient exposure** is present in the worker's occupational environment to have caused the disease
- 3) the **weight of evidence** supports the disease as having an occupational vs. non-occupational origin

Medical History

- Current and past medications
- Allergies
- Alcohol and Smoking history
- Hobbies
- Exercise habits
- **Employment history**
- Psychological history, Social Support, Job satisfaction
- Current and prior medical conditions
- Surgical history and/or previous treatment or diagnostic history



Practical Examples of Causality Determination

Carpal Tunnel Syndrome



Evidence based causation

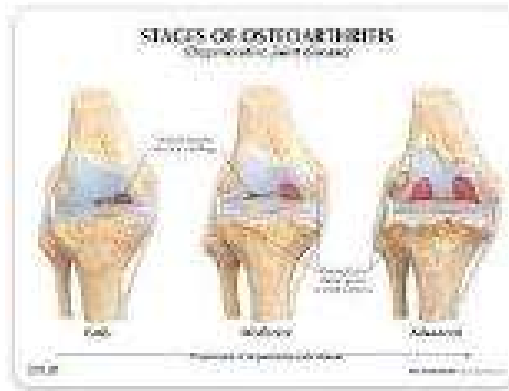
- Keyboard activities: *insufficient evidence*
- Vibration: *low risk*
- Highly repetitive work alone: *depends on definition of repetitive*
- Forceful work: *very strong evidence*
- Awkward posture: *low risk*
- Combination of risk factors (force and repetition, force and posture): *very strong evidence*

Confounders for CTS

- Diabetes – *very strong evidence*
- Dominant hand – *insufficient evidence*
- Comorbidity – *very strong evidence*
- Smoking – *low risk evidence*
- Genetics – *very strong evidence*
- Alcohol consumption – *insufficient evidence*
- Wrist ratio – *some evidence*
- Hobbies – *some evidence for gardening and knitting*



Knee Osteoarthritis



- Knee OA or DJD is most common form of arthritis
- Increased prevalence with age
- Comorbidities can contribute - excessive weight, genetics, mechanical factors

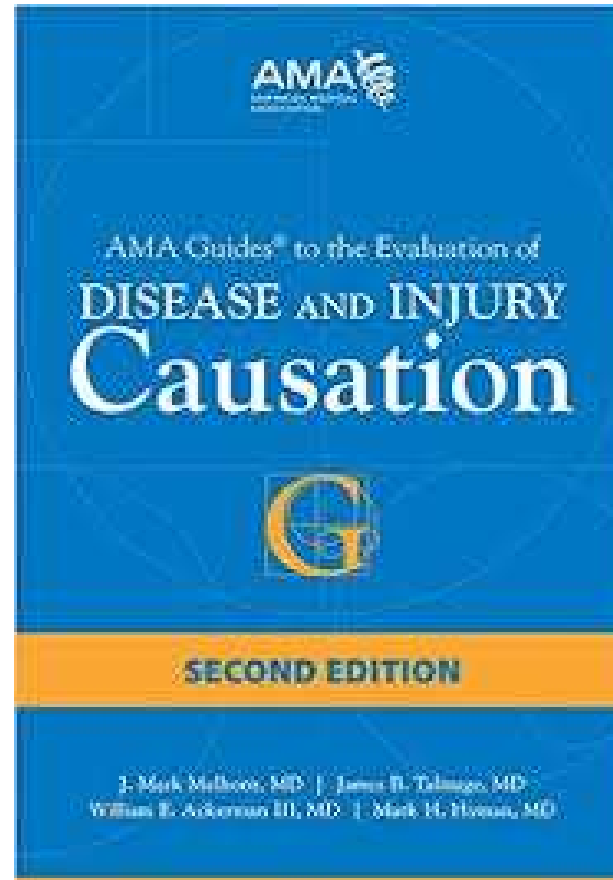
Case Examples

References

“Work-Relatedness”

- William W. Greaves, MD, MSPH, Rajiv Das, MD, MPH, MS, Judith Green McKenzie, MD, MPH, Donald C. Sinclair II, JD, and Kurt T. Hegmann, MD, MPH
- *JOEM Volume 60, Number 12, December 2018*

References



Thank you

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