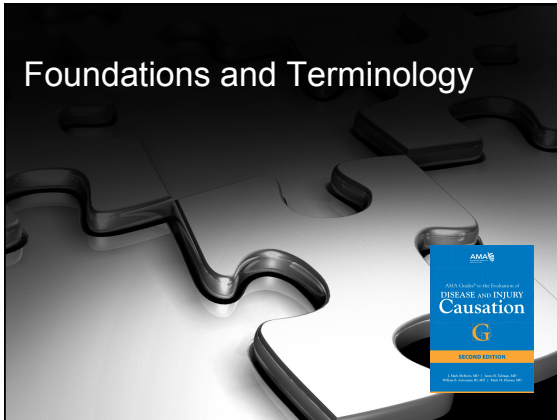


Foundations and Terminology



Insights?

- Causation analysis is often faulty.
- Participants often define their “realities” consistent with their belief systems and incentives (usually financial).
- Science and guidelines (clinical, practice, causation, impairment and disability) should always trump individualized, unsupportable opinions.

2

Evidence-based Medicine

- Evidence-based medicine (EBM) aims to apply the best available evidence gained from the scientific method to clinical decision making.
- Principles of EBM apply to clinical management and to the assessment of causation, apportionment and work ability.

The image contains two diagrams. The first is a pyramid representing the hierarchy of evidence, with levels from top to bottom: Systematic Reviews, Clinical Guidelines, Clinical Practice Guidelines, Case Series, Case Reports, and Single Case Reports. The second is a Venn diagram with three overlapping circles: 'Individual Clinical Expertise' (top), 'Best External Evidence' (right), and 'Patient Values & Expectations' (bottom). The central intersection of all three circles is labeled 'EBM'. The number '3' is at the bottom right of the diagram.

3

Work-relatedness

- Complex and may not be intuitively obvious
- Medical and legal causation arise from two different sources, medicine from science and legal from desire for social justice (or gain of certain stakeholders)
- Courts do not have their origins in science and science changes, therefore the laws developed are not scientifically derived

4

Medical Causality Assessment

- A medically probable relationship *requires*:
- Documentation that cause was present
 - Verification that the type and magnitude were sufficient
 - Necessary temporal relationship of cause to the condition (effect).
- Cannot be based on patient history alone. A medical causality assessment requires independent confirmation. (Examinee history is often unreliable.)

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Medical Causality Assessment

- Work relatedness requires:
1. An event or exposure took place
 2. Claimant has injury or disease
 3. The event or exposure could cause the injury of disease;
- And if 1-3 are all probably present:
4. It is “medically probable” the event or exposure caused THIS injury or disease.
- Statistically, no combination of medical possibilities can result in a medical probability.

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Legal Causation

- Two separate and distinct components
 - Cause in fact
 - Proximate (or legal) cause
- Non-causal relationships may be noted and distort decision (gray hair example)
- Causal fallacy of “post hoc ergo propter hoc”
 - After this, therefore because of this
 - Occurs when a causal relationship is asserted based on this false reasoning
 - Fallacy to conclude that one event followed by a second necessarily demonstrates a causal relationship between the events (black cat example)
- Presumptions may be rebuttable or irrebuttable

7

Fraud

- Statistics for fraud are difficult to determine and measure – estimated at least 25% of claims involve element of fraud
- An attempt to obtain compensation for an injury that is non-existent, substantially exaggerated, or unrelated to the accident.
- Commonly seen with pain, “subjective” and “cumulative trauma” disorders.
- Flip side problem: Denying benefits that are do.

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Terminology and Concepts

- Cause
- Effect
- Risk
- Probable
- Possible
- Aggravation
- Exacerbation
- Recurrence
- Apportionment

9

Cause and Effect

- **Cause**
 - An agent, circumstance or event which is capable of producing a new effect or aggravating an ongoing pre-existing) effect.
- **Effect**
 - A diagnosis, status, function, condition or impairment which *can* result from or be aggravated by a cause.

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CAUSE → EFFECT

- Suggests disease or medical condition (effect) would not have occurred without exposure (cause).
- A given cause (A) and a given effect (B) are associated within a reasonable degree of medical probability.

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Risk

- Risk is probability that event will occur.
- In epidemiology – probability that a particular outcome will follow a particular exposure. (Burt B. Definitions of Risk. Ann Arbor, MI: U Michigan, 2001)
- Risk if an environmental, behavioral or biological factor confirmed by temporal sequences, ideally in longitudinal studies, that, if present directly increases the probability that a disease will occur, and, if absent or removed, reduces that probability.

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Medically Possible

- The notion that it is less likely than not that something is true from a medical standpoint.
- Less than 50% likely = possible.
- Often, perhaps even as a rule, statements are made regarding the probability or possibility of a causal relationship in the absence of any objective epidemiologic or biologic rationale for that determination.
- Thus, legal terminology alone implies a degree of certainty/knowledge that may be unfounded.

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Other Terms

- **Recurrence**
 - Involves the reappearance of signs or symptoms that were previously present. This can represent the effect of a new injury, but can also occur with minimal or no provocation.
- **Precipitation**
 - An exposure causes a preexisting disease to become manifest that was previously silent.
- **Acceleration**
 - An exposure hastens or is claimed to hasten, the course of a preexisting disease process.

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Causation Types

- **Ultimate**
 - Initial factor that leads to the effect.
- **Proximate**
 - Factor which immediately or closely precedes the effect.
- **Unique**
 - Condition is due to a specific cause, e.g., asbestosis.
- **Multifactorial**
 - When there are several possible causes.

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Aggravation

- A stimulus capable of worsening the “status quo” of a susceptible entity or condition.
- Temporary vs.. permanent
- Temporary (exacerbation)
 - The natural course of an ongoing problem is temporarily worsened over time compared to what the status of the problem would have been had the exposure or provocation not occurred.
 - In cases of temporary aggravation, the patient will eventually recover to the status or condition that was predetermined by the natural history of the original problem.

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Permanent Aggravation

- The natural course of an ongoing problem is permanently worsened over time compared to what the status of the problem would have been had the exposure or provocation not occurred.
- In the case of permanent aggravation, the natural course of the pre-existing condition is forever altered.
- Examples
 - Accelerating
 - Worsening
 - Causing
 - Hastening
 - Increased frequency of attacks
 - Prolonging

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Medical Causation Analysis

- Given these concepts and definitions, how do we assess causation and apportionment?
- Must apply science and the facts in the case.
- Therefore, must understand both the current science and have all of the facts in the case.

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Foundations and Terminology

