Medical Causality and Risk Assessment

WORKERS’ COMPENSATION BASICS COURSE // MODULE 4 OF 8
Medical Causality and Risk Assessment

Module 4

Objectives:
Upon completion, participants should be able to:
• Identify the risk management principles used to determine causality
• Determine the impact of pre-existing disease or injury on work related injuries
• List the steps in determining causality

Slide 1, 2 – Causality and Risk Assessment
This module will present an overview on causality and the assessment of risk associated with the work an employee performs.

Slide 3 – Medical causality and risk assessment
• Relationship between diagnosis and work exposure
• Estimate of risk of developing diagnosis from work exposure
• Medical probability

Slide 5 – Step 1 – Occupational medical history
Obtain and document
• A detailed description of the incident reportedly causing the injury, OR
• A thorough description of job duty activities contributing to the IW’s symptoms

Slide 6
Characterize the job duty activities contributing to the IW’s symptoms by listing
• The required physical activities
• The frequency and duration of these tasks
• The total time the employee has worked performing these duties

Slide 8 – Step 2 – Medical history
Obtain and document
• Complete review of systems
• Current and past medical diseases and treatments for injury
• Non-work related activities that could affect the complaint (hobbies, weekends, sports)

Slide 10 – Step 3 – Differential diagnosis
Determine using
• Review of occupational and medical history
• Findings from physical exam
• Results of diagnostic testing
Slide 12 – Step 4 – Medical probability
Assess the medical probability of the relationship between the assumed diagnosis and the work-related exposure.

Slide 16 – To assess causality, assess risk
Bradford-Hill Assessment – accepted by the DOWC
1. Strength of association
2. Consistency of evidence
3. Specificity of results
4. Temporal relationship
5. Biological gradient
6. Coherence

Slide 17 – Strength of association
The strength of the association means when people are exposed at a specific exposure level or frequency, they show a significant relative risk for developing the disease.

Slide 18 – Consistency of evidence
When people in different populations are exposed to similar work exposures, they show the same result.
Example: Cold environments - meat packers, tow truck drivers in winter, and stockers for cold shipments

Slide 19 – Specificity of the result
Scientific studies must prove the exposure was the cause of the diagnosis, and not from other exposures or diseases.
Example: Occupational lead toxicity in a battery assembly worker versus workers exposed to lead solder, plumbing fixtures, bullets, or leaded glass

Slide 20 – Temporal relationship
The timing and follow-up investigation of workers should identify the specific disease. Long latency studies should eliminate the cases that happen too early to be relating to the exposure.
Example: Acute, temporary pulmonary condition such as bronchitis would not normally be associated with a long-term exposure to a substance causing chronic lung disease

Slide 21 – Biological gradient
Long term exposure can be correlated with the increased likelihood of the disease or injury. In some cases, increased exposure does not increase the severity.
Example: A single puncture wound from an infected needle contrasted with exposure to lead or heavy metals over long periods
**Slide 22 – Coherence**
Coherence is about being logical and consistent. The exposure should be biologically plausible and aligned with earlier research. However, new causal relationships may not conform with previous studies in the literature.

Example: Metal fume fever - self-limiting, allergic syndrome due to inhaling zinc oxide fumes from welding, cutting or brazing galvanized metal.

**Slide 23 – Work related exposure and “proximate cause”**
*Proximate cause is the last act “contributory to an injury, without which such injury would not have resulted. The dominant, moving or producing cause.”* Black’s Law Dictionary

In other words, it does not matter that the defect was already present. Proximate cause applies to auto liability and compensability just as it does to workers’ compensation cases.

**Slide 25 – Pre-existing conditions**
A pre-existing condition is a medical condition that may pre-dispose a worker to injury. When a worker has an underlying condition, it does not necessarily mean the injury or illness is NOT work related. If the worker would not have the injury without the work-related event, the injury is most likely also work-related.

Pre-existing diseases or injuries may impact healing time, medication interactions, a higher risk of infection, etc. Congenital defects may be unknown prior to the injury and other medical conditions may increase vulnerability.

Example: A worker with a partial meniscus tear may be in a car accident at work. Upon exam, he is diagnosed with a full thickness meniscus tear following aggravation.

Example: A diabetic patient with a foot injury is already vulnerable but the employer can still be liable for infections or an amputation associated with a work injury.

**Slide 26 – Activities of daily living**
- If the worker is performing an activity he performs in daily tasks at home, the injury will not be work-related.
- The event should originate in a work-related function.
- This is a legal decision, not a medical one.

**Slide 27 – Mental impairment with no injury**
C.R.S. §8-41-301(2)(a)
- A recognized, permanent disability arising from an accidental injury arising out of and in the course of employment
- The accidental injury involves no physical injury.
- Consists of a psychologically traumatic event outside the workers’ usual experience in most cases
- Would evoke significant symptoms of distress in a worker in similar circumstance

**Slide 28 – Rule 17 reference**
For assessment of causality and diagnosis of disorders, refer to the guidelines by condition. Flowcharts will assist with the causality determination.

Example - Cumulative Trauma Conditions – Medical Treatment Guideline: Rule 17, Ex. 5
Treatment for work-related condition is covered when the work exposure:
• Causes a new condition;
• Causes the activation of a previously asymptomatic or latent medical condition; or
• Combines with, accelerates, or aggravates a pre-existing symptomatic condition

Slide 30 – Risk factor categories
Based on work site ergometric evaluation
• Repetition and duration of force
• Repetition and duration of awkward postures
• Computer work
• Duration and use of handheld vibratory power tools
• Cold environment during work

Slide 31 – Duration, force, and repetition risk factors
Duration is calculated on the cumulative exposure over an 8-hour day excluding breaks or periods of inactivity. Force and repetition is based on weight and time.

Slide 33 – Evidence for specific risk factors
Strong evidence is supported by multiple high quality studies, good evidence is one or more high quality or multiple adequate studies, and some evidence is considered one adequate study.

An example of good evidence for epicondylitis
• Combination of awkward posture (forearm supination past 45 degrees) and forceful lifting
• Combination study of force and wrist and hand repetition

Slide 34 – Against and non-evidence based
Scientific evidence may indicate the opposite or non-involvement of the factors in the diagnosis. The Medical Treatment Guidelines and scientific literature will indicate the known correlations.

Documentation example of non-evidence based or evidence against
• Evidence against: Some evidence tool use is not related
• Non-evidence based: Posture in extension and repetitive supination of the forearm and elbow extension; additional factors must be considered
References

SelectNet Manual – Section 3-3
https://www.pinnacol.com/file/selectnet-provider-manual

Medical Treatment Guidelines – Rule 17

Review

T or F: Occupational medical history is the first step in the causation assessment.

A differential diagnosis is determined from:
   a) Review of occupational and medical history
   b) Findings from physical exam
   c) Results of diagnosis testing
   d) All the above

T or F: When people in different populations are exposed to similar work exposures, they rarely show the same result.

Assessing risk does not include this step:
   a) Strength of association
   b) Consistency of evidence
   c) Reports from witnesses
   d) Specificity of the result

T or F: Temporal relationship involves exclusion of cases that happen too early to be related to the exposure.

A comparison of an infected needle stick versus heavy metal exposure over time would be an example of what type of risk assessment?
   a) Temporal relationship
   b) Biological gradient
   c) Coherence
   d) Strength of association

The last act contributory to an injury, without which such injury would not have resulted is:
   a) Proximate cause
   b) Indeterminate cause
   c) Existing defect
   d) None of the above
T or F: An executive who has a seizure while reading office emails or speaking on the phone would be classified as a work-related injury.

The decision of work-relatedness of an injury is decided by:
   a) The worker
   b) The employer
   c) The physician
   d) The judicial system

In assigning a medical probability level to a case, which of the following is correct?
   a) Equal to or over 50% likely → medically probable
   b) Equal to or over 50% likely → medically possible
   c) Less than 50% likely → medically probable
   d) None of the above

T or F: Compensability is a medical decision. (Legal decision)

T or F: In a determination of duration for cumulative exposure over an 8-hour day, breaks are not included in the duration.