

## DIFFERENTIAL DIAGNOSIS vs. CAUSAL ASSESSMENT:

### RELEVANCE TO DAUBERT

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*Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579 (1993) and related cases, require that scientific and medical expert testimony be based upon reasonable methodology to be admitted into court on the record. *Daubert* and its progeny demand that a scientific expert follow recognized, generally accepted methodologies that establish causation, where making a claim of a causal link between the medical condition and the related exposure or incident. <sup>(1)</sup> Experts whose testimony does not meet the standard, according to the Supreme Court, should have their testimony excluded under the federal rules of law. <sup>(2)</sup> Some physicians have successfully avoided exclusion of their testimony by claiming that they performed a differential diagnosis, in the standard fashion, and thus have determined causation. In other words, they may say: after performing a standard differential diagnosis, I determined that mold caused the asthma, or in the course of standard differential diagnosis, I ruled out everything but the benzene in the well water as a cause of his leukemia. The courts have sometimes accepted and sometimes rejected this claimed parallel between differential diagnosis and causation. While the issue remains unsettled in the courts, however, there is little doubt that the two processes differential diagnosis and causal assessment are distinct entities that require separate methodology, and that differential diagnosis does not fulfill the requirements of causation.

This misstatement of fact is important, frankly, because it undermines the intended purpose of *Daubert*, and permits physicians to claim a causal relationship between a condition and a circumstance without performing the requisite analysis.

While both differential diagnosis and causal assessment use similar inductive reasoning processes, each relies upon different information and data. The former requires only the patient and data from medical and scientific testing. <sup>(3)</sup> The latter requires that the reviewing expert consider much more information, such as exposure data, additional patient test data, a detailed historical review of medical records, and a close scrutiny for other potential causes. In the case of chronic pain which the patient associates with an automobile accident, with factors such as the force of the accident, the immediate post-accident findings, and other factors are crucial to the method of causal assessment. However, these factors are not of definitive importance to the methodology of differential diagnosis. Properly trained physicians are quite capable of conducting thorough differential diagnoses and arriving thereby at diagnostic conclusions. Again, this is not the same as causal assessment. Physicians are not well trained in causal assessment. From a physician's perspective, the treatment of a broken wrist does not depend on how it was broken, nor does cancer treatment depend upon the cause of the cancer.

The clinician can ignore temporal relationships, dose, duration of exposure, alternate causes, latency periods and other factors, all of which are key in causation, and indeed, often determinative. In a given case, if these details were not considered during the differential diagnosis, then an erroneous statement about causation may be made using the differential diagnosis model. This would be without regard for important contradictory facts, issues left

unresolved, and questions left unanswered. All of these affect the correct assessment of causation.

Differential diagnosis is, in fact, the standard methodology of clinical practice.<sup>(4)</sup> It is the process that physicians most often rely on to decide treatment. Except in a few instances, i.e., infectious diseases like tuberculosis, this methodology does not lead to a causal determination. Indeed, it is not generally pursued with a causal assessment in mind. Assume, for example, that a patient sees a physician complaining of pain in the leg. The differential diagnosis might include: soft tissue trauma, a pulled muscle, a fractured bone, arthritis of the joint, a tumor, etc.

The differential diagnostic process considers these entities, works the patient up appropriately and stops with the diagnosis. If the patient does have a fracture, then the diagnosis does not establish the cause. Whether the patient was in an automobile accident, or fell out of a tree, or was hit by a baseball bat is not relevant to the diagnosis. But it is the essence of a causal assessment, i.e., the reason the patient's leg is broken is what causation is all about. In this case that causal determination may be easy to make by simply asking the patient, but if he or she does not tell the physician what happened, the cause may remain undetermined. In this case a differential diagnosis was conducted and completed. Causal assessment was not.

It is far more complicated when exposures, rather than recent trauma, are at issue. A medical evaluation for breathing trouble may lead to the diagnosis of asthma. This diagnosis ends the differential diagnostic process. Determining the cause of asthma, or even its exacerbation or aggravation, is a new exercise. The physician cannot, for example, ascribe an indoor mold exposure as the cause, if the asthma predated the exposure, or if the patient has not undergone testing to establish allergy to the molds at issue. In a recent Virginia court case, we contributed to a motion to exclude, raising exactly these questions about the differences in reasoning. The motion was successful, due primarily to the Court's responsive questioning of the physician's claim that differential diagnosis was sufficient to establish causation.

The fundamental difference between the two issues is: causal assessment is about how the condition came about, to determine responsibility or liability, while differential diagnosis is about what the condition is, to determine treatment. Perhaps, the physician did perform a competent causal assessment, but, more likely, that statement is a ploy to end questioning and prevent exclusion of the testimony. Regardless of the motive, however, the question of causation most probably has not been addressed. If counsel can properly explain this to the court, then the physician's testimony may very well be excluded, because it is not based upon causal assessment.

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1. **Daubert v. Merrell Dow Pharmaceuticals**, 509 U.S. 579 (1993) **Cavallo v. Star Enterprises, et al.**, 892 F.Supp. 756, 773 (E.D. Va. 1995), **Moore v. Ashland Chemical Company**, 151 F.3d 269 (5<sup>th</sup> Cir 1998), **Westberry v. Gilsaved Gummi** AB.178 F.3d 257 (4<sup>th</sup> Cir. 1999) and others.
  2. **Daubert v. Merrell Dow Pharmaceuticals**, 509 U.S. 579 (1993).
  3. Although other testing and information may be taken into account.

4. Differential diagnosis is "the determination of which of two or more diseases with similar symptoms."