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Appeals Court Confirms Expert Testimony Must Offer Scientific Proof of Causation, Not a Hypothesis

by Carl J. Summers

In a recent decision, the U.S. Court of Appeals for the Eleventh Circuit affirmed summary judgment for a defendant based on the trial judge's exclusion of expert testimony opining that a calcium-zinc compound in Fixodent denture adhesive caused the plaintiff's neurological disorder. *Chapman v. Procter & Gamble Distributing, LLC*, __ F.3d __, 2014 WL 4454979 (11th Cir. Sept. 11, 2014). It quoted the trial court directly in support of that conclusion: "Taking everything together, there is enough data in the scientific literature to hypothesize causation, but not to infer it. Hypotheses are verified by testing, not by submitting them to lay juries for a vote." *Id.* at *10. The opinion addresses several critical considerations bearing on the admissibility of expert testimony that advances novel theories of causation.

With respect to general causation, the opinion demonstrates that acceptance in the scientific community continues to play a critical role in the admissibility of expert testimony, even though *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579 (1993) held that general acceptance alone is not decisive. In previous cases, the Eleventh Circuit has recognized two categories of expert testimony on general causation. In the first category are opinions asserting a causal relationship that is generally recognized in the medical or scientific community—*e.g.*, the relationship between asbestos exposure and mesothelioma or smoking and lung cancer.

The second category involves theories of causation that have not yet garnered widespread acceptance in the relevant field. Whereas courts need not conduct a full-scale *Daubert* analysis before admitting testimony in the first category, they must rigorously apply the *Daubert* framework to those opinions asserting theories of causation that have not yet reached the stature of general acceptance. In *Chapman*, this full-scale analysis involved "a thorough hearing and consideration of thousands of pages of filings by the parties, including the experts' reports and depositions, and scientific literature." *Id.* at *4.

Chapman is important because it emphasizes that the distinction between these two categories must be drawn with a low level of generality—and in product-liability toxic-exposure cases, must be specific to the allegedly toxic chemical used in the product. The plaintiff's experts in *Chapman* argued that their theory was generally accepted because it was undisputed that excessive zinc can cause copper deficiency, which can lead to neurological disorders, and because a case report had "hypothesized [that] zinc in denture adhesives may lead to copper deficiency, which could cause neurologic injury." *Id.* at *1. The Eleventh Circuit affirmed the trial court's determination that this combination was insufficient to put the experts' testimony into the first category of general acceptance because it did not "show that *the zinc compound in Fixodent*" is generally recognized to cause the type of neurological injury alleged by the plaintiff. *Id.* at *4 (emphasis added).

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With respect to the actual *Daubert* analysis, the trial court "[r]ecogniz[ed that] all substances potentially can be toxic," which means that "the relationship between dose and effect … is the hallmark of basic toxicology and is the single most important factor to consider in evaluating whether an alleged exposure caused a specific adverse effect." *Id.* at *6. Yet, the plaintiff's experts could not "determine how much Fixodent must be used for how long to increase the risk of a copper deficiency, or for how long a copper deficiency must persist before an individual is at an increased risk of developing a [neurological disorder]." *Id.* The experts also could not identify any epidemiological evidence demonstrating a causal relationship and did not even know the background risk for the neurological injury alleged by the plaintiff. *Id.* at *6-*7. Labeling these the "primary methods" for proving causation in a toxic-exposure case, the trial court found this to be a fatal flaw in the experts' opinions.

Reiterating that appellate courts must give great deference to the trial court's decision "even if a decision on expert testimony is outcome determinative" (*id.* at *5), the Eleventh Circuit affirmed the trial court's conclusion that "[b]ecause these experts have failed to demonstrate the primary methods for proving [that] the zinc in Fixodent causes [neurological injury], their secondary methodologies, including plausible explanations, generalized case reports, hypotheses, and animal studies are insufficient proof of general causation. This latter evidence could mislead the jury by causing it to consider testimony that was insufficient by recognized primary methodologies to prove [that] using Fixodent causes [neurological injury]." *Id.* at *7.

The Eleventh Circuit also affirmed the trial court's exclusion of the plaintiff's specific-causation expert, whose opinions were based on a differential etiology. As the Eleventh Circuit held, differential etiology is "a scientifically accepted methodology," but the plaintiff's expert "did not follow it." *Id.* at *8. Specifically, a valid differential etiology requires the expert to "compile a comprehensive list of hypotheses that might explain a plaintiff's condition" and then "provide reasons for rejecting alternative hypotheses using scientific methods and procedures and the elimination of those hypotheses must be founded on more than subjective beliefs or unsupported speculation." *Id.* at *8. Yet the plaintiff's expert in *Chapman* "failed to consider obvious alternative causes" for the plaintiff's condition and instead "pursued his view that zinc-associated copper deficiency was responsible" without providing any legitimate reason for ruling out other potential causes. *Id.* at *9.

Chapman is a well-reasoned opinion that builds on prior case law in positive ways and should be useful in future challenges to speculative or untested expert opinions.

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