

Expert Alert

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SECTION OF LITIGATION

COURT APPOINTED SCIENTIFIC EXPERTS: PROVIDING OBJECTIVE SCIENTIFIC ADVICE TO THE JUDICIARY

by Deborah Runkle

Litigation involving scientific or technical matters poses a unique challenge to the American judicial system. Non-scientist judges and juries often lack the experience necessary to understand complex scientific issues born of rapidly increasing knowledge. And decisions reached in science-rich litigation can have effects far beyond the litigants involved in a specific case. Therefore, it is especially important that judges and/or juries are able to get the science "right."¹

This problem has become even more acute following the Supreme Court's decisions in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), *General Electric Co. v. Joiner*, 522 U.S. 136 (1997), and *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999).² These cases emphasized the duty of judges to ensure that the reasoning and methodology underlying scientific evidence and the conclusions drawn from that evidence are reliable and valid. But judges themselves admit they have difficulties understanding the increasingly complex scientific issues involved in today's disputes. In a 1993 survey, the Federal Judicial Center (FJC) found that federal judges "often admitted their need to become better informed on an essential topic of the litigation."³

A growing number of courts have expressed concern over the ability of dueling party-appointed experts to provide this information, and have opted to appoint their own experts. The American Association for the Advancement of Science (AAAS), has developed a project, CASE (Court Appointed

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EXPOSURE AND ABSORPTION TESTIMONY IN TOXIC TORT CASES: THE IMPORTANCE OF SPECIFICITY

by Michael L. Martinez

John Doe works with a toxic substance for several years and, perhaps inevitably, is exposed to it many times. Years later, he develops cancer and hires a lawyer after someone tells him that his illness may have been caused by the toxic substance. Clearly, John Doe needs an expert.

In tort cases where the exposure to or the absorption of an allegedly harmful substance is at issue, experts are generally necessary to testify as to the level of exposure or absorption involved. This testimony can help the jury determine whether the substance caused the injury at issue. As one court explained, where the nexus between an injury and an alleged cause would not be obvious to the lay juror, "expert evidence is often required to establish the causal connection between the accident and some item of physical or mental injury."¹

It seems self-evident that an expert providing such testimony should measure in some tangible way the plaintiff's exposure to the substance in circumstances similar to those alleged by the plaintiff. But, surprisingly, some proffered experts refuse to take these basic steps, relying instead on generalized studies or data calculations that render their conclusions suspect at best. In three recent cases, courts have unequivocally (and properly) excluded such testimony. As these cases illustrate, exposure and absorption testimony must be grounded in focused scientific data specific to the facts of the case.

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The failure of plaintiff's experts to quantify that exposure made it "impossible to determine" whether plaintiff exceeded that threshold level.

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Parker v Mobil Oil Corp.: Testimony Rejected Under the Frye Standard

A recent case from New York illustrates the point. In *Parker v. Mobil Oil Corp.*,² the Plaintiff had been a gas station attendant for seventeen years when he developed acute myelogenous leukemia ("AML"). He sued several oil companies claiming, among other things, that as part of his occupational duties he came into dermal contact on a daily basis with benzene, a known human carcinogen, and that benzene caused his AML. The court framed the issue before it as "to what extent the plaintiff was required to establish a precise level of his exposure to benzene in order to establish that his AML was caused by it through a scientifically-reliable methodology."³ The court found that neither of the two experts proffered by the plaintiff "articulated with any specificity the level of benzene to which the plaintiff was exposed."⁴ Instead, the first expert merely described the plaintiff's exposure to benzene as "extensive," and asserted that plaintiff had an "abundant opportunity for exposure to benzene."⁵ Likewise, plaintiff's second expert did not attempt to quantify exposure, and simply asserted that plaintiff had "far more exposure to benzene" than had oil workers in a separate study that concluded there was a link between benzene and leukemia.⁶

Applying the prevailing standard in New York, which adheres to the rule articulated in *Frye v. United States*, the court excluded the testimony of both experts as unreliable. The court reasoned that the experts had failed to quantify the amount or concentration of benzene to which plaintiff allegedly had been exposed. That is, the experts had not, among other things, taken into

account various concentrations of the benzene in use, and thus had no idea how much benzene (and in what concentrations) the plaintiff had been exposed to. Assuming *arguendo* that a certain level of benzene exposure causes cancer, the failure of plaintiff's experts to quantify that exposure made it "impossible to determine" whether plaintiff exceeded that threshold level.⁸

The *Parker* court also rejected an alternative theory advanced by plaintiff's experts, the so-called "linear non-threshold model." This theory assumes that "if a lot of something is bad for you, a little of the same thing, while perhaps not equally bad, must be so in some degree."⁹ In addition, the theory rejects the concept that substances have a neutral effect until some threshold level is reached. Because the linear non-threshold model (as opposed to the more widely accepted "dose-response" theory)¹⁰ has been rejected by several courts as an unproven and scientifically unreliable hypothesis,¹¹ the *Parker* court rejected it as well.¹²

Thus, flawed expert testimony prevented the plaintiff in *Parker* from proving the vital causal link between benzene exposure and his injuries. No one disputed that benzene causes cancer. But plaintiff's experts failed to make the requisite causal connection, based on a scientifically reliable methodology, between the plaintiff's *specific* level of exposure to benzene in gasoline and the plaintiff's AML. These experts had not conducted studies of exposure or dermal absorption that even attempted to replicate the events as plaintiff alleged them. It was insufficient for these experts simply to assert—without measuring exposure or absorption specific to the case—that plaintiff's benzene

exposure was sufficient to cause his AML.

Wills v. Amarada Hess Corp.: Exclusion In A Daubert Case

The U.S. Court of Appeals for the Second Circuit reached a similar result in *Wills v. Amarada Hess Corp.*¹³ *Wills* is another benzene case, this time brought by the estate of a decedent who worked for ten years as a seaman aboard ocean tankers. These tankers transported petroleum-based fuels such as oil, gasoline, and kerosene. Four months after the plaintiff left his employment in late 1995, he developed squamous cell carcinoma and died less than a year later at the age of thirty-nine. The plaintiff's estate alleged that the decedent's cancer was caused by harmful exposure on his tanker trips to benzene and polycyclic aromatic hydrocarbons ("PAH").¹⁴

The expert identified by plaintiff submitted a report advancing what he called the "oncogene theory"—essentially the linear non-threshold theory under a different name.¹⁵ As framed by this expert, "for some toxins there is no safe level of exposure because the cancer can be triggered by the interaction of a single molecule of the toxin with a single human cell."¹⁶ From that theory, he offered the expert opinion that benzene and PAH had caused the decedent's cancer, because he assumed that the decedent had been exposed on many occasions to both benzene and PAH while traveling on the ocean tankers. The expert performed no tests that attempted to replicate the decedent's exposure to benzene and PAH. Instead, he relied upon an affidavit from another seaman that had sailed and worked with the decedent. The seaman testified that he and the decedent occasionally had been subject-

ed to noxious odors and that both he and the decedent suffered from various ailments that could be attributed to toxins. He offered no specifics about the level of exposure, but focused more on the regularity of the exposure he believed both he and the decedent had experienced.¹⁷

On motion by defendants, the *Wills* court excluded plaintiff's expert, apply-

Had the expert in Wills conducted any studies or performed any tests that tied his theories to some accepted methodology based on a specific replication of the decedent's experiences, he would have stood a better chance of having his theories admitted.

ing the *Daubert* concepts now codified in F.R.E. 702. The court first rejected the expert's "oncogene theory" on the basis that—as the expert himself conceded—this theory was controversial and not generally accepted by the scientific community. More fundamental to the court's decision was its finding that the expert's theory met *none* of the non-exhaustive list of factors of reliability set forth in *Daubert*. As the court explained, in addition to the theory's lack of general acceptance in the scientific community, there was no evidence that this theory had been tested or subjected to peer review, and the expert could not state a

known or potential error rate.¹⁸

The court also flatly rejected as speculative the factual basis for the expert's report—the seaman's affidavit. In addition to the fact that the affiant had served with the decedent at sea for only five months of the decedent's ten year career—and then often in different positions at different areas of the tankers—the court found the affiant unqualified to submit the affidavit he had proffered. As the court explained, without "some technical or professional expertise" in the science of toxic emissions, the seaman could not properly analyze or quantify what, if any, toxic substances he and the decedent may have experienced.¹⁹ Stated another way, there was no reliable way for this affiant to establish a dosage amount.

One final factor that undercut the proffered expert's testimony was his failure to take into account the decedent's use of cigarettes and alcohol—a major risk factor in developing the type of cancer from which he suffered. This failure, according to the court, "strongly indicated" that the expert's conclusions "were not grounded in reliable scientific methods, as required by *Daubert*."²⁰ Based on all of these factors, the court excluded plaintiff's expert.

As in *Parker*, the *Wills* court was unwilling to accept expert theories based on suppositions and assumptions derived from speculative theories and generalized lay testimony. Had the expert in *Wills* conducted any studies or performed any tests that tied his theories to some accepted methodology based on a specific replication of the decedent's experiences, he would have stood a better chance of having his theories admitted. Instead, when experts fail to take

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these extra steps that particularize their theories and the bases for them to the specific facts of the case, they run a high risk that their theories will be excluded.

Bourne v. E.I. DuPont de Nemours: A Further Application of Daubert

A third recent case further illustrates this point. In *Bourne v. E.I. DuPont de Nemours*,²¹ the plaintiff was a British child who sued DuPont, claiming that various birth defects he suffered were the result of his mother's exposure *in utero* to Benlate, a fungicide manufactured by DuPont, the active ingredient of which is benomyl. Plaintiff's mother claimed that she sprayed a mixture of Benlate and water on her strawberries, roses, and other garden plants every ten to twelve days over a three-month period in 1986, while pregnant with her son. She claimed that, while spraying, she would get some of the mixture on her "hands, legs, feet and possibly face."²² Unlike the benzene cases, the parties did not agree that Benlate causes harm to humans. Plaintiff proffered two experts, who opined that there was a sufficient level of the Benlate mixture on the mother's skin to be absorbed into the body, reach the fetus, and cause Andrew's birth defects. Their opinions were based on various studies performed on rats, as well as mathematical calculations performed by one of the experts. Again, as with the *Parker and Wills* case, no specific dermal absorption or other scientific tests or studies were done with respect to the plaintiff child or his mother.

Applying a *Daubert* analysis, the district court excluded plaintiff's experts insofar as they advanced a dermal absorption theory regarding Benlate. The court

termed their theory "highly speculative" and "without the indicia of reliability required by F.R.E. Rule 702 and *Daubert*."²³ The court grounded its rejection of the experts on several factors.

First, the court noted that instead of "conducting any type of test or study to attempt to recreate" the conditions under which the plaintiff's mother was exposed to Benlate, one of the plaintiff's experts developed arbitrary calculations to estimate what he considered were approximate amounts of the Benlate/water solution on the mother's skin. The court concluded that these calculations were "at best, purely speculative and at worst, devised to ensure that a certain desired end . . . was met."²⁴

The court also found that the methodology used by the expert in determining skin exposure was flawed, contrary to published studies, and not capable of being reproduced. The methodology that the expert used to calculate human dermal absorption of Benlate was not scientifically reliable, and was inconsistent with studies conducted on both rats and humans.²⁵ In short, the court—as in *Parker and Wills*—rejected the plaintiff's experts on the absorption and exposure issues because their theories were based on generalized information and calculations that could not bridge the divide between allegations and causation.

Heeding The Cautionary Tale

The *Bourne*, *Wills*, and *Parker* decisions all stand as cautionary tales for plaintiffs who seek to hold a defendant liable for the unfortunate maladies that have befallen them. In preparing their opinions, experts cannot take short cuts. Experts cannot

predicate their opinions entirely on studies, generalized data, and the observations of lay witnesses. Instead, experts must conduct an analysis that is focused on the particular facts of the plaintiff's case if they are to have a chance of withstanding a challenge to their opinions and credentials. For the defense attorney, the lesson is equally obvious. Honing in on areas where the expert has generalized or relied upon generalized information is often fertile ground for a successful *Daubert* or *Frye* challenge.

Mr. Martinez is a litigation partner with Crowell & Moring LLP in Washington, D.C. His firm represented DuPont in the *Bourne* case discussed herein.

¹ *Moody v. Maine Central R.R. Co.*, 823 F.2d 693, 695 (1st Cir. 1987).

² 16 A.3d 648 (N.Y. App. Div. 2005).

³ 2005 N.Y. App. Div. LEXIS 3326 at *7.

⁴ *Id.* at *9.

⁵ *Id.* at *9-10.

⁶ *Id.* at *10.

⁷ 293 F. 1013 (D.C. Cir. 1923).

⁸ *Parker*, 2005 N.Y. App. Div. LEXIS 3326 at *10-11.

⁹ *Whiting v. Boston Edison, Co.*, 891 F. Supp. 12, 23 (D. Mass 1995).

¹⁰ Simply stated, the "dose-response" theory assumes that you need a sufficient dose of a particular substance in order to trigger a specific toxic response. In other words, toxins are carcinogenic only when a person is exposed over and above a specific threshold level.

¹¹ *See Id.*; *Wills v. Amarada Hess Corp.*, 2002 WL

140542, 2002 U.S. Dist. LEXIS 1546

(S.D.N.Y. 2002); *Sutera v. Perrier Group of America*, 986 F. Supp. 655, 666 (D. Mass. 1997).

¹² 2005 N.Y. App. Div. LEXIS 3326 at *11-12.

¹³ 379 F.3d 32 (2d Cir. 2004).

¹⁴ *Id.* at 36-37.

¹⁵ *Id.* at 38.

¹⁶ *Id.*

¹⁷ *Id.* at 39, 49-50.

¹⁸ *Id.* at 49.

¹⁹ *Id.* at 44-45.

²⁰ *Id.* at 46.

²¹ 189 F. Supp. 2d 482 (S.D.W.V. 2002), *aff'd* 85 Fed. Appx. 964 (4th Cir. 2004), *cert. denied*, 125 S.Ct. 67 (2004).

²² *Id.* at 484.

²³ *Id.* at 499.

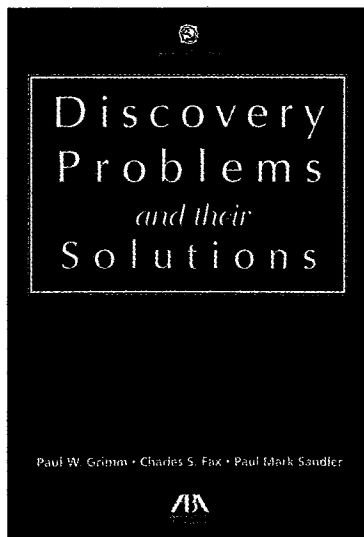
²⁴ *Id.*

²⁵ *Id.* at 499-501. ❧

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