

SCIENTIFIC EVIDENCE REVIEW

CURRENT ISSUES AT
THE CROSSROADS OF SCIENCE,
TECHNOLOGY AND THE LAW

MONOGRAPH NO. 7



CYNTHIA H. CWIK
HELEN E. WITT

ABA
Defending Liberty
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EDITORS' NOTE

It is our pleasure to present the Seventh Monograph of *Scientific Evidence Review*, a publication of the Section of Science and Technology Law. In this monograph, we present chapters addressing current issues and strategic questions at the crossroads of science, technology, and the law, including the selection and use of scientific expert witnesses, scientific uncertainty in the courtroom, and public health quarantines and takings.

We have included a number of chapters addressing issues relating to expert witnesses and the technical evidence they commonly present. One of these chapters provides practical and useful guidance on the selection of technical and scientific experts and on working with them most effectively. Another offers an overview of the benefits of court-appointed experts in scientific fields. We also present a chapter addressing many common sources of scientific uncertainty, and offering "practice points" for understanding them. On the professional responsibility side, we have included a chapter addressing ethical and strategic issues that arise in the context of expert conflicts of interest, and the risks—including disqualification—that arise from such conflicts that practitioners must take steps to avoid. We also present a commentary on the effects of the *Daubert-Joiner-Kumho Tire* trilogy on "advocacy science" in the courtroom, in which the author advocates adoption of an "evidence-based logic" standard for admissibility of expert opinion testimony.

We also have included two chapters discussing the use of scientific or technical "standards" in the courtroom or other areas of the law. The first chapter looks at regulatory standards and their use—and potential misuse—in the context of toxic tort litigation. The second chapter presents a brief history of standards, discusses the strengths and weaknesses of standards for various purposes, and identifies legal issues related to standards and their use.

In more specific contexts, we have included a chapter regarding the many issues that arise when attempting to evaluate the relationship between air pollution and human health, including questions related to various modeling approaches, and the key impact of design choices on the interpretation of results. Finally, we have included a chapter that presents an overview of the scientific evidence and evidentiary standards used in connection with public health quarantines and takings, including a discussion of emerging issues of scope and uncertainty that counsel need to consider in connection with quarantines.

The editors very much appreciate the hard work of those who have contributed to this monograph. In addition to our many talented authors, we specifically thank Robert Knaier and Ashley Green of Latham & Watkins, and Quentin Phillips of Kirkland & Ellis, who provided valuable editing assistance. We also acknowledge the secretarial assistance provided by Tracey White and Patricia Beebe of Latham & Watkins, and the substantial contributions of Shawn Kaminski and Richard Paszkiet of the American Bar Association.

We for the most part made only minor stylistic changes to the chapters. The readers should note that the editors and the section may not necessarily agree with all of the statements made or positions advocated in these chapters. The authors' views are not necessarily the views of the editors or the editors' clients. Furthermore, the editors have relied on the authors to verify the accuracy of their statements and citations. Each reader should make an independent verification of these statements and citations before advocating any position in reliance on them.

The editors invite the readers to contact them with any thoughts or comments about this or future monographs.

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Selecting and Working with Scientific and Technical Experts

SUNIL K. GARG, PH.D., ESQ., and ELLIOT EDER, ESQ.

I. Introduction

The United States Supreme Court's decisions in the three related cases universally referred to as the *Daubert* trilogy,¹ as supplemented by myriad other decisions on the issues of admissibility and credibility of expert testimony, have measurably increased the stakes for lawyers involved in the process of identifying, selecting, and preparing experts in contested proceedings. Since the inception of "modern" legal practice, lawyers have been working with scientific, technical, engineering, and economic experts in litigation, contested cases and enforcement matters, and in counseling their clients on regulatory demands of the law. Given that experience base, one might argue that a discussion on issues in selecting and working with experts and consultants is unnecessary at this point in time. However, the *Daubert* trilogy changed the playing field in several ways, and its impact is only now beginning to be evaluated. These changes affect the legal profession along with the scientific, technical, and engineering fields about which experts most often testify in civil trials. In addition, the changes have significantly raised the bar in identifying and selecting suitable experts at all phases of the contested case process.

This chapter discusses the rules of admissibility, noting how courts have interpreted them. It also examines recent case studies and statistics to provide crucial insight into the selection of experts. Finally, the chapter discusses some of the issues that can lead to disconnects between lawyers and the

¹ The *Daubert* trilogy is the following three related cases decided by the United States Supreme Court: *Daubert v. Merrell Dow Pharm., Inc.* 509 U.S. 579, 113 S.Ct. 2786 (1993); *General Electric Co. v. Joiner*, 522 U.S. 136, 118 S.Ct. 512 (1997); and *Kumho Tire Co. Ltd. v. Carmichael*, 119 S.Ct. 1167 (1999).

experts with whom they work, particularly in the scientific and technical disciplines, and offers advice on ways to bridge these gaps.

II. The Rules of Admissibility

A brief look at the background of the rules surrounding expert testimony will help set the stage for this discussion. Fed. R. Evid. Rule 104(a)² authorizes federal courts to conduct an evidence admissibility inquiry. In 2000, Congress amended Fed. R. Evid. Rule 702, which provides the framework for that inquiry, to reflect the Supreme Court's opinions in the *Daubert* trilogy. Fed. R. Evid. Rule 702 now provides:

Testimony by Experts—If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

This language is key to selecting an expert, working with the expert, and presenting expert testimony. As the Seventh Circuit has noted, regardless of whether an expert grounds his or her work in sound scientific principles and methods, a court still must be satisfied that the expert's work "yielded facts and data sufficient to support their proposed testimony ... It is critical under Rule 702 that there be a link between the facts or data the expert has worked with and the conclusion the expert's testimony is intended to support ... The court is not obligated to admit testimony just because it is given by an expert."³ This last statement summarizes the common ipse dixit pitfall of expert testimony—i.e., that an expert opinion should be admitted merely because the expert states it. Courts are vigilant against that type of solipsism.

Much attention has been devoted, perhaps appropriately up to this point, to understanding the limits of the impact of the *Daubert* trilogy on legal practice and admissibility of expert testimony, including how to "survive" a *Daubert* motion in limine once one actually reaches the trial stage. However, there continues to be a sentiment throughout the profession that since most cases settle, it is more important to engage an expert who is more of a "hired gun" for advocacy purposes than an objective reviewer, observer, and commentator on the key issues underlying the case. Lawyers often ask experts to advocate a particular position, whether or not fully supported by the facts of the matter, generally on a highly compressed timetable. More often than not, the process of selecting, vetting, and engaging experts remains chaotic at best. Yet the stakes in selecting experts and ensuring their objectivity have never been higher.

² The Federal Rules of Evidence will be cited in this chapter as "Fed. R. Evid. Rule" followed by the rule number from the latest available (2004) version at the time of this writing.

³ U.S. v. Mamah, 332 F.3d 475, 478 (7th Cir. 2003) (citations omitted).

Indeed, it is increasingly important to develop a framework for success in every step of the expert-engagement process, including the initial interview, engagement, pre-trial questioning and preparation, and courtroom presentation. Otherwise, there is a high risk of exclusion or limitation of expert testimony. To gain an edge in litigation, one can no longer wait until the final pretrial months to identify and interview expert witnesses. Satisfying *Daubert* criteria is critically important, and it is only the first step in developing and presenting a strong case that may be supported by large amounts of technical and scientific data. Changes in regulation and technology widen communication gaps that may exist between expert and lawyer, and can easily have a negative effect on the case. In fact, the most effective litigators are now those with the ability to raise their own level of understanding about the strategic scientific issues in a case so that they can most effectively conduct discovery and evaluate, retain, train, and communicate with their expert witnesses.

To improve effectiveness in the selection and preparation of experts, it is instructive to evaluate and apply the three-part test presented in Fed. R. Evid. Rule 702. First, the expert must be qualified. Second, the expert's testimony must be reliable. Third, the evidence must "fit" the facts of the case.

A. IS THE SCIENTIFIC EXPERT WITNESS ADEQUATELY QUALIFIED?

Courts first determine if the witness has sufficient knowledge of the topic. Such knowledge need not have been acquired from "scientific" and "technical" methodologies. However, the Supreme Court has cautioned that it must be based on more than subjective belief or unsupported speculation.⁴ Cases from the Sixth Circuit provide insight into the importance of selecting the right expert to offer the necessary testimony:

The expert's qualification is . . . "separate" [from evaluating the reliability of the testimony] because the proponent of the testimony is obliged to demonstrate the facets of the witness's background that makes his knowledge "specialized," that is, beyond the scope of the ordinary juror . . . It is "related" [to the reliability inquiry] because the qualifications must be relevant to the opinion sought. [Accordingly,] "if one wanted to explain to a jury how a bumblebee is able to fly, an aeronautical engineer might be a helpful witness. Since flight principles have some universality, the expert could apply general principles to the case of the bumblebee . . . even if he had never seen a bumblebee. . . . On the other hand, if one wanted to prove that bumblebees always take off into the wind, a beekeeper with no scientific training at all might be an acceptable witness if a proper foundation were laid for his conclusions." . . . Thus, although a degree might be helpful . . . it is neither a necessary nor a sufficient condition as an expert because the expert's education must be relevant to the opinion, and qualification may be based on knowledge, skill, experience or training as well . . . "[T]he expert need not have

⁴ *Daubert*, 509 U.S. at 590.

complete knowledge about the field in question, and need not be certain. He need only be able to aid the jury in resolving a relevant issue.⁵

B. IS THE SCIENTIFIC EXPERT OFFERING RELIABLE TESTIMONY?

As noted in *Daubert*, courts use a multifactor analysis to determine if the proffered testimony is reliable. These factors may include, but are not limited to, whether the opinion can be or has been tested; whether the theory or technique on which the opinion is based has been subjected to peer review and publication; the known or potential rate of error; whether standards controlling the technique's operation were maintained; and general acceptance in the scientific community.⁶ Application of these and other factors often goes to the heart of a *Daubert* analysis. The court must take all relevant factors into account when conducting a reliability inquiry. If any one step renders the analysis unreliable, it may render the expert's testimony inadmissible.⁷

Further, since a scientific expert is given great latitude to offer opinion testimony, including testimony that is not based on firsthand knowledge or observation, the Supreme Court has stressed that the subject of such testimony must be the product of a scientific methodology that can be, and has been, tested.⁸ The D.C. Circuit has illustrated the perils for a litigant whose expert provides an opinion based on an unreliable, insufficiently tested theory that flies in the face of prevailing scientific knowledge. In a "battle of experts," the appellant was undone by her own petard (and perhaps by her failure to work with a consulting expert):

The considerable epidemiological evidence all pointed in one direction [as did] a landscape of litigation in which judges were unanimous in rejecting as lacking in scientific basis and contrary to the overwhelming literature the type of testimony offered by [appellant's experts. No] reasonable scientist would rely on this methodology in the face of voluminous epidemiological evidence to the contrary . . . Dr. Shanklin's causation testimony was deficient [because the] analytical gap between the data and his opinion "is simply too great." Ultimately, it is Meister's experts' heavy reliance on case reports that is her undoing. Although case reports may suffice under some circumstances, the defendants introduced expert testimony that was supported by a uniform body of evidence including epidemiological studies failing to establish a causal link between silicone breast implants and connective tissue disease [and the National Academy of Science] concluded that there was insufficient evidence [underlying such hypotheses] to show a causal relationship between silicone breast implant and scleroderma. Hence the district court could not reasonably conclude that reasonable people could not differ as to the import of the epidemiological evidence.⁹

⁵ *Zuzula v. AB Power T&D Co.*, 267 F. Supp. 2d 703, 713–14 (E.D. Mich. 2003) (citations omitted).

⁶ *Daubert*, at 593–94.

⁷ *Moore v. Ashland Chem. Inc.*, 151 F.3d 269, at note 11 (5th Cir. 1998).

⁸ *Daubert*, at 593.

⁹ *Meister v. Medical Eng'g Corp.*, 267 F.3d 1123 (D.C. Cir. 2001) (citations omitted).