

CLOSING THE DOORS ON UNSUPPORTED SPECULATION: JOINER'S EFFECT ON THE ADMISSIBILITY OF EXPERT TESTIMONY

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INTRODUCTION

The critical debate over what types of scientific testimony and evidence should survive the scrutiny of the Federal Rules of Evidence continues to progress. Attorneys continuously search for guidance regarding the admission of expert testimony because admissibility decisions can be a pivotal point in determining the viability and/or outcome of a particular claim.¹ Due to the Supreme Court's goal to exclude "junk science,"² the Court has emphasized the importance of scientifically accurate (or reliable) expert evidence and testimony. In achieving this goal, however, the scope of a district court judge's authority to exclude a particular expert's testimony has never been clearly defined. In the meantime, courts continue to experience an influx of new scientific and non-scientific testimony. Therefore, it is critical that district court judges are given guidance to assist them in their determinations of admissibility.

Over five years ago, the Supreme Court created a new standard governing the admissibility of expert testimony in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*³ After defining the requirements for the admissibility of expert testimony, the Court set forth a directive addressing the scope of district court judicial authority. The Supreme Court specifically provided that the district court judge, when acting as the gatekeeper, must focus "solely on [the] principles and methodology [of the experts and], not on the conclusions they generate."⁴ As a result of *Daubert's* distinction between methods and conclusions, conflicting views developed as to the scope of a district court's power when determining the

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1. See Patrick C. Barry, *Admissibility of Scientific Evidence in the Remand of Daubert v. Merrell Dow Pharmaceuticals, Inc.: Questioning the Answers*, 2 WIDENER L. SYMP. J. 299, 305 (1997) (noting that evidence of causation now must be presented via expert testimony, and therefore, many suits can be precluded if the expert's opinion is speculatively based on existing data); Michael H. Gottesman, *From Barefoot to Daubert to Joiner: Triple Play or Double Error?*, 40 ARIZ. L. REV. 753, 769 (1998).

2. See *Graham v. Playtex Prods., Inc.*, 993 F. Supp. 127, 134 (N.D.N.Y. 1998) (stating that *Daubert's* primary concern was the exclusion of "junk science"); Charles F. Preuss, *Closing the Door on Junk Science*, 65 DEF. COUNS. J. 323, 323 (1998) (illustrating how the appropriate standard of admissibility is important to ensure that courtrooms are not infiltrated with "junk science"); Richard B. Racine et al., *The Battle over Science in the Courtroom*, FED. LAW., Feb. 1995, at 36, 40; Jeffrey Robert White, *Experts and Judges*, TRIAL, Sept. 1998, at 91, 91.

3. 509 U.S. 579 (1993).

4. *Id.* at 595.

admissibility of an expert's testimony.⁵ Some of the circuit courts gave great deference to the Supreme Court's direct limitation that a judge's focus should be on the reliability of an expert's methods and not on the expert's conclusions.⁶ Other circuit courts gave less deference to the Supreme Court's distinction and allowed a "district [court] judge to evaluate both the scientific validity of the expert's methodology and the strength of the expert's conclusions."⁷

After many years of confusion, the Supreme Court revisited *Daubert* in *General Electric Co. v. Joiner*.⁸ Although the Court's primary concern in *Joiner* was identifying the appropriate standard of review governing a district court's decision to admit or exclude expert testimony, the Court also provided insight into *Daubert*'s "methodology/conclusion" distinction.⁹ While it is unclear whether *Joiner* conclusively extended the trial court judge's gatekeeping role to include an expert's conclusions,¹⁰ the Supreme Court's opinion has resoundingly

5. See J. Kennard Neal, *Life After Joiner, How Will the New Supreme Court Decision Affect the Admissibility of Expert Testimony in Georgia?*, 3 GA. B. J. 32, 34 (1998) (discussing the growing debate as to the scope of "the district court's gatekeeper role in evaluating the 'conclusions' of the proposed expert"); Anthony Z. Roisman, *The Courts, Daubert and Environmental Torts: Gatekeepers or Auditors?*, 14 PACE ENVTL. L. REV. 545, 562 (1997) (stating that *Daubert*'s seemingly bright-line distinction between methodology and conclusions has not produced uniform results among the circuit courts); Ruth Saunders, *The Circuit Courts' Application of Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 46 DRAKE L. REV. 407, 422-23 (1997) (illustrating that post-*Daubert* circuit court opinions have led to two distinct interpretations of the Supreme Court's opinion).

6. See *infra* notes 52-53 and accompanying text; see also Kenneth J. Chesebro, *Taking Daubert's "Focus" Seriously: The Methodology/Conclusion Distinction*, 15 CARDOZO L. REV. 1745, 1746 (1994) (indicating that the persuasiveness of the expert's opinion is beyond the scope of an admissibility determination under Rule 702); Lawrence S. Pinsky, *The Use of Scientific Peer Review and Colloquia to Assist Judges in the Admissibility of Gatekeeping Mandated by Daubert*, 34 HOUS. L. REV. 527, 542 (1997) (stating that a judge's focus is limited to the validity of the expert's underlying methodology and not whether the expert's testimony or ultimate conclusion is correct); Saunders, *supra* note 5, at 422 (stating that circuit courts, supporting *Daubert*'s bright-line distinction, distinguished between the trial judge's initial role of determining whether to admit the proffered scientific testimony and the jury's role of deciding the "weight" of the expert's opinion).

7. Saunders, *supra* note 5, at 422 (intimating that the Ninth Circuit interpreted *Daubert*'s gatekeeping role broadly); see *infra* notes 72-101 and accompanying text.

8. 522 U.S. 136 (1997).

9. The Supreme Court granted certiorari "to determine what standard an appellate court should apply in reviewing a trial court's decision to admit or exclude expert testimony under *Daubert*." *Id.* at 138.

10. Some commentators believe that the combined effect of the *Daubert* and *Joiner* opinions allows a district court judge to exclude expert testimony if the judge is in disagreement with the expert's application of a reliable methodology in arriving at the proffered conclusion. See, e.g., Gottesman, *supra* note 1, at 772; Preuss, *supra* note 2, at 323. However, there are others who maintain that the *Joiner* decision should not be construed so broadly and that the Supreme Court's opinion did not extend the judge's gatekeeping role to include an expert's conclusions. See, e.g.,

impacted the admissibility of expert testimony.

This Note analyzes and summarizes the various standards governing the admissibility of expert testimony and provides a glimpse at *Joiner*'s effect on future decisions. Part I provides a historical background of expert testimony and describes the differing opinions on a district court judge's authority to analyze the validity or reliability of an expert's conclusion(s). Part II addresses the history of *Joiner* from the district court decision to the appeal to the Supreme Court. Part III suggests that the Supreme Court's decision in *Joiner* and the proposed amendments to Federal Rule of Evidence 702 represent a retreat from *Daubert*'s methodology/conclusion distinction. Finally, part IV discusses how the Court's decision signals a return to a more restrictive era governing expert testimony admissibility determinations under Federal Rule of Evidence 702.

I. HISTORY OF EXPERT TESTIMONY

A. *The Step Away from Requiring General Acceptance*

For more than seventy years, the admissibility of expert testimony was governed by the "general acceptance" test set forth in *Frye v. United States*.¹¹ Under *Frye*, a trial judge was required to exclude evidence based on scientific principles that had not gained general acceptance in that field.¹² The proponent of scientific evidence was required to demonstrate that (1) "the expert's conclusions represent[ed] an established view within the field" and that (2) "the expert's conclusions . . . [were] sufficiently accurate to be reliable."¹³

Frye's "general acceptance" test was first called into question when the Federal Rules of Evidence ("FRE") were adopted in 1975.¹⁴ Specifically, the *Frye* test conflicted with FRE 702, which provides "[i]f scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or 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."¹⁵ Because Rule 702 did not require "that the offered evidence be generally accepted within the scientific community," this established a conflicting view as to the admissibility of expert testimony.¹⁶ This discrepancy developed into a split among the circuit courts as to whether the *Frye* standard survived under the Federal Rules. In 1993, the Supreme Court

Chesebro, *supra* note 6, at 1746; Pinsky, *supra* note 6, at 542.

11. 293 F. 1013, 1014 (D.C. Cir. 1923).

12. *See id.* at 1014.

13. Peter B. Oh, *Assessing Admissibility of Nonscientific Expert Evidence Under Federal Evidence Rule 702*, 64 DEF. COUNS. J. 556, 564 (1997).

14. *See* Russell D. Marlin, Note, 21 U. ARK. LITTLE ROCK L. REV. 133, 139 (1998).

15. FED. R. EVID. 702.

16. *See* Racine et al., *supra* note 2, at 38; *see also* Marlin, *supra* note 14, at 139 (indicating that "*Frye*'s replacement was not fully recognized until the court incorporated it into the *Daubert* standard in 1993.").

granted certiorari in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*¹⁷ to (1) resolve the conflict between *Frye*'s restrictive approach and the more liberal approach promulgated in FRE 702 and (2) determine the proper standard for admitting scientific, expert testimony.¹⁸

B. *The Daubert Decision*

The primary issue in *Daubert* was whether the plaintiffs' expert could testify as to epidemiological studies establishing the "causational" link between the plaintiffs' birth defects and their pregnant mothers' use of the antinausea drug Bendectin. The defendant moved for summary judgment and offered a supporting affidavit of an expert stating that after his review of all Bendectin literature, he was unable to find a study indicating that use of the drug caused fetus malformations.¹⁹ In opposition, the plaintiffs offered the testimony of eight experts claiming that the use of Bendectin could cause birth defects.²⁰ The plaintiffs' experts based their opinion on the use of animal studies and a "reanalysis of previously published epidemiological (human statistical) studies."²¹ The district court applied *Frye*'s general acceptance test and excluded the plaintiffs' expert testimony. As a result, the plaintiffs were unable to sustain their burden of causation and the district court granted the defendant's motion for summary judgment.²² The Ninth Circuit Court of Appeals also applied *Frye*'s general acceptance test and affirmed the district court's decision to exclude the expert testimony.²³

The Supreme Court vacated the decision by the Ninth Circuit and unanimously concluded that *Frye*'s general acceptance test "was superseded by the adoption of the Federal Rules of Evidence."²⁴ The Supreme Court also determined that federal judges, as "gatekeepers,"²⁵ are to apply a two-step analysis under FRE Rules 104(a)²⁶ and 702 to determine any preliminary

17. 506 U.S. 914 (1992 (mem.))

18. *See Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 585 (1993).

19. *See id.* at 582.

20. *See id.* at 583.

21. *Id.* (citations omitted).

22. *See id.* at 583-84.

23. *See Daubert v. Merrell Dow Pharm., Inc.*, 951 F.2d 1128 (9th Cir. 1991).

24. *Daubert*, 509 U.S. at 587, 589. Specifically, Rule 702 governs the admissibility of expert testimony. *See id.* at 588.

25. *Id.* at 596. *See Racine et al.*, *supra* note 2, at 39 (stating that a trial judge must act as a gatekeeper to "assess whether the reasoning or methodology underlying the testimony is scientifically valid and can be applied properly to the facts at issue").

26. FRE 104(a) states:

Preliminary questions concerning the qualification of a person to be a witness, the existence of a privilege, or the admissibility of evidence, shall be determined by the court, subject to the provisions of subdivision (b) [discussing relevancy admissions conditioned of fact]. In making its determination it is not bound by the rules of

questions regarding the reliability and relevance of an expert's testimony.²⁷ The two-step analysis requires the trial judge to conduct an initial determination as to whether "the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue."²⁸ Therefore, the combination of both prongs requires the judge to assess "whether the reasoning or methodology underlying the testimony is scientifically valid and . . . whether that reasoning or methodology properly can be applied to the facts in issue."²⁹

Daubert's first prong ensures scientific reliability by requiring that the proffered testimony be based on scientific knowledge.³⁰ Basically, this reliability prong requires that the testimony be supported by valid, scientific methods and procedures.³¹ The testimony's reliability is determined by applying *Daubert's* non-exclusive list of factors which include: (1) whether the expert's theory or technique "can be (and has been) tested[,]""³² (2) "whether the theory or technique has been subjected to peer review and publication[,]""³³ (3) "the known or potential rate of error,"³⁴ and (4) whether the technique is generally accepted in the scientific community.³⁵ *Daubert's* second prong, in contrast, confirms the relevance or "fitness" of the proffered testimony by requiring "that the evidence or testimony assist the trier of fact to understand the evidence or to determine a fact in issue."³⁶ Therefore, the goal is to keep unreliable or irrelevant evidence

evidence except those with respect to privileges.

FED. R. EVID. 104(a).

27. See *Daubert*, 509 U.S. at 589; see also FEDERAL JUDICIAL CENTER, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 45-46 (1994) [hereinafter REFERENCE MANUAL].

28. *Daubert*, 509 U.S. at 592.

29. *Id.* at 592-93; see also Jonathan R. Schofield, Note, *A Misapplication of Daubert: Compton v. Subaru of America Opens the Gate for Unreliable and Irrelevant Expert Testimony*, 1997 BYU L. REV. at 489, 493.

30. See *Daubert*, 509 U.S. at 590. Scientific knowledge requires that the testimony is grounded "in the methods and procedures of science" and "connotes more than subjective belief or unsupported speculation." *Id.* Under this standard, scientific knowledge is described as "an inference or assertion [that is] derived by the scientific method" and is "supported by appropriate validation—i.e., 'good grounds,' based on what is known." *Id.* See also Shelly Storer, Note, *The Weight Versus Admissibility Dilemma: Daubert's Applicability to a Method or Procedure in a Particular Case*, 1998 U. ILL. L. REV. 231, 235.

31. See Kurtis B. Reeg & Cawood K. Bebout, *What's It All About, Daubert?*, 55 J. MO. BAR 369, 369 (1997) (indicating that "a valid scientific connection to the pertinent inquiry" is a precondition to Rule 702 admissibility) (quoting *Daubert*, 509 U.S. at 592); Saunders, *supra* note 5, at 410 (stating that *Daubert's* first prong "focuses on the determination of whether the reasoning or methodology applied by the expert is scientifically valid").

32. *Daubert*, 509 U.S. at 593.

33. *Id.*

34. *Id.* at 594.

35. See *id.*

36. *Id.* at 591 (citations omitted).

from the jury's purview.³⁷

In applying both *Daubert* prongs, the Court emphasized that under FRE 702, a district court judge's inquiry should be flexible and that the judge should focus on the expert's underlying methodology and *not the conclusion* generated.³⁸ The Court also noted that any concerns of admitting ill-founded conclusions are safeguarded by vigorous cross-examination, presentation of contrary evidence, and careful instructions on burden of proof.³⁹ According to the Court, the Federal Rules of Civil Procedure ("FRCP") also provide further protections against the admission of ill-founded conclusions.⁴⁰ Irrespective of whether an expert's testimony satisfies the requirements of FRE 702, the district court judge may conclude that the evidence is insufficient to maintain the plaintiff's burden to persuade a "reasonable juror to conclude that the position more likely than not is true."⁴¹ In such an event, the judge remains free to direct a judgment under FRCP 50(a) or to grant summary judgment under FRCP 56.⁴²

The Court viewed the use of these procedural devices as a sufficient safeguard and a more appropriate resolution than the wholesale exclusion of expert testimony under *Frye*'s general acceptance test.⁴³ The Court recognized that its flexible approach may still "prevent the jury from learning of authentic insights and innovations."⁴⁴ However, the Court noted that the balance should always be struck in favor of admitting the proffered testimony.⁴⁵

In the wake of *Daubert*, many articles were written assessing the Supreme Court's effect on the admissibility of expert testimony. The articles discussed the challenging responsibilities imposed upon district court judges to act as a gatekeepers and to assess the validity of scientific expert testimony. Many believed that the *Daubert* decision required district court judges to become "amateur scientists" in order to make admissibility determinations on complex scientific evidence and testimony.⁴⁶ One commentator even opined that

37. See REFERENCE MANUAL, *supra* note 27, at 46.

38. See *Daubert*, 509 U.S. at 594-95.

39. See *id.* at 596.

40. See *id.*

[I]n the event the trial court concludes that the scintilla of evidence presented supporting a position is insufficient to allow a reasonable juror to conclude that the position more likely than not is true, the court remains free to direct a judgment, Fed. Rule Civ. Proc. 50(a), and likewise to grant a summary judgment. Fed. Rule Civ. Proc. 56.

Id.

41. *Id.*

42. See *id.*

43. See *id.*; see also Saunders, *supra* note 5, at 413-14 (discussing concerns over abandoning *Frye*'s more stringent approach for *Daubert*'s flexible approach).

44. *Daubert*, 509 U.S. at 596-97.

45. See *id.*; Saunders, *supra* note 5, at 414.

46. See, e.g., John M. Conley & David W. Peterson, *The Science of Gatekeeping: The Federal Judicial Center's New Reference Manual on Scientific Evidence*, 74 N.C. L. REV. 1183, 1186 (1996) (discussing the urgent need for the publication of the Federal Judicial Center's science

Daubert's gatekeeping requirement sparked more questions than it answered.⁴⁷

C. Confusion After *Daubert*

Even though the *Daubert* ruling clarified several issues regarding the admissibility of expert testimony, the Court's decision prompted the development of new uncertainties. One of the burgeoning issues was whether a district court could exclude expert testimony that was based upon reliable methodology merely because the court did not agree with the reliability of the expert's conclusion.⁴⁸ The circuit courts responded differently to this issue, and as a result, a circuit court split developed.⁴⁹ The courts' disparate rulings resulted from attempts to balance *Daubert's* two-prong requirements of reliability and relevance (i.e., "fitness") against *Daubert's* methodology/conclusion distinction limiting the district court judge's scope of admissibility determinations.⁵⁰ The circuit courts' attempts to balance these competing requirements resulted in two different approaches for determining at what point a district court judge's gatekeeping role ends and the jury's role (as factfinder) begins.

1. *Weight-of-the-Evidence Approach*.—The first approach, the "weight-of-the-evidence approach," applies a strict interpretation of *Daubert* that distinguishes "between the initial role of the trial judge in determining the admissibility of scientific expert testimony and the weight the jury is to give that testimony—the methodology/conclusion distinction."⁵¹ Circuit courts employing this approach believed that if a proponent established the expert's reliance on a standard scientific methodology, the trial judge had no inherent or implicit authority to exclude the expert's testimony, no matter how absurd the conclusion.⁵² These courts allowed the jury (not the judge) to analyze the

manual to assist judges).

47. See *Racine et al.*, *supra* note 2, at 38.

48. See *Conley & Peterson*, *supra* note 46, at 1198; see also *Pinsky*, *supra* note 6, at 542 (indicating confusion as to whether an expert's conclusions were beyond the purview of the trial judge's determination of admissibility). The Supreme Court in *Daubert* failed to clarify the extent of a district court judge's authority to review the expert's application of a scientific technique or methodology. See *Storer*, *supra* note 30, at 236.

49. See *Roisman*, *supra* note 5, at 562 (stating that *Daubert's* bright-line distinction did not yield uniform results among the circuit courts); *Saunders*, *supra* note 5, at 423 (opining that the circuit courts have adopted two distinct readings as to the scope of a district court judge's gatekeeping role under *Daubert*).

50. See *Storer*, *supra* note 30, at 246.

51. *Saunders*, *supra* note 5, at 422.

52. See *United States v. Bonds*, 12 F.3d 540, 556 (6th Cir. 1993) (holding that "the *Daubert* Court has instructed the courts that they are not to be concerned with the reliability of the conclusions generated by valid methods, principles and reasoning. Rather, they are only to determine whether the principles and methodology underlying the testimony itself are valid."); *Christopherson v. Allied-Signal Corp.*, 939 F.2d 1106, 1111 (5th Cir. 1991) (en banc), *cert. denied*, 503 U.S. 912 (1992) (stating that the focus should be on the expert's methodology and not the

expert's application of a "reliable" methodology to the facts at hand.⁵³ Under the weight-of-the-evidence approach, the judge's role is to determine whether or not an expert's opinion is based on more than mere conjecture; the jury's role is to determine whether an expert's testimony is credible.⁵⁴ Circuit courts exercising this approach give credence to the adversarial system's use of cross-examination, presentation of evidence, well-crafted jury instructions,⁵⁵ and *Daubert's* differentiation between methodology and conclusions.

Daubert's bright-line distinction was viewed as a necessary dividing line and limitation upon the judge's authority.⁵⁶ Without *Daubert's* delineation between methods and conclusions, a district court judge could consider the expert's ultimate conclusion in making her determination of admissibility and, as a result, the judge would inappropriately encroach upon the jury's role.⁵⁷ Therefore, some commentators argue that a more expansive approach of determining admissibility inappropriately extends a district court judge's role as gatekeeper because nothing in the Supreme Court's opinion in *Daubert* requires or mandates that the judge determine whether the expert's conclusions are right or wrong.⁵⁸

Circuit courts applying the weight-of-the-evidence approach, such as the District of Columbia, illustrate the concerns surrounding a more expansive gatekeeping role and the importance of *Daubert's* methodology/conclusion

conclusions); *Peteet v. Dow Chem. Co.*, 868 F.2d 1428, 1433 (5th Cir. 1989) (providing that as long as an expert's methodology is well-founded, the nature of the expert's conclusion is irrelevant to admissibility, even if it is controversial or unique). "[A]n opinion must be admitted once an expert demonstrates reliance on a standard scientific methodology; otherwise, the court would be second-guessing the expert's conclusion contrary to *Daubert*." REFERENCE MANUAL, *supra* note 27, at 77. *See also* Conley & Peterson, *supra* note 46, at 1195 (indicating that *Daubert* implies that even if an expert's conclusions are absurd, the judge has no authority to exclude the testimony if the expert uses a reliable scientific method); Pinsky, *supra* note 6, at 542 (stating that a judge's focus is limited to the validity of the expert's underlying methodology and not whether the expert's testimony or ultimate conclusion is correct).

53. *See* *United States v. Chischilly*, 30 F.3d 1144, 1152-54 (9th Cir. 1994) (holding that the DNA expert's application of DNA profiling procedures was a question of weight to be determined by the jury), *cert. denied*, 513 U.S. 1132 (1995). Once Rule 702 has been met in regard to the scientific method in the abstract, the scientific testimony will go to the finder of fact, unless the judge determines that other Federal Rules of Evidence preclude the jury from considering the testimony. *See* Storer, *supra* note 30, at 240.

54. *See* Roisman, *supra* note 5, at 550.

55. *See* Storer, *supra* note 30, at 238.

56. *See* Chesebro, *supra* note 6, at 1753 (stating that the *Daubert* decision was made in vain unless a district court judge's focus remains on the expert's procedures and methodologies).

57. *See* Saunders, *supra* note 5, at 418.

58. The Supreme Court did not "articulate any legal rationale for why the conclusion reached by an expert bears on the Rule 702 admissibility inquiry, as long as the expert is using a proper methodology." Chesebro, *supra* note 6, at 1750. In fact, the *Daubert* opinion "demonstrates that even the most fervent disagreements with an expert's conclusion are irrelevant under Rule 702." *Id.* at 1751. *See* Conley & Peterson, *supra* note 46, at 1198-99.

distinction. In *Ambrosini v. Labarraque*,⁵⁹ a pregnant mother's use of the drugs Bendectin and Depo-Provera was alleged to cause birth defects. The defendants, the mother's physician and the drug manufacturer, moved for summary judgment, alleging that the plaintiffs were unable to prove that the birth defects were caused by the mother's use of the drug.⁶⁰ The district court agreed and granted the motion.⁶¹

The district court's decision was reversed on appeal⁶² because the district court failed "to distinguish between the threshold question of admissibility and the persuasive weight to be assigned the expert evidence. . . ."⁶³ The appeals court noted that *Daubert's* relevance prong requires an expert's proffered testimony to exceed subjective belief or unsupported speculation.⁶⁴ However, the court stated that:

[T]here is nothing in *Daubert* to suggest that judges become scientific experts, much less evaluators of the persuasiveness of an expert's conclusion. Rather, once an expert has explained his or her methodology, and has withstood cross-examination or evidence suggesting that the methodology is not derived from the scientific method, the expert's testimony, so long as it "fits" an issue in the case, is admissible under Rule 702 for the trier of fact to weigh.⁶⁵

Consequently, the appeals court disagreed with the district court's decision excluding plaintiffs' expert testimony. The appeals court reasoned that *Daubert* did not require the exclusion of the expert's underlying evidence nor the expert's ultimate conclusion merely because the judge disagreed with studies indicating the lack of a causal link between the drug and the resulting birth defects.⁶⁶

The appeals court further found that the expert's inability to reference an existing epidemiological study supporting his conclusion was not fatal to the issue of admissibility. In fact, the appeals court admitted the expert testimony because the expert was able to explain that he considered all of the available data and utilized traditionally accepted methods to reach his conclusion that Depo-Provera could cause the plaintiff's type of birth defects.⁶⁷ In support of this

59. 101 F.3d 129 (D.C. Cir. 1996).

60. *See id.* at 131.

61. *See id.*

62. *See id.* at 141.

63. *Id.* at 131. With respect to *Daubert's* reliability prong, the court noted *Daubert's* instruction that a district court's focus should be limited to the methodology and principles of the plaintiff's expert and not on the ultimate conclusions rendered. *See id.* at 133.

64. *See id.* "Under the first prong of the analysis, the district court's focus is on the methodology or reasoning employed. Scientific implies a grounding in the methods and procedures of science and knowledge connotes more than subjective belief or unsupported speculation." *Id.* (internal quotes omitted) (quoting *Daubert*, 509 U.S. at 590).

65. *Id.* at 134.

66. *See id.* at 136.

67. *See id.* at 137.

decision, the appeals court stated that “when experts are ‘concededly well qualified in their fields,’ the fact that a case may be the first of its type, or that the plaintiff’s doctors may have been the first alert enough to recognize a causal connection, should not preclude admissibility of the experts’ testimony.”⁶⁸

Thus, in balancing *Daubert*’s requirements of reliability and relevance (i.e., “fitness”) against *Daubert*’s methodology/conclusion distinction, the *Ambrosini* court favored the latter of the two requirements in order to support the admission of novel scientific evidence. As a result of the circuit court’s reasoning and approach to *Daubert*’s requirements for admitting expert testimony, the *Ambrosini* decision became one of the primary examples of maintaining *Daubert*’s bright-line distinction under the weight-of-the-evidence approach.

2. *Admissibility Approach*.—The second approach is termed the “admissibility approach.”⁶⁹ This approach places more emphasis on *Daubert*’s “fitness” requirement and interprets *Daubert* as giving trial judges a more active gatekeeping role that “enables the district judge to evaluate both the scientific validity of the expert’s methodology and the strength of the expert’s conclusions.”⁷⁰ Decisions by the Third and Ninth Circuits illustrate this approach and, accordingly, do not share the Supreme Court’s praise of ensuring reliable expert testimony through cross-examination of experts.⁷¹ Furthermore, these circuit courts began to question whether there was truly a dividing line between an expert’s methods and ultimate conclusions.⁷²

One of the first circuit court opinions questioning the limitations of *Daubert*’s methodology/conclusion distinction was *In re Paoli Railroad Yard PCB Litigation*.⁷³ The *Paoli* case was instituted by thirty-eight plaintiffs who sought damages related to polychlorinated biphenyls (“PCBs”), which leaked out of transformers at a railroad yard and into the groundwater of several nearby residences.⁷⁴ Some plaintiffs sought recovery for physical injuries allegedly caused by their exposure to PCBs.⁷⁵ Others sought damages for emotional distress related to their fear of future injury or for a decrease in their property values.⁷⁶ Defendants filed a motion in limine to exclude the plaintiffs’ expert testimony and the underlying evidence purporting to show the harmful effects of PCBs. The district court excluded all the testimony and underlying evidence

68. *Id.* at 138 (citations omitted).

69. Storer, *supra* note 30, at 242.

70. Saunders, *supra* note 5, at 422.

71. The Supreme Court viewed the concerns of a potential influx of “junk science” into the courtrooms as an overly pessimistic view about the capabilities of the jury and the adversary system. See Racine et al., *supra* note 2, at 40.

72. See Neal, *supra* note 5, at 34.

73. 35 F.3d 717 (3d Cir. 1994); see also Saunders, *supra* note 5, at 417 (stating that “[t]he Third Circuit has taken a leading role in evaluating the admissibility of scientific expert testimony since 1985.”).

74. See *In Re Paoli Railroad Yard PCB Litigation*, 35 F.3d at 734-35.

75. See *id.* at 732, 735.

76. See *id.*

relied upon by the plaintiffs' experts.⁷⁷ Because the plaintiffs were unable to sustain their burden with respect to causation due to the lack of admissible expert testimony, the court granted the defendants' motion for summary judgment.⁷⁸

The plaintiffs appealed the decision and contended that the district court's admissibility determination "usurped the role of the jury."⁷⁹ The Third Circuit Court of Appeals affirmed the district court's decision to exclude the testimony of several causation experts because the experts failed to proffer any justification for their conclusions with respect to plaintiffs that they did not physically examine.⁸⁰ In analytical support of the court's expert testimony admissibility determination, the circuit court disagreed with *Daubert's* methodology/conclusion distinction and specifically stated that it has "only limited practical import."⁸¹ Nevertheless, the court acknowledged that *Daubert's* "methodology/conclusion distinction remains of some import"⁸² when a party contends that an expert's testimony is unreliable only because it differs from the opinions of that party's own experts.⁸³

The court provided that when a judge is determining the admissibility of scientific evidence or testimony, the judge may not "exclude evidence simply because he or she thinks that there is a flaw in the expert's investigative process which renders the expert's conclusions incorrect. The judge should only exclude the evidence if the flaw is large enough that the expert lacks 'good grounds' for his or her conclusions."⁸⁴ The court reasoned that:

When a judge disagrees with the conclusions of an expert, it will generally be because he or she thinks that there is a mistake at some step in the investigative or reasoning process of that expert. If the judge thinks that the conclusions of some other expert are correct, it will likely be because the judge thinks that the methodology and reasoning process of the other expert are superior to those of the first expert. This is especially true given that the expert's view that a particular conclusion "fits" a particular case must itself constitute scientific knowledge—a challenge to "fit" is very close to a challenge to the expert's ultimate conclusion about the particular case, and yet it is a part of the judge's admissibility calculus under *Daubert*.⁸⁵

Thus, in balancing *Daubert's* requirements of reliability and relevance (i.e., "fitness") against *Daubert's* methodology/conclusion distinction, the *Paoli* decision illustrates that a district court judge must ensure that proffered expert

77. *See id.* at 736.

78. *See id.*

79. *Id.* at 743.

80. *See id.* at 733-34.

81. *Id.* at 746.

82. *Id.* at 746 n.15.

83. *See id.* at 746.

84. *Id.*

85. *Id.* (emphasis added).

testimony is relevant to, or “fits,” the facts of the case. The opinion also demonstrates that a judge’s admissibility determination cannot be impeded by “classifications” prohibiting review of the fitness of the proffered expert’s testimony.⁸⁶ Consequently, the Third Circuit’s opinion in *Paoli* became one of the primary cases illustrating a departure from *Daubert*’s bright-line distinction.

Interestingly enough, the Ninth Circuit’s opinion on remand in *Daubert II*⁸⁷ also played a role in courts finding the line between methods and conclusions to be less distinct. Specifically, the *Daubert II* decision increased the confusion surrounding the extent to which a district court can evaluate an expert’s conclusions.⁸⁸ In addressing *Daubert*’s first prong of reliability, the *Daubert II* court recognized that expert testimony must reflect scientific knowledge, be a product of scientific method, and amount to “good science.”⁸⁹ The *Daubert II* court determined the reliability of the plaintiffs’ expert testimony by applying two out of the four Supreme Court factors: (1) “whether the theory or technique employed by the expert is generally accepted in the scientific community” and (2) “whether it’s been subjected to peer review and publication.”⁹⁰ In addition, the court considered “whether the experts are proposing to testify about matters growing naturally and directly out of research they have conducted independent of the litigation, or whether they have developed their opinions expressly for purposes of testifying.”⁹¹

After applying these factors, the *Daubert II* court concluded that the plaintiffs’ expert scientists studied the effects of Bendectin only after being hired for the purposes of providing litigation testimony and that their conclusions were not based on any preexisting research.⁹² The court provided that in order for the plaintiffs to prove that the proffered expert testimony was founded on “scientifically valid principles.”⁹³

[T]he [plaintiffs’] experts must explain precisely how they went about reaching their conclusions and point to some objective source—a learned treatise, the policy statement of a professional association, a published article in a reputable scientific journal or the like—to show that they

86. *See id.*

87. *Daubert v. Merrell Dow Pharm., Inc.*, 43 F.3d 1311 (9th Cir. 1995).

88. The Ninth Circuit’s analysis “raised what may be the most difficult question left unresolved by *Daubert*: the extent to which a trial court can evaluate an expert’s conclusions in ruling on admissibility.” Conley & Peterson, *supra* note 46, at 1198.

89. *Daubert*, 43 F.3d at 1315.

90. *Id.* at 1316. The remaining two factors the Supreme Court mentioned were deemed difficult or impossible to apply to the expert testimony proffered in this case because the same experts were responsible for the original research on Bendectin, but were unable to explain the nature of the research or what type of methodology they used. *See id.* at n.4.

91. *Id.* at 1317.

92. *See id.* at 1318-19 (noting that the plaintiffs made no showing that their expert’s testimony stemmed from pre-litigation research).

93. *Id.* at 1318.

have followed the scientific method, as it is practiced by (at least) a recognized minority of scientists in their field.⁹⁴

After reviewing the plaintiffs' supporting evidence, the *Daubert II* court concluded that the plaintiffs failed to satisfy their burden because the experts' opinions were never published in a scientific journal or subjected to the scrutiny of colleagues.⁹⁵ Furthermore, the experts were unable to explain a reliable methodology supporting their use of animal studies, chemical analyses, and epidemiological data to formulate their ultimate conclusions regarding this matter.⁹⁶ Hence, the experts could not explain their conclusion that Bendectin caused the plaintiffs' injuries in the absence of an authority for extrapolating human causation from animal studies.⁹⁷ The court reasoned that "something doesn't become 'scientific knowledge' just because it's uttered by a scientist; nor can an expert's self-serving assertion that his conclusions were 'derived by the scientific method' be deemed conclusive. . . ."⁹⁸ Therefore, the *Daubert II* court held that the plaintiffs' expert testimony failed to satisfy *Daubert's* reliability prong.

The *Daubert II* court also held that the expert testimony failed *Daubert's* fitness prong because the plaintiffs were unable to prove by a preponderance of the evidence that the ingestion of Bendectin by their mothers doubled the likelihood of their birth defects.⁹⁹ Specifically, the plaintiffs' experts could not reference epidemiological studies indicating that a mother's ingestion of Bendectin during pregnancy would double the risk of birth defects.¹⁰⁰ Because the statistical relationships between Bendectin and birth defects did not prove the relative risk to be greater than two, the court reasoned that the expert's testimony would be unhelpful and confusing to the jury.¹⁰¹ Consequently, the testimony failed the Supreme Court's "fitness" prong, and the *Daubert II* court upheld the trial court's exclusion of the plaintiffs' expert testimony on Bendectin.¹⁰²

Thus, after balancing *Daubert's* two-prong requirements of reliability and "fitness" against *Daubert's* methodology/conclusion distinction, the *Daubert II* court elected to give more weight to the "fitness" requirement than the Supreme Court's bright-line directive. The Ninth Circuit's reasoning illustrates that a judge making an admissibility determination must ensure that the expert's conclusion is relevant to the facts of the case. As a result, the *Daubert II* decision became an additional example of the admissibility approach to expert

94. *Id.* at 1319.

95. *See id.* at 1318.

96. *See id.* at 1319.

97. *See id.* at 1319-20.

98. *Id.* at 1315-16 (quoting *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 590, 592 (1993)).

99. *See id.* at 1320.

100. *See id.*

101. *See id.* at 1321.

102. *See Neal, supra* note 5, at 34.

testimony.

3. *Which Approach Is Correct?*—The preceding cases illustrate the conflict among circuit courts regarding *Daubert's* bright-line distinction between conclusions and methodology. Under the weight-of-the-evidence approach, the district court judge admits expert conclusions premised on the support of available data derived from reliable methodology. In contrast, under the admissibility approach, the district court judge will prohibit admission of expert conclusions when the testimony fails to satisfy FRE 702's "fitness" requirement—i.e., the gap between the underlying evidence and ultimate conclusion is too large. The potential consequences of the differing approaches were viewed by some commentators as leading to extremes of either cursory or overly stringent review of an expert's testimony.¹⁰³ Accordingly, the appropriate balance between the competing requirements of FRE 702 and *Daubert's* methodology/conclusion distinction became a crucial point of interest requiring direction by the Supreme Court.¹⁰⁴ The need for the Supreme Court to clarify the scope of the district court's gatekeeping function became evident when the Court granted certioari in *General Electric Co. v. Joiner*.¹⁰⁵

II. GENERAL ELECTRIC CO. V. JOINER

A. Procedural History and Factual Background

Since 1973, the plaintiff (Joiner) had come into contact with dielectric fluids in the city's electrical transformers through his employment as an electrician for the Water & Light Department in Thomasville, Georgia.¹⁰⁶ Early dielectric fluids were flammable and made out of a petroleum-based mineral oil. To correct this problem, polychlorinated biphenyls ("PCBs") were used to make the dielectric fluid non-flammable, but in 1978, Congress banned the future production and sale of PCBs because they were viewed as an "unreasonable risk of injury to

103.

[S]ome jurisdictions may subsume Rule 702's fitness requirement within the validity inquiry required under the first prong of Rule 702. In contrast, an overly rigorous application of the fitness test may result in a challenge to the expert's conclusions regarding external validity, contrary to *Daubert's* admonition that Rule 702's focus "must be solely on principles and methodology, not on the conclusions they generate."

Erin K.L. Mahaney, *Assessing the Fitness of Novel Scientific Evidence in the Post-Daubert Era: Pesticide Exposure Cases as a Paradigm for Determining Admissibility*, 26 ENVTL. L. 1161, 1185 (1996) (citations omitted) (reviewing post-*Daubert* application of Rule 702's fitness test and arguing that use of Rule 702's fitness requirement provides a valid tool in the judge's gatekeeping function).

104. "The sixty-four dollar question after *Daubert* was whether the weight-of-the-evidence approach is a 'scientifically valid' methodology for determining the issue of causation in torts cases." Gottesman, *supra* note 1, at 771.

105. 520 U.S. 1114 (1997) (mem.).

106. *General Elec. Co. v. Joiner*, 522 U.S. 136, 139 (1997).

health or the environment.”¹⁰⁷ In 1983, the city discovered that PCBs had contaminated the fluid in approximately 2668 of the city’s transformers, which allegedly used mineral oil-based dielectric fluid.¹⁰⁸

Eight years after the discovery of PCBs, Joiner was diagnosed with small-cell lung cancer. The plaintiffs (Joiner and his wife) brought strict liability and negligence claims against the manufacturers of the transformers and dielectric fluids, alleging that Joiner’s exposure to PCBs and its derivatives, polychlorinated dibenzofurans (“furans”) and polychlorinated dibenzodioxins (“dioxins”), promoted or accelerated the onset of his cancer.¹⁰⁹ The plaintiffs admitted that Joiner had smoked cigarettes for eight years, his parents smoked, and his family had a history of lung cancer.¹¹⁰ However, Joiner claimed that his cancer would not have developed for many years, if at all, in the absence of his exposure to PCBs originating from the city’s transformer.¹¹¹

After the case was removed to federal court, the defendants moved for summary judgment. The defendants contended that there was no supporting evidence that Joiner was exposed to PCBs, furans, or dioxins, and even if he had been, the plaintiffs were unable to offer admissible scientific evidence that exposure to PCBs could cause or promote the type of cancer with which he was diagnosed.¹¹² Because of the lack of supporting evidence, defendants alleged that the plaintiffs were unable to establish that PCBs caused cancer in humans, i.e. “general causation.” Defendants further claimed that even if general causation could be assumed, the plaintiffs were unable to establish that the alleged exposure caused Joiner’s cancer, i.e., “specific causation.”¹¹³ In response, the district court held that PCB exposure presented a genuine issue of material fact, but granted summary judgment with respect to furan and dioxin exposure because the plaintiffs were unable to offer sufficient evidence to establish that Joiner had been exposed to those substances.¹¹⁴

The remaining issue for the district court was whether to admit the plaintiffs’ expert testimony that Joiner’s cancer was caused by his exposure to PCBs. After applying a *Daubert* analysis, the district court found the expert testimony inadmissible because the testimony was buttressed on the *assumption* that Joiner was exposed to furans and dioxins.¹¹⁵ The court then concluded that because the plaintiffs “failed to show a genuine dispute over whether furans and dioxins were in the PCBs to which Joiner was exposed,”¹¹⁶ any expert testimony based upon

107. *Joiner v. General Elec. Co.*, 864 F. Supp. 1310, 1312 (N.D. Ga. 1994) (citing 15 U.S.C. § 2605(a)), *rev'd*, 78 F.3d 524 (11th Cir. 1996), *rev'd*, 522 U.S. 136 (1997).

108. *See id.* at 1312-13.

109. *See Joiner*, 522 U.S. at 139-40.

110. *See id.* at 139.

111. *See id.* at 140.

112. *See Joiner*, 864 F. Supp. at 1314.

113. *See id.* at 1315.

114. *See id.* at 1316.

115. *See id.* at 1322.

116. *Id.*

such assumptions “does not fit the facts of the case, and is therefore inadmissible.”¹¹⁷

Even if the assumptions of exposure could be supported by evidence, the district court still considered the opinions of the plaintiffs’ experts inadmissible due to the conclusions that the experts derived from the underlying studies.¹¹⁸ Specifically, the defendants revealed that the plaintiffs’ experts were unable to proffer credible evidentiary support for their conclusion that PCBs cause or promote small-cell lung cancer in humans.¹¹⁹ The district court found the studies underlying the experts’ opinions to be flawed because the studies utilized infant mice injected with massive doses of PCBs and the mice studies were preliminary in nature.¹²⁰

Furthermore, the district court was not persuaded by the experts’ reliance on four epidemiological studies¹²¹ because none of the studies directly supported the experts’ conclusions that PCBs promote small-cell lung cancer in humans.¹²² The court, however, mentioned that the lack of an epidemiological study supporting the plaintiffs’ case did not require an automatic foreclosure of their cause of action because:

[A] cause-effect relationship need not be clearly established by animal or epidemiological studies before a doctor can testify that, in his opinion, such a relationship exists. As long as the basic methodology employed to reach such a conclusion is sound, such as use of tissue samples, standard tests, and patient examination, products liability law does not preclude recovery until a ‘statistically significant’ number of people have been injured or until science has had the time and resources to complete sophisticated laboratory studies of the chemical.¹²³

Nevertheless, the court ultimately concluded that the epidemiological studies relied on by the plaintiffs’ experts were either equivocal or not helpful to the plaintiffs’ claim that exposure to PCBs caused or accelerated his cancer.¹²⁴ The court specifically found the experts’ opinions to be nothing more than “subjective belief or unsupported speculation.”¹²⁵ Thus, the court granted summary judgment as to all of the plaintiffs’ claims because *the gap between the underlying evidence and the experts’ ultimate conclusions was too wide.*¹²⁶

The Eleventh Circuit Court of Appeals, applying an abuse of discretion

117. *Id.*

118. *See id.*

119. *See id.*

120. *See id.* at 1323.

121. *See id.* at 1324.

122. *See id.* at 1326.

123. *Id.* at 1322 (citations omitted).

124. *See id.* at 1324.

125. *Id.* at 1326.

126. *See id.*

standard of review, reversed the decision in a divided three member panel.¹²⁷ The court noted that “a particularly stringent standard of review [was applied] to the trial judge’s exclusion of expert testimony”¹²⁸ in order to preserve the preference for admissibility under the Federal Rules of Evidence.¹²⁹ In applying this standard, Judge Rosemary Barkett, writing for the majority, disagreed with the district court’s decision to exclude the plaintiffs’ expert testimony.¹³⁰ She concluded that there was sufficient testimony in the record to support the conclusion that Joiner had been exposed to PCBs.¹³¹ The court found the experts’ testimony reliable under FRE 702 because the experts had extensive experience, specialized expertise, conducted physical examinations of Joiner, and were familiar with “general scientific literature in the field.”¹³² Furthermore, the court accepted the experts’ assertions that they “utilized scientifically reliable methods.”¹³³

Judge Barkett found that the district court incorrectly reviewed the plaintiffs’ expert testimony in its entirety.¹³⁴ Accordingly, she wrote in support of the weight-of-the-evidence approach for determining the admissibility of expert testimony.¹³⁵ Relying upon *Daubert*’s departure from the wholesale exclusion of evidence, which commonly resulted under *Frye*’s “general acceptance” test, Judge Barkett explained that:

Opinions of any kind are derived from individual pieces of evidence, each of which by itself might not be conclusive, but when viewed in their entirety are the building blocks of a perfectly reasonable conclusion, one reliable enough to be submitted to a jury along with the tests and criticisms cross-examination and contrary evidence would supply.¹³⁶

The court held that each reason the district court recited in response to the experts’ reliance on the animal studies did not make the underlying research unreliable in the absence of evidence that the studies themselves were flawed.¹³⁷

127. See *Joiner v. General Elec. Co.*, 78 F.3d 524 (11th Cir. 1996), *rev’d*, 522 U.S. 136 (1997).

128. *Id.* at 529.

129. See *id.*

130. See *id.* at 528.

131. See *id.* at 534.

132. *Id.* at 531.

133. *Id.* at 532.

134. See *id.* at 532.

135. See *id.*

136. *Id.* Under this approach, “[t]he expert would not be required to prove, in a step-by-step process, how she got from ‘Point A’ to ‘Point B’ as a prerequisite to admissibility of her testimony. Rather, the court would only review the expert’s conclusions ‘in their entirety.’” Quentin F. Urquhart, Jr. & Brett A. North, *Joiner v. General Electric: The Next Chapter in the Supreme Court’s Handling of Expert Testimony*, FOR THE DEF., Sept. 1997, at 9, 13.

137. See *Joiner*, 78 F.3d at 532.

Judge Barkett further posited that the appropriate “question is whether the expert’s use of these studies to help formulate an opinion is methodologically sound.”¹³⁸ A judge’s gatekeeping role “is not to weigh or choose between conflicting scientific opinions, or to analyze and study the science in question in order to reach its own scientific conclusions.”¹³⁹ Rather, a judge’s role is “to assure that an expert’s opinions are based on relevant scientific methods, processes, and data, and not on mere speculation, and that they apply to the facts at issue.”¹⁴⁰ After applying her view of the district court’s gatekeeping role, Judge Barkett concluded that the plaintiffs’ expert testimony should have been admitted because it was relevant to establish whether exposure to PCBs caused Joiner’s cancer.¹⁴¹ Therefore, the Eleventh Circuit Court of Appeals concluded that all of the plaintiffs’ expert testimony was admissible and reversed the grant of summary judgment by the district court.¹⁴²

However, Judge Edward Smith disagreed with the majority’s decision to admit the expert testimony and wrote a dissenting opinion that provides insight into the Supreme Court’s opinion in the subsequent appeal. Judge Smith explained that under *Daubert*’s reliability prong, a district court judge must evaluate “each step in the expert’s analysis all the way through the step that connects the work of the expert to the particular case.”¹⁴³ He further articulated that:

[A]n expert’s testimony does not “assist” the trier of fact if the expert does not explain the steps he took to reach his conclusion. We should not require the trier of fact to accept blindly the expert’s word to fill the analytical gap between proffered “scientific knowledge” and the expert’s conclusions. Therefore, the trial court “gatekeeper” has broad discretion to decide whether a leap of faith across the analytical gap is so great that, without further credible grounds, the testimony is inadmissible.¹⁴⁴

Thus, Judge Smith wrote in support of the “admissibility approach” to expert testimony determinations when he stated “[i]t is incumbent on the proponent of scientific evidence to fill the analytical gap between a proffered study and the particular facts of the case (i.e., ‘fit’).”¹⁴⁵

138. *Id.*

139. *Id.* at 530. It is improper for a district court to exclude expert testimony when the court would draw a different conclusion from the proffered evidence than the conclusion rendered by the expert. See *Conning the IADC Newsletters*, 65 DEF. COUNS. J. 434, 441 (1998).

140. *Joiner*, 78 F.3d at 530; Roisman, *supra* note 5, at 567.

141. See *Joiner*, 78 F.3d at 533-34.

142. See *id.* at 534.

143. *Id.* at 537 (Smith, J., dissenting) (quoting *In re Paoli*, 35 F.3d 717, 743, 745 (3d Cir. 1994)). Judge Smith expressed his approval of the trial court’s step-by-step approach and stated that he cautions “against using the majority’s approach that applies each *Daubert* prong to the testimony as a whole.” *Id.* at 540.

144. *Id.* at 535.

145. *Id.* at 539 (quoting *Daubert v. Merrell Dow Pharm. Inc.*, 509 U.S. 579, 593 n.10 (1993)).

Using this approach, Judge Smith challenged the circuit court's majority decision admitting non-supportive epidemiological studies and the majority's claims that the district court impermissibly delved into the correctness of the experts' conclusions.¹⁴⁶ He explained that the district court was not determining whether the expert opinions were correct, but whether the animal studies "fit" the facts of the case.¹⁴⁷ Therefore, he found no abuse of discretion in the district court's exclusion of the plaintiffs' expert testimony.¹⁴⁸ In fact, Judge Smith's dissenting opinion provided a detailed analysis of his concerns with the Eleventh Circuit's approach to admissibility determinations. The Supreme Court's review of this case recognized persuasiveness of the Smith dissent.

B. Appeal to the Supreme Court

The Supreme Court granted certiorari in *General Electric Co. v. Joiner*¹⁴⁹ specifically to decide the proper standard of review with respect to a trial court's decision regarding the admissibility of expert testimony.¹⁵⁰ However, many commentators viewed it as an important opportunity to revisit *Daubert*'s methodology/conclusion distinction and the scope of a district court judge's authority with respect to expert testimony.¹⁵¹ The arguments propounded by the petitioners (PCB manufacturers) and respondents (*Joiner*) provide insight as to the concerns and arguments for both the weight-of-the-evidence and admissibility approaches.

The petitioners argued in favor of the admissibility approach and for a more expanded "gatekeeping" role for district court judges. The petitioners asserted that the court of appeals incorrectly "held that if an expert cites conventional scientific authorities, the expert has satisfied the requirement of scientific methodology, no matter what the authorities actually say, and what steps are missing between the citations and the conclusion."¹⁵² In other words, the declaration approach taken by the court of appeals showed great deference to the experts' own that their testimony constituted sufficient "scientific knowledge"

According to Judge Smith, "an expert may not bombard the court with innumerable studies and then, with blue smoke and slight of hand, leap to the conclusion." *Id.* at 537.

146. *See id.* at 539.

147. *See id.*

148. *See id.* at 540.

149. *General Elec. Co. v. Joiner*, 520 U.S. 1114 (1997) (mem.).

150. *See General Elec. Co. v. Joiner*, 522 U.S. 136, 138-39 (1997).

151. *See William M. Sneed, The Ongoing Revolution in Expert Witness Practice: Daubert and the Seventh Circuit*, 86 ILL. B.J. 418, 422 (1998) (indicating that "many members of the legal community believed that the case presented an excellent opportunity for the Court to revisit and perhaps scale back *Daubert*."); *Urquhart & North, supra* note 135, at 13 (anticipating the Supreme Court's opinion in *Joiner* on the "question of whether trial courts can properly examine the reasoning behind the expert's conclusions").

152. Petitioner's Brief at 48, *General Elec. Co. v. Joiner*, 78 F.3d 524 (11th Cir. 1996) (No. 96-188).

that was relevant to the facts of the case.¹⁵³ Petitioners agreed with the district court's decision finding the experts' testimony inadmissible because the testimony relied on inconclusive epidemiological studies and animal studies that subjected mice to high dosages of PCBs.¹⁵⁴

In support of their argument, petitioners reasoned that "[u]nder *Daubert*, scientific methodology requires scientific reasoning, which includes as a minimum that conclusions be logically supported by premises,"¹⁵⁵ and in this case, repeated testing did not give rise to a single study supporting the conclusion that PCBs caused small-cell lung cancer.¹⁵⁶ Similarly, the American Medical Association as petitioners' amici curiae argued that the district court's gatekeeping role requires a preliminary assessment that the research underlying the expert's testimony was consistent with a reliable scientific methodology and supports the expert's ultimate conclusion.¹⁵⁷ During oral arguments before the Supreme Court, the petitioners contended that if the gatekeeping role was interpreted too narrowly, *Daubert* would essentially be overruled because a court would be required to hold proffered expert testimony admissible if the expert drew a conclusion from a published study conducted according to scientific methodology.¹⁵⁸

The petitioners further argued that a district court judge's gatekeeping role lacks meaning unless it allows the judge to review whether "there is too great an analytical gap" between the expert's underlying premise(s) and the expert's ultimate conclusion(s).¹⁵⁹ They claimed that a district court must utilize a "link-by-link" analysis to ensure the reliability, or trustworthiness, of an expert's proffered testimony.¹⁶⁰ Hence, expert testimony would be submitted to the jury only after the district court is satisfied that the proponent has established the appropriate linkage between the expert's underlying data and the ultimate

153. See Urquhart & North, *supra* note 135, at 13.

154. See Anthony Z. Roisman, *The Implications of G.E. v. Joiner for Admissibility of Expert Testimony*, 84 A.L.I.-A.B.A. 491, 494 (1998).

155. Petitioner's Brief at 48, *Joiner* (No. 96-188).

156. See *id.*

157. See American Medical Ass'n Brief as Amicus Curiae in Support of Petitioners at 6, *Joiner* (No. 96-188). "The district court must consider whether the conclusions to which the expert would testify can, as a matter of good science, be drawn from scientifically-generated data." *Id.* See also Brief of Amici Curiae The New England Journal of Medicine and Marcia Angell M.D., in Support of Neither Petitioners nor Respondents, *Joiner* (No. 96-188) (espousing the use of scientists to assist judges in making decisions as to the admissibility of expert testimony); Brief Amici Curiae of Bruce N. Ames et. al, in Support of Petitioners, *Joiner* (No. 96-188).

158. See United States Supreme Court Official Transcript at *21, *Joiner*, 522 U.S. 136 (1997), available in 1997 WL 634566 (U.S. Oral Arg.).

159. *Id.* at *22.

160. See Urquhart & North, *supra* note 135, at 13 (proposing that "district [court] judges should be given the freedom to look behind an expert's facial assertion of 'good science' in ruling on the admissibility of proffered expert testimony.").

conclusion rendered.¹⁶¹

In contrast to the petitioners' view, the respondents and their amici argued that the petitioners' points of contention were issues reserved for the jury because they relate to the "weight" of the proffered evidence/testimony, and not admissibility.¹⁶² Therefore, "[w]here opposing experts disagree as to how epidemiological and other data should be interpreted it is for the jury to decide the issue."¹⁶³ The respondents reasoned that *Daubert* "made it unmistakably clear that [the district court judges'] discretion as gatekeepers does not extend to evaluating the conclusions an expert may draw based on scientifically valid principle or procedure."¹⁶⁴ Thus, the respondents' amici supported *Daubert's* methodology/conclusion distinction,¹⁶⁵ and contended that the petitioners were falsely led to believe that admissibility under *Daubert* was dependent upon the expert's conclusion or opinion.¹⁶⁶

The respondents' view arose from the strong trust of a jury's ability to assess the weight and credibility of expert testimony,¹⁶⁷ and was bolstered by studies of jury performance.¹⁶⁸ Accordingly, the respondent's amici believed that the petitioners' concern with alleged "gaps" between an expert's proffered testimony and the expert's underlying data should go toward the weight of the testimony and not admissibility.¹⁶⁹ The respondents contended that the proper tools for ensuring the reliability of expert testimony were that of cross-examination, presentation of contrary evidence, exposing flaws in the scientific methodology or the "underlying scientific knowledge in which the expert's opinion is based."¹⁷⁰

161. *See id.*

162. Roisman, *supra* note 154, at 494.

163. Brief of Amicus Curiae Trial Lawyers of America in Support of Respondents at *8, *Joiner* (No. 96-188).

164. *Id.*; *see* Brief of Amicus Curiae Trial Lawyers for Public Justice in Support of Respondents at *12, *Joiner* (No. 96-188).

165. *See* Brief of Amicus Curiae in Support of Respondents at 9, *Joiner* (No. 96-188); Trial Lawyers for Public Justice Brief at 4, *Joiner* (No. 96-188). Respondent's amici argued that the petitioners and their amici disregarded the Supreme Court's bright-line distinction that only an expert's methodology should be considered for purposes of determining admissibility. *See id.*

166. *See* Brief of Amicus Curiae Trial Lawyers for Public Justice in Support of Respondents at 12, *Joiner* (No. 96-188).

167. *See* Brief of Amicus Curiae Association of Trial Lawyers of America in Support of Respondents at 22, *Joiner* (No. 96-188).

168. *See id.* at 23 (citing Joe S. Cecil et al., *Citizen Comprehension of Different Issues: Lessons from Civil Jury Trials*, 40 AM. U. L. REV. 727, 744-45 (1991)).

169. *See* Brief for Ardith Cavallo as Amicus Curiae Suggesting Affirmance at 11, *Joiner* (No. 96-188) (arguing that the purpose of Rule 702's gatekeeping function is to control courtroom speculation and conjecture).

170. *Id.* at 11. Again, "vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence." *Id.* (citing *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579,

Physicians devoted to health problems affecting workers provided an interesting amicus brief on behalf of the respondents. The physicians opined that the district court disregarded the Supreme Court's directive that admissibility determinations must be consistent with the "liberal thrust of the Federal Rules of Evidence," and "should weigh broadly in favor of the proponent of the evidence."¹⁷¹ Furthermore, the physicians' amicus brief set forth that the plaintiffs' experts utilized the scientifically valid methodology of differential diagnosis¹⁷² in concluding that PCBs could cause Joiner's type of lung cancer.¹⁷³ The physicians' amici brief contended that the plaintiffs' physician-experts were not required, under Georgia law, to prove that PCBs were the "sole, primary or initiating cause"¹⁷⁴ of Joiner's cancer. In contrast, the experts merely needed "to discern whether any other toxic exposure might reasonably have contributed to the early appearance"¹⁷⁵ of Joiner's lung cancer by a "reasonable degree of medical certainty."¹⁷⁶ As a result, the physicians believed that the district court was incorrect in its assessment and understanding of the methodologies utilized by medical professionals.¹⁷⁷

After both sides had the opportunity to present their written briefs and oral arguments on October 14, 1997, it appears the Supreme Court was most persuaded by the position argued by the petitioners. Transcripts from the oral argument indicate that the Court believed the district court was correct in finding that the underlying methodology proffered by the plaintiffs' experts was not sufficient to predicate a conclusion about the cause of cancer in humans.¹⁷⁸

596 (1993)).

171. Brief of Peter Orris, David Ozonoff, Janet S. Weiss and OCAW (Oil, Chemical, & Atomic Workers Intl. Union, AFL-CIO), as Amici Curiae in Support of Respondents at *6, *Joiner* (No. 96-188) (citing *Daubert*, 509 U.S. at 587). This preference of admissibility is derived from the possibility for reasonable experts to arrive at "diametrically opposed conclusions." *Id.* at *5 n.6.

172. Differential diagnosis is defined as "[t]he method by which a physician determines what disease process has caused a patient's symptoms. The physician considers all relevant potential causes of the symptoms and then eliminates alternative causes based on a physical examination, clinical tests, and a thorough case history." *Id.* at *10 (citing REFERENCE MANUAL, *supra* note 27, at 214).

173. *See id.*

174. *Id.* at *14 n.14 (quoting *Parrott v. Chatham County Hosp. Auth.*, 145 Ga. App.2d 269, 270 (Ga. Ct. App. 1978); *Wells v. Ortho Pharm. Corp.*, 788 F.2d 741, 743 (11th Cir.), *cert. denied*, 479 U.S. 950 (1986)).

175. *Id.* at *14.

176. *Id.* at *14 n.14.

177. *See id.* at *1.

178. *See* United States Supreme Court Official Transcript at *52, *Joiner*, 522 U.S. 136 (U.S. 1997), available in 1997 WL 634566 (U.S. Oral Arg.), 66 USLW 3321. The Supreme Court posited:

Maybe the district court was saying the methodology is fine for what it purports to do. But it does not provide a sufficient predicate for use in reasoning to a conclusion about cause in humans. Maybe that's what the district court was doing. And if it was doing

Specifically, the Court was not convinced that the weight-of-the-evidence approach would ensure reliability because an expert could pass the threshold of admissibility by stating that he reviewed all available evidence prior to making his ultimate conclusion.¹⁷⁹ As a result, the Court responded that *Daubert's* methodology/conclusion distinction might be nothing more than a diversion.¹⁸⁰

C. *The Supreme Court's Decision*

The Supreme Court's opinion provided important guidance and clarification as to the extent and scope of a judge's gatekeeping role when determining the admissibility of an expert's opinion.¹⁸¹ Upon concluding that an abuse of discretion standard governs the review of a lower court's exclusion of expert testimony,¹⁸² the majority found error with the court of appeals' overly stringent review of the district court's decision excluding Joiner's expert testimony.¹⁸³ Therefore, the Court began with a discussion of the problems underlying causational expert testimony based on the analysis of animal and existing epidemiological studies.

The Court first addressed the animal studies and found that the plaintiffs' experts failed to explain why they based their opinions on studies utilizing mice injected with massive doses of PCBs.¹⁸⁴ Additionally, the experts did not explain why no other study demonstrated an incidence of cancer due to PCB exposure in humans.¹⁸⁵ The Court stated that "[t]he issue was whether *these* experts' opinions were sufficiently supported by the animal studies on which they purported to rely,"¹⁸⁶ not the validity of using of animal studies.¹⁸⁷ Based on the

that, it seems to me, number one, that it was not committing any legal error. And, number two, it was making a judgment, ultimately, about what the jury could find helpful that should be subject to abuse of discretion view.

Id.

179. *See id.* at *54.

180. *See id.* In response to Respondent's argument that *Daubert* merely requires the district court to decide whether the bases supporting the expert's conclusion are reliable, the Court stated that "maybe the methodology prong is just a red herring." *Id.*

181. *See Neal, supra* note 5, at 35 n.39 (stating that "the real issue that the defendants wanted the Supreme Court to consider and clarify was whether a district court could look at the conclusions that the expert had reached as well as the methodology.").

182. "Abuse of discretion—the standard ordinarily applicable to review of evidentiary findings—is the proper standard by which to review a district court's decision to admit or exclude expert scientific evidence." *Joiner*, 522 U.S. at 138-39. *See Marlin, supra* note 14, at 142-43 (providing an overview of the standard of review applied to the admissibility of scientific testimony prior to the Supreme Court's decision in *Joiner*).

183. *See Joiner*, 522 U.S. at 143.

184. *See id.* at 144.

185. *See id.* at 144-45.

186. *Id.* at 144.

187. *See id.*

facts of this case, however, the Court found no abuse of discretion by the district court's decision rejecting the animal studies as an insufficient basis of establishing causation in humans.¹⁸⁸

Next, the Court discussed the reliability and relevance of the epidemiological studies underlying the expert's causation testimony. The majority found no legal error in the district court's decision "because it was within the District Court's discretion to conclude that the studies upon which the experts relied were not sufficient, whether individually or in combination, to support their conclusions that Joiner's exposure to PCB's contributed to his cancer."¹⁸⁹ Thus, the Supreme Court was not *expressly* rejecting the weight-of-the-evidence approach as an acceptable methodology.¹⁹⁰ To illustrate this point, the majority individually analyzed the admissibility of four epidemiological studies used by the petitioners' experts to derive their opinions and found that none of the studies "concluded" that PCB exposure increased the risk of cancer or that Joiner's cancer was aggravated by his exposure to PCBs.¹⁹¹

After the Court reviewed each of the four studies, the majority disagreed with the petitioners' reliance on *Daubert's* bright-line distinction requiring judges to remain focused on the expert's methodology and not the expert's conclusions.¹⁹² The majority explained that "conclusions and methodology are not entirely distinct from one another."¹⁹³ The Court further described the difficulty of conforming to *Daubert's* bright-line distinction as follows:

Trained experts commonly extrapolate from existing data. But nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence which is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply *too great an analytical gap* between the data and the opinion

188. *See id.* at 143.

189. *Id.* at 146-47.

190. The Court recognized that there might be an argument that the experts' evidence, when taken as a whole, provided support for a conclusion that PCB exposure aggravated the development of Joiner's cancer. *See id.* at 145-47. However, the court was unwilling to take this approach because the plaintiff failed to offer evidence showing (1) how the studies were analytically linked or (2) the cumulative impact of the studies. *See id.*

191. *Id.* The first study involved Italian workers exposed to PCBs reporting an increased incidence of lung cancer, but found no causal connection between the exposure and death from cancer. *See id.* at 145. The second study reported an increased incidence of lung cancer deaths at a defendant's PCB production plant, but no causal link between the exposure to PCBs and the increased number of lung cancer deaths. *See id.* The third study involved Norwegian cable company workers exposed to mineral oil, not PCBs. *See id.* at 145-46. The fourth study was inconclusive because it involved Japanese workers who were exposed to numerous potential carcinogens (by the ingestion of toxic rice oil) in addition to PCBs. *See id.*

192. *See id.* at 146.

193. *Id.*

proffered.¹⁹⁴

According to the Court, any expert testimony, such as the petitioners' expert testimony, which interprets existing studies or data should not be admitted based on the bare assertion of an authority figure.¹⁹⁵ Consequently, the majority found no reversible error in the district court's decision and decided that "it was in the District Court's discretion to conclude that the studies upon which the experts relied were not sufficient . . . to support their conclusions"¹⁹⁶ with respect to the cause of Joiner's cancer.¹⁹⁷

1. Justice Breyer's Concurrence.—Justice Breyer's short concurring opinion placed emphasis on *Daubert's* statement that trial judges must act as gatekeepers to ensure the reliability and relevance of all scientific testimony and evidence.¹⁹⁸ He cautioned that judges must exercise special care in making admissibility determinations because the gatekeeping requirement may often require judges

to make subtle and sophisticated determinations about scientific methodology and its relation to the conclusions an expert witness seeks to offer—particularly when a case arises in an area where the science itself is tentative or uncertain, or where testimony about general risk levels in human beings or animals is offered to prove individual causation.¹⁹⁹

Given this difficult role, Justice Breyer noted that use of the pretrial conference under the Federal Rules of Civil Procedure provides a forum to "narrow the scientific issues in dispute."²⁰⁰ Additionally, he encouraged district court judges to use their power to appoint independent experts under FRE 706²⁰¹ as a method

194. *Id.* (emphasis added).

195. *See id.*

196. *Id.*

197. *See id.* at 146-47.

198. *See id.* at 148 (Breyer, J., concurring).

199. *Id.* at 147-48.

200. *Id.* at 149.

201. The use of court appointed experts is governed by FRE 706(a), which provides:

The court may on its own motion or on the motion of any party enter an order to show cause why expert witnesses should not be appointed, and may request the parties to submit nominations. The court may appoint expert witnesses agreed upon by the parties, and may appoint expert witnesses of its own selection. An expert witness shall not be appointed by the court unless the witness consents to act. A witness so appointed shall be informed of the witness' duties by the court in writing, a copy of which shall be filed with the clerk, or at a conference in which the parties shall have opportunity to participate. A witness so appointed shall advise the parties of the witness' findings, if any; the witness' deposition may be taken by any party; and the witness may be called to testify by the court or any party. The witness shall be subject to cross-examination by each party, including a party calling the witness.

FED. R. EVID. 706(a).

of facilitating the court's task of determining the admissibility of scientific evidence and testimony.²⁰²

2. *Justice Stevens' Partial Concurrence.*—Justice Stevens concurred with the majority's ruling regarding the proper standard of review, but dissented with the majority's holding that the testimony of the plaintiff's expert witnesses was inadmissible.²⁰³ He would have remanded the matter to the court of appeals.²⁰⁴ Stevens agreed with the Eleventh Circuit's determination that the evidence of exposure created an issue of fact.²⁰⁵ He was unpersuaded by the majority's statement that “conclusions and methodology are not entirely distinct from one another,”²⁰⁶ and found the court of appeals' opinion persuasive in its acceptance of the “weight of the evidence”²⁰⁷ approach as a scientifically acceptable methodology.²⁰⁸ Justice Stevens also found error in the district court's conclusion that no study, by itself, was sufficient to establish a link between PCBs and the plaintiff's onset of lung cancer.²⁰⁹ He opined that the district court judge's individual examination of each of the studies led the judge to focus on the experts' conclusions, and not on the underlying methodology.²¹⁰

In support of his dissent, Justice Stevens wrote that “[i]t is not intrinsically ‘unscientific’ for experienced professionals to arrive at a conclusion by weighing all available scientific evidence—this is not the sort of ‘junk science’ with which *Daubert* was concerned.”²¹¹ He further stated that the district court's position of prohibiting experts from arriving at a conclusion by weighing all scientific evidence is contrary to the same methodology used by the Environmental Protection Agency (“EPA”) to assess risks.²¹² Furthermore, he found “nothing in either *Daubert* or the Federal Rules of Evidence requires a district judge to reject an expert's conclusions and keep them from the jury when they fit the facts of the case and are based on reliable scientific methodology.”²¹³ Thus, Justice Stevens did not understand why the experts' opinions were inadmissible since the proffered opinions were not based on a single study, but on the combined weight of all available evidence—a methodology applied by the federal government.²¹⁴ Consequently, he found that the plaintiff's experts could reasonably infer that PCBs could promote lung cancer if the experts were allowed to combine the

202. See *Joiner*, 522 U.S. at 149 (Breyer J., concurring).

203. See *id.* at 150-51 (Stevens, J., concurring in part and dissenting in part).

204. See *id.*

205. See *id.* at 152.

206. *Id.* at 155.

207. *Id.* at 153.

208. See *id.*

209. See *id.* at 154.

210. See *id.* at 153.

211. *Id.*

212. See *id.* (citing Brief for Respondents at 40-41, *Joiner* (No. 96-188)).

213. *Id.* at 155.

214. See *id.*

results of various studies under the weight-of-the-evidence approach.²¹⁵

III. THE EFFECT OF *JOINER*

A. *The Methodology/Conclusion Distinction Remains*

Even though commentators disagree as to whether the Supreme Court's decision in *Joiner* resolved the circuit court split regarding the methodology/conclusion distinction,²¹⁶ the *Joiner* decision clearly represents a retreat from *Daubert*'s strict focus on methodology.²¹⁷ The Supreme Court's opinion reemphasizes that expert testimony proffered in a post-*Joiner* environment must also satisfy *Daubert*'s second prong, which requires that evidence be "sufficiently tied to the facts of the case"²¹⁸ by a valid scientific connection.²¹⁹ In short, the expert testimony must "assist the trier of fact to

215. *See id.*

216. One commentator believes that the majority opinion in *Joiner* can be construed as allowing "district courts to exclude evidence whenever they disagree with the inductive reasoning by which the expert employing that methodology arrived at his or her conclusion about the probability of causation." Gottesman, *supra* note 1, at 772. Others agree with this proposition and state that *Joiner* marked a retreat from the Supreme Court's previously strict focus on methodology under *Daubert*, thus, expanding the scope of the district court judge's authority to include the expert's conclusions. *See, e.g.,* Neal, *supra* note 5, at 37 (opining that after *Joiner*, a "district court [can] assess whether the conclusions that the expert purports to reach are supported by the underlying evidence."); Bruce R. Parker, *Understanding Epidemiology and Its Use in Drug and Medical Device Litigation*, 65 DEF. COUNS. J. 35, 61 (1998) (indicating in its addendum that the Supreme Court's decision in *Joiner* "re-emphasizes that a trial court is required, as part of its gatekeeping role, to evaluate not only the methodology used by an expert, but also whether the expert's conclusion[s] meet *Daubert* standards"); Preuss, *supra* note 2, at 323 (stating that *Joiner* clarifies that an expert's methodologies and conclusions are subject to review). However, at least one commentator disagrees with such an expansive reading of the *Joiner* decision. *See* Roisman, *supra* note 154, at 497 (stating that the *Joiner* decision does not effect *Daubert*'s admonition that a trial court's preliminary admissibility determination of expert testimony should focus on the expert's methods and not on the ultimate conclusions rendered).

217. *See* *Graham v. Playtex Prods., Inc.*, 993 F. Supp. 127, 132 (N.D.N.Y. 1998) (noting that with *Joiner* decision, "the Supreme Court seems to have retreated from this strict focus on methodology alone.").

218. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 591 (1993).

219. *See id.* at 592. The *Daubert* court provided the following example:

The study of the phases of the moon, for example, may provide valid scientific "knowledge" about whether a certain night was dark, and if darkness is a fact in issue, the knowledge will assist the trier of fact. However, (absent creditable grounds supporting such a link), evidence that the moon was full on a certain night will not assist the trier of fact in determining whether an individual was unusually likely to have behaved irrationally on that night.

Id. at 591.

understand or determine a fact in issue."²²⁰ The Court was simply reminding judges that there are limits to the admissibility of scientific evidence under the Federal Rules of Evidence.²²¹ A district court judge must still focus on the expert's methodology,²²² and therefore, the *Joiner* decision did remove what the Supreme Court previously established in *Daubert*.

The *Joiner* decision, however, failed to clarify which methodology a scientific expert can rely upon to establish a "valid scientific connection." Specifically, the Supreme Court did not expressly declare that an expert can rely on the weight-of-the-evidence approach as a reliable methodology.²²³ The majority merely mentioned that it found no error in assessing the reliability of expert conclusions either "individually or in combination."²²⁴ As a result, the Court did not authorize or deny the reliability of a particular approach. The Court, nevertheless, found that the weight-of-the-evidence approach lacked reliability under the *Joiner* circumstances because the Court apparently excluded the plaintiffs' studies on an individual basis instead of examining the data as a whole. This reasoning appears to form the basis of why the Court ultimately agreed with the district court's decision excluding the plaintiffs' expert testimony.²²⁵

In response to the post-*Joiner* ambivalence regarding the admissibility of expert testimony, the Judicial Conference Advisory Committee proposed amendments to FRE 702.²²⁶ As proposed, FRE 702 would read:

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 provided that (1) the testimony is sufficiently based upon reliable facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods

220. *Id.* A district court judge must also focus on the fitness of "[the] experts' testimony and the data from which they draw their conclusions." Marlin, *supra* note 14, at 149.

221. *See* Marlin, *supra* note 14, at 148.

222. The *Joiner* decision does not effect *Daubert*'s requirement that a judge should focus on the expert's methods and not on the ultimate conclusions rendered. *See* Roisman, *supra* note 154, at 497.

223. *See* Gottesman, *supra* note 1, at 771-72.

224. *General Elec. Co. v. Joiner*, 522 U.S. 136, 147 (1997).

225. The Court provided that:

[I]t was within the District Court's discretion to conclude that the studies upon which the experts relied were not sufficient, whether individually or in combination, to support their conclusions that Joiner's exposure to PCBs contributed to his cancer, the District Court did not abuse its discretion in excluding their testimony.

Id. at 146-47.

226. *See* Daniel J. Capra, *Corporate Brief: Evidence Amendments*, NAT'L L.J., Oct. 5, 1998, at B-11.

reliably to the facts of the case.²²⁷

The proposed amendment language of FRE 702 was intentionally written to apply to both scientific and non-scientific expert testimony.²²⁸ If ratified, the proposed FRE 702 would also clarify post-*Joiner* ambiguities surrounding *Daubert*'s famous methodology/conclusion distinction.²²⁹ The language clearly indicates that the district court judge, as the gatekeeper, must review the expert's methodology and the expert's "application of that methodology to the facts of the case,"²³⁰ i.e., the expert's conclusion. Furthermore, it appears that the Advisory Committee was particularly persuaded by Judge Edward R. Becker's reasoning in *In re Paoli R.R. Yard PCB Litigation*,²³¹ that "any step that renders the analysis unreliable renders the expert's testimony inadmissible . . . whether the step completely changes a reliable methodology or merely misapplies that methodology."²³² Thus, the combined effect of the *Joiner* decision and the recently proposed amendments to FRE 702 illustrate that a district court judge must find the appropriate balance between assessment of the expert's methodology and the expert's ultimate conclusion.

Some commentators believe that *Joiner*'s reliance on *Daubert*'s "fitness" requirement may lead to an unfortunate erosion of the jury's factfinding role²³³ and an inappropriate extension of the district court judge's gatekeeping role.²³⁴ These commentators further contend that there may be an increased incidence of judges excluding "expert evidence solely on the basis of whether they think the evidence supports the party's case."²³⁵ Additionally, they believe that the *Joiner* decision may serve as a pretext for district court judges who do not believe the expert's testimony²³⁶ and may extend the judge's scope of review to cover the expert's underlying assumptions and data, as well as, the expert's conclusion.²³⁷

The *Joiner* decision did not explicitly broaden a judge's scope of review, nor did it not remove *Daubert*'s methodology/conclusion distinction. The decision in *Joiner* merely clarified that a district court judge's scope of review does not end with proof of reliability. Since *Daubert* it is required that all proffered

227. *Id.*

228. *See id.* (indicating that the all expert testimony is subject to the trial court's gatekeeping function).

229. *See id.*

230. *Id.*

231. 35 F.3d 717 (3d Cir. 1994).

232. *Id.* at 745.

233. *See White, supra* note 2, at 92

234. *See Hope After Joiner*, N.J. L.J., Mar. 23, 1998, at 26.

235. *Id.*; *see also* Gottesman, *supra* note 1, at 775 (stating that the *Joiner* decision "places too much discretion in the hands of district judges and makes the outcomes of toxic tort cases in federal courts turn on the prejudices of the particular judge rather than on principles of law").

236. *See White, supra* note 2, at 92.

237. *See Sneed, supra* note 151, at 422.

evidence be both reliable and relevant²³⁸—i.e., will the evidence “assist the trier of fact to understand or determine a fact in issue.”²³⁹ Nevertheless, the *Joiner* court’s reemphasis on the importance of *Daubert*’s “fitness” prong may prove fatal to some products liability and toxic tort claims.

B. *Joiner*’s Effect on Products Liability & Toxic Tort Claims

Judges have relied on the *Joiner* decision to exclude expert testimony in cases where the expert was unable to satisfy *Daubert*’s “fitness” requirement. There are several different scenarios where expert testimony is excluded in products liability and toxic tort contexts. The plaintiff’s expert testimony may be excluded if (1) the expert’s conclusion is too far removed from the available scientific knowledge or data or (2) the expert is unable to establish, beyond his own assertions, that he utilized a generally accepted scientific methodology.²⁴⁰ In both products liability and toxic tort cases, a court may exclude expert testimony when the gap between the underlying evidence and the expert’s opinion results in an analytical “chasm.”²⁴¹ The expert must prove there is more than temporal proximity between the evidence and the ultimate conclusion rendered.²⁴² A court will question an expert’s conclusions that are “ad hoc” or the product of deductive reasoning or speculation if there is no physical evidence supporting the expert’s position.²⁴³

238. See *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 589 (1993).

239. *Id.* at 593.

240. In *Moore v. Ashland Chemical, Inc.*, 151 F.3d 269 (5th Cir. 1998), *cert. denied*, 119 S. Ct. 1454 (1999), the trial court excluded the plaintiff’s expert testimony with respect to causation because the expert was unable to explain his conclusion or cite scientific support for his conclusion. See *id.* at 279. The court found the expert’s assurances that he utilized a generally accepted scientific methodology insufficient, see *id.* at 276 (citing *Daubert v. Merrell-Dow Pharmaceuticals, Inc.*, 43 F.3d 1311, 1316 (9th Cir. 1995) (on remand)), the experts’ testimony was allowed because the expert “relied substantially on the temporal proximity between the [plaintiff’s] exposure and symptoms.” *Id.* at 278. The trial court’s exclusion was affirmed on appeal because “the ‘analytical gap’ between [the expert’s] causation opinion and the scientific knowledge and available data advanced to support that opinion was too wide.” *Id.* at 279. See also *In re Breast Implant Litigation*, 11 F. Supp.2d 1217 (D. Colo. 1998) (excluding expert testimony necessary to establish the plaintiffs burden of causation because the available epidemiologic evidence failed to establish that breast implants caused the auto-immune diseases alleged).

241. *Belofsky v. General Elec. Co.*, 1 F. Supp.2d 504 (D.C.V.I. 1998) (excluding expert testimony that the defendant-manufacturer’s refrigerator door was defectively designed because the expert was unable to explain the discrepancy between her ultimate conclusion and contradictory evidence).

242. See *Daubert*, 509 U.S. at 589.

243. In *Childs v. General Motors Corp.*, No. CIV.A.95-0331, 1998 WL 414719 (E.D. Pa. July 22, 1998), the trial court granted the manufacturer’s motion in limine prohibiting the plaintiff’s expert from testifying that a defect in the seat design caused the front passenger seat of the manufacturer’s car to collapse because the expert was unable to show that he relied upon generally

Accordingly, for a products liability or toxic tort claim to survive the scrutiny of both *Daubert* and *Joiner*, there must be a nexus between the scientific evidence and the pertinent inquiry of the case. The requisite nexus is often difficult for the plaintiff to establish when the experts are unable to prove that their test results would remain the same if they used humans.²⁴⁴ An expert's inability to replicate the test results using humans will not prove fatal to the admission of expert testimony, so long as the expert can explain her testing procedures and the test results were subjected to peer review in a published study.²⁴⁵

Nevertheless, an expert's ability to explain her scientifically reliable methodology may prove somewhat futile in the context of a novel opinion because the expert must still overcome the issue of "fitness." A toxic tort or products liability expert will fail the "fitness" requirement if the expert's opinion is unable to reference the requisite causal link to the facts of a particular case.²⁴⁶ This may prove particularly true in situations where the expert's opinion is based primarily upon the evaluation of animal studies, the impact of cumulative studies, and statistical analysis. As a result, the exclusion of such testimony could effectively preclude legally adequate products liability or toxic

accepted methodologies. *See id.* at *2. The exclusion was supported by the fact that there was no physical evidence supporting the expert's proposition and the expert's theory could not be replicated. *See id.* at *4. *See also* *Uribe v. Sofamor*, 1999 WL 1129703, at *12 (D. Neb. Aug. 16, 1999) (excluding medical causation testimony that was unsupported by scientific literature or research conducted independent of the litigation as too speculative and conclusory); *Comer v. American Elec. Power*, 63 F. Supp.2d 927, 931-34 (N.D. Ind. 1999) (excluding an electrical engineer's testimony in a product liability action against an electrical utility because fire damage due to defective wiring was "not based on any particular evidence or trained observation but represents mere subjective belief and unsupported speculation"); *Hartwell v. Danek Med., Inc.*, 47 F. Supp.2d 703, 710-16 (W.D. Va. 1999) (excluding expert medical testimony as merely conclusory in its assertion that a spinal fixation device was the cause of the plaintiff's injuries, and thus precluding the plaintiff's product liability claim).

244. In *Lytle v. Ford Motor Co.*, 696 N.E.2d 465 (Ind. Ct. App. 1998), the Indiana Court of Appeals excluded expert testimony that a defect in the defendant's seat belt caused the plaintiff's wife to be thrown from the defendant's truck during a collision. The expert's testimony was unreliable, under the combined criteria of *Daubert* and *Joiner*, because the expert was unable to prove that his underlying pendulum test, "hitting the back of a suspended buckle with a small hammer with sufficient force to cause the buckle to inertially release," *id.* at 467 n.2, results would remain the same if he used testing method more similar to the forces present in a real world accident (crash test dummy). *See id.* at 472-73.

245. *See* *Graham v. Playtex Prods., Inc.*, 993 F. Supp. 127, 132 (N.D.N.Y. 1998) (admitting expert testimony that the defendant-manufacturer's use of rayon fibers in the defendant's tampons increased the risk of toxic shock syndrom because the court was not persuaded that the lack of epidemiological data in support of the expert's conclusions gave rise to a significant "analytical gap" requiring exclusion).

246. *Barry*, *supra* note 1, at 305. *See* *Gottesman*, *supra* note 1, at 769 ("Introduction of scientific evidence in toxic tort litigation to prove causal relationships is inherently problematic.").

tort cases from reaching juries, who may reasonably find in favor of the plaintiff. Such a plaintiff may therefore be unable to maintain a cause of action, survive a motion to dismiss or a motion for summary judgment.

IV. A LOOK INTO THE FUTURE OF EXPERT TESTIMONY

Although the true effects of the *Joiner* decision remain open to debate,²⁴⁷ the Supreme Court's departure from *Daubert's* bright-line distinction is likely to make the admissibility of expert testimony more restrictive,²⁴⁸ as well as burdensome for the plaintiff. The Supreme Court's reemphasis on "fitness" may affect procedural matters relating to expert testimony and will require lawyers to spend additional time preparing their experts.²⁴⁹ An expert's opinion that something is responsible for the cause of the plaintiff's injuries (i.e., specific causation) will be deemed irrelevant under *Daubert's* fitness prong if an expert is unable to establish proof of general causation.²⁵⁰ In products liability or toxic tort claims, the expert must be able to reference data that establishes the relationship between the cause and injury by a preponderance of the evidence before she can opine that the particular item was responsible for the claimant's injuries.²⁵¹ If an expert is unable to satisfy this burden, a district court judge may find that the testimony fails *Daubert's* "fitness" requirement because the testimony would be confusing and unhelpful to the jury.²⁵²

Thus, "the lawyer must be sure that the expert will be able to rationally

247. See *supra* note 215.

248. See Sneed, *supra* note 151, at 422 (stating that *Joiner* decision language undermines *Daubert's* liberal approach to the admission of expert testimony).

249. Experts must be prepared to write detailed reports supporting their conclusions and lawyers must be prepared to spend additional time with experts to ensure the expert's ability to explain his reasoning. See Roisman, *supra* note 154, at 501.

250. In products liability claims, specific causation evidence is admissible only after the expert has established general causation between the product and the plaintiff's injuries. See *Raynor v. Merrell Dow Pharm., Inc.*, 104 F.3d 1371, 1376 (D.C. Cir. 1997) (holding that non-epidemiological studies were insufficient to establish "causation in human beings in the face of the overwhelming body of contradictory epidemiological evidence").

251. The case of *In re Breast Implant Litigation*, 11 F. Supp.2d 1217 (D. Colo. 1998), excluded plaintiffs' expert testimony in a products liability claim against silicone breast implant manufacturers because their experts were unable to establish general causation, i.e., there was no known, epidemiological study concluding that women with silicone breast implants had at least twice the risk of developing auto-immune diseases. The court admitted that epidemiological studies are not required because they may often be unavailable. See *id.* at 1228. However, the expert opinions were scientifically unreliable because none of the expert reports offered supporting data/evidence on general causation that was subject to peer review. See *id.* at 1229.

252. A district court judge should exclude scientific testimony and evidence unless he or she is convinced that it is relevant to a disputed issue of the case and will not confuse or mislead the jury. See *id.* at 1223 (citing *Daubert v. Merrell Dow Pharm., Inc.*, 43 F.3d 1311, 1321 (1995) (on remand)).

explain why A causes B in those cases where there is not universal recognition of the conclusions advanced by the expert.”²⁵³ Furthermore, the expert’s explanation must contain “the bases for her conclusions, including . . . why certain evidence supports the ultimate conclusions, in logical and understandable laymen’s language, [otherwise,] the Court’s [sic] are going to reject such evidence where on its face, or following opposing expert criticism, it seems illogical.”²⁵⁴ Therefore, the *Joiner* decision requires an expert to explain her analysis in a manner establishing the “fitness” of the expert’s underlying data and her conclusion.²⁵⁵

In *Joiner*’s wake, “[t]estifying experts should be prepared to speak the language of *Daubert* in their depositions, describing the ‘methodology’ they used, how they tested or otherwise sought to ‘falsify’ their conclusions or ‘hypotheses,’ etc.”²⁵⁶ If the district court judge is not satisfied with the expert’s explanation or finds the underlying evidence unresponsive of the facts of the case, the judge can rely on *Joiner*’s authority to exclude the expert’s testimony.²⁵⁷ The *Joiner* decision allows judges to exclude expert testimony “solely on the basis of whether she thinks the evidence supports the party’s case.”²⁵⁸ Thus, lawyers should be prepared to substantiate their claims with expert testimony at the summary judgment stage.²⁵⁹

Admittedly, the expansive gatekeeping role propounded in *Joiner* may keep otherwise valid science from the jury, however, the Supreme Court was aware of this potential risk when the Court set forth the standards governing the admissibility of expert testimony under *Daubert*.²⁶⁰ Nevertheless, allowing judges to scrutinize each step of the expert’s analysis in support of the expert’s conclusion may lead to an increased exclusion of testimony.²⁶¹ The district court

253. Roisman, *supra* note 154, at 502.

254. *Id.* at 497.

255. The *Joiner* court stressed that a district court must review the legal reliability of an expert’s underlying methodology and the expert’s conclusions. See Marlin, *supra* note 14, at 148. “*Joiner*, at its most basic level, simply states that experts must explain their analysis sufficiently to overcome any questions of fit between data and conclusion.” *Id.* at 147.

256. Sneed, *supra* note 151, at 423.

257. If the expert is unable to describe or admit that her testimony is a result of a scientific or analytical process, the testimony is likely to be excluded. See *id.*

258. *Hope After Joiner*, *supra* note 234.

259. See Sneed, *supra* note 151, at 423 (explaining that lawyers should “[b]e fully prepared by the summary judgment stage, because a significant number of decisions hold expert evidence inadmissible at this point. Affidavits or expert reports under FRCP 26(a)(2) frequently truncate the expert’s reasoning or omit the methodology.”).

260. The Supreme Court previously noted in *Daubert* that no matter how flexible a judge’s gatekeeping role, it is inevitable that the judge’s determinations of admissibility will “prevent the jury from learning of authentic insights and innovations.” *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 597 (1993).

261. Justice Stevens’ dissenting opinion in *Joiner* suggests that if a district court conducts an individual examination of the underlying studies, the court will wrongly focus on the expert’s

judge's expanded gatekeeping role increases the potential for testimonial exclusion when the scientific studies are still developing. The *Joiner* decision, therefore, further restricted the admissibility of opinions based upon the weight-of-the-evidence approach that are not exactly "junk science."

The Supreme Court has not returned to *Frye*'s general acceptance test; however, the Court has returned to a more restrictive standard governing the admissibility of expert testimony. For novel scientific evidence or testimony to be admissible under *Frye*, the expert's methods need to be generally accepted by the relevant scientific community.²⁶² According to the *Frye* standard, "the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs."²⁶³ *Frye*'s "general acceptance" test concerned the validity and reliability of the expert's conclusions.²⁶⁴ The expert's conclusions were valid if they were consistent with the predominant view in the expert's field²⁶⁵ and the trial judge determined the expert's conclusions were accurate by weighing the strength of each party's arguments.²⁶⁶

Although *Daubert* and *Joiner* do not allow judges to determine admissibility on the comparative strength of opposing experts, the *Joiner* decision allows the Supreme Court's desire to combine the benefits of *Frye*'s more restrictive approach to scientific evidence and of *Daubert*'s reliance on procedural safeguards. Standing alone, the *Frye* standard focused on the validity of an expert's conclusions. In contrast, *Daubert*'s two-prong test requires a district court judge to focus on the expert's underlying methodology and should favor the introduction of proffered expert testimony.²⁶⁷ The *Daubert* Court also viewed the use of cross examination, presentation of contrary evidence, and careful instructions on burden of proof as a better resolution than a wholesale exclusion of expert testimony under *Frye*'s general acceptance test.

In *Joiner*, the Supreme Court appeared to clarify the *Daubert* opinion and its previous stance on admissibility determinations. Although the *Joiner* decision did not promulgate a complete return to *Frye*'s general acceptance test, the Court did illustrate support for district court judges to evaluate the "accuracy" of the expert's conclusions by framing emphasis on the "fitness" of the proffered expert testimony. The *Joiner* opinion resembles *Frye*'s emphasis and concern over the validity and reliability of the expert's conclusions. As a result, the Court restricted opportunities for plaintiffs relying on the weight-of-the-evidence approach to pass through a district court judge's admissibility "gates." After *Joiner*, expert testimony will be submitted to the jury only after the judge is

ultimate conclusions. *See* *General Elec. Co. v. Joiner*, 522 U.S. 136, 154-55 (1997) (Stevens, J., concurring in part and dissenting in part).

262. *See Daubert*, 509 U.S. at 585.

263. *Id.* at 586 (quoting *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923)).

264. *See Oh*, *supra* note 13, at 564.

265. *See id.*

266. *See id.*

267. *See Daubert*, 509 U.S. at 596.

satisfied that the plaintiff has established the appropriate linkage between the expert's underlying data and the ultimate conclusion rendered. In the absence of reliable evidence to predicate the expert's ultimate conclusion, the judge may simply conclude "that there is simply too great an analytical gap between the data and the opinion proffered."²⁶⁸

CONCLUSION

Daubert's distinction between conclusions and methods remains important. The Supreme Court's *Joiner* decision revisited the Court's previous directive and reemphasized the importance of *Daubert's* second prong of relevance or "fitness." The consequence of the *Joiner* opinion remains the subject of debate. However, various commentators and the proposed amendments to FRE 702 indicate that the Court has returned to heightened standards, thereby preventing the influx of "junk science" into the courtroom, by requiring the trial judge, as gatekeeper, to review the expert's methodology and the expert's application of that methodology to the facts of the case. This heightened level of review may create an insurmountable burden if the plaintiff's expert is unable to prove or sufficiently explain the relevance or reliability of her conclusions. As a result, the viability of many future claims will hinge on the expert's ability to survive the heightened gatekeeping scrutiny established in *Joiner*.

268. General Elec. Co. v. Joiner, 522 U.S. 136, 146 (1997).

