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SUPREME COURT OF THE UNITED STATES

No. 96-188

GENERAL ELECTRIC COMPANY, ET AL., PETITIONERS v. ROBERT K. JOINER ET UX.

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE ELEVENTH CIRCUIT

[December 15, 1997]

CHIEF JUSTICE REHNQUIST delivered the opinion of the Court.

We granted certiorari in this case to determine what standard an appellate court should apply in reviewing a trial court's decision to admit or exclude expert testimony under *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U. S. 579 (1993). We hold that abuse of discretion is the appropriate standard. We apply this standard and conclude that the District Court in this case did not abuse its discretion when it excluded certain proffered expert testimony.

I

Respondent Robert Joiner began work as an electrician in the Water & Light Department of Thomasville, Georgia (City) in 1973. This job required him to work with and around the City's electrical transformers, which used a mineral-based dielectric fluid as a coolant. Joiner often had to stick his hands and arms into the fluid to make repairs. The fluid would sometimes splash onto him, occasionally getting into his eyes and mouth. In 1983 the City

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discovered that the fluid in some of the transformers was contaminated with polychlorinated biphenyls (PCBs). PCBs are widely considered to be hazardous to human health. Congress, with limited exceptions, banned the production and sale of PCBs in 1978. See 90 Stat. 2020, 15 U. S. C. § 2605(e)(2)(A).

Joiner was diagnosed with small cell lung cancer in 1991. He¹ sued petitioners in Georgia state court the following year. Petitioner Monsanto manufactured PCBs from 1935 to 1977; petitioners General Electric and Westinghouse Electric manufactured transformers and dielectric fluid. In his complaint Joiner linked his development of cancer to his exposure to PCBs and their derivatives, polychlorinated dibenzofurans (furans) and polychlorinated dibenzodioxins (dioxins). Joiner had been a smoker for approximately eight years, his parents had both been smokers, and there was a history of lung cancer in his family. He was thus perhaps already at a heightened risk of developing lung cancer eventually. The suit alleged that his exposure to PCBs “promoted” his cancer; had it not been for his exposure to these substances, his cancer would not have developed for many years, if at all.

Petitioners removed the case to federal court. Once there, they moved for summary judgment. They contended that (1) there was no evidence that Joiner suffered significant exposure to PCBs, furans, or dioxins, and (2) there was no admissible scientific evidence that PCBs promoted Joiner’s cancer. Joiner responded that there were numerous disputed factual issues that required resolution by a jury. He relied largely on the testimony of expert witnesses. In depositions, his experts had testified that PCBs alone can promote cancer and that furans and dioxins can also promote cancer. They opined that since

¹ Joiner’s wife was also a plaintiff in the suit and is a respondent here. For convenience, we refer to respondent in the singular.

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Joiner had been exposed to PCBs, furans, and dioxins, such exposure was likely responsible for Joiner's cancer.

The District Court ruled that there was a genuine issue of material fact as to whether Joiner had been exposed to PCBs. But it nevertheless granted summary judgment for petitioners because (1) there was no genuine issue as to whether Joiner had been exposed to furans and dioxins, and (2) the testimony of Joiner's experts had failed to show that there was a link between exposure to PCBs and small cell lung cancer. The court believed that the testimony of respondent's experts to the contrary did not rise above "subjective belief or unsupported speculation." 864 F. Supp. 1310, 1329 (ND Ga. 1994). Their testimony was therefore inadmissible.

The Court of Appeals for the Eleventh Circuit reversed. 78 F. 3d 524 (1996). It held that "[b]ecause the Federal Rules of Evidence governing expert testimony display a preference for admissibility, we apply a particularly stringent standard of review to the trial judge's exclusion of expert testimony." *Id.* at 529. Applying that standard, the Court of Appeals held that the District Court had erred in excluding the testimony of Joiner's expert witnesses. The District Court had made two fundamental errors. First, it excluded the experts' testimony because it "drew different conclusions from the research than did each of the experts." The Court of Appeals opined that a district court should limit its role to determining the "legal reliability of proffered expert testimony, leaving the jury to decide the correctness of competing expert opinions." *Id.* at 533. Second, the District Court had held that there was no genuine issue of material fact as to whether Joiner had been exposed to furans and dioxins. This was also incorrect, said the Court of Appeals, because testimony in the record supported the proposition that there had been such exposure.

We granted petitioners' petition for a writ of certiorari,

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520 U. S. ____ (1997), and we now reverse.

II

Petitioners challenge the standard applied by the Court of Appeals in reviewing the District Court's decision to exclude respondent's experts' proffered testimony. They argue that that court should have applied traditional "abuse of discretion" review. Respondent agrees that abuse of discretion is the correct standard of review. He contends, however, that the Court of Appeals applied an abuse of discretion standard in this case. As he reads it, the phrase "particularly stringent" announced no new standard of review. It was simply an acknowledgement that an appellate court can and will devote more resources to analyzing district court decisions that are dispositive of the entire litigation. All evidentiary decisions are reviewed under an abuse of discretion standard. He argues, however, that it is perfectly reasonable for appellate courts to give particular attention to those decisions that are outcome-determinative.

We have held that abuse of discretion is the proper standard of review of a district court's evidentiary rulings. *Old Chief v. United States*, 519 U. S. ____, ____ n. 1 (1997) (slip op., at 1–2, n.1), *United States v. Abel*, 469 U. S. 45, 54 (1984). Indeed, our cases on the subject go back as far as *Spring Co. v. Edgar*, 99 U. S. 645, 658 (1879) where we said that "cases arise where it is very much a matter of discretion with the court whether to receive or exclude the evidence; but the appellate court will not reverse in such a case, unless the ruling is manifestly erroneous." The Court of Appeals suggested that *Daubert* somehow altered this general rule in the context of a district court's decision to exclude scientific evidence. But *Daubert* did not address the standard of appellate review for evidentiary rulings at all. It did hold that the "austere" *Frye* standard of "general acceptance" had not been carried over into the

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Federal Rules of Evidence. But the opinion also said:

“That the *Frye* test was displaced by the Rules of Evidence does not mean, however, that the Rules themselves place no limits on the admissibility of purportedly scientific evidence. Nor is the trial judge disabled from screening such evidence. To the contrary, under the Rules the trial judge must ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable.” 509 U. S., at 589 (footnote omitted).

Thus, while the Federal Rules of Evidence allow district courts to admit a somewhat broader range of scientific testimony than would have been admissible under *Frye*, they leave in place the “gatekeeper” role of the trial judge in screening such evidence. A court of appeals applying “abuse of discretion” review to such rulings may not categorically distinguish between rulings allowing expert testimony and rulings which disallow it. Compare *Beech Aircraft Corp v. Rainey*, 488 U. S. 153, 172 (1988) (applying abuse of discretion review to a lower court’s decision to exclude evidence) with *United States v. Abel*, *supra* at 54 (applying abuse of discretion review to a lower court’s decision to admit evidence). We likewise reject respondent’s argument that because the granting of summary judgment in this case was “outcome determinative,” it should have been subjected to a more searching standard of review. On a motion for summary judgment, disputed issues of fact are resolved against the moving party— here, petitioners. But the question of admissibility of expert testimony is not such an issue of fact, and is reviewable under the abuse of discretion standard.

We hold that the Court of Appeals erred in its review of the exclusion of Joiner’s experts’ testimony. In applying an overly “stringent” review to that ruling, it failed to give the trial court the deference that is the hallmark of abuse

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of discretion review. See, e.g., *Koon v. United States*, 518 U. S. ___, ___ (1996)(slip op., at 14–15).

III

We believe that a proper application of the correct standard of review here indicates that the District Court did not abuse its discretion. Joiner's theory of liability was that his exposure to PCBs and their derivatives "promoted" his development of small cell lung cancer. In support of that theory he proffered the deposition testimony of expert witnesses. Dr. Arnold Schecter testified that he believed it "more likely than not that Mr. Joiner's lung cancer was causally linked to cigarette smoking and PCB exposure." App. at 107. Dr. Daniel Teitelbaum testified that Joiner's "lung cancer was caused by or contributed to in a significant degree by the materials with which he worked." *Id.* at 140.

Petitioners contended that the statements of Joiner's experts regarding causation were nothing more than speculation. Petitioners criticized the testimony of the experts in that it was "not supported by epidemiological studies . . . [and was] based exclusively on isolated studies of laboratory animals." Joiner responded by claiming that his experts had identified "relevant animal studies which support their opinions." He also directed the court's attention to four epidemiological studies² on which his experts had relied.

The District Court agreed with petitioners that the animal studies on which respondent's experts relied did not support his contention that exposure to PCBs had contributed to his cancer. The studies involved infant mice that had developed cancer after being exposed to PCBs. The infant mice in the studies had had massive doses of PCBs

² Epidemiological studies examine the pattern of disease in human populations.

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injected directly into their peritoneums³ or stomachs. Joiner was an adult human being whose alleged exposure to PCBs was far less than the exposure in the animal studies. The PCBs were injected into the mice in a highly concentrated form. The fluid with which Joiner had come into contact generally had a much smaller PCB concentration of between 0–500 parts per million. The cancer that these mice developed was alveologenic adenomas; Joiner had developed small-cell carcinomas. No study demonstrated that adult mice developed cancer after being exposed to PCBs. One of the experts admitted that no study had demonstrated that PCBs lead to cancer in any other species.

Respondent failed to reply to this criticism. Rather than explaining how and why the experts could have extrapolated their opinions from these seemingly far-removed animal studies, respondent chose “to proceed as if the only issue [was] whether animal studies can ever be a proper foundation for an expert’s opinion.” *Joiner*, 864 F. Supp. at 1324. Of course, whether animal studies can ever be a proper foundation for an expert’s opinion was not the issue. The issue was whether *these* experts’ opinions were sufficiently supported by the animal studies on which they purported to rely. The studies were so dissimilar to the facts presented in this litigation that it was not an abuse of discretion for the District Court to have rejected the experts’ reliance on them.

The District Court also concluded that the four epidemiological studies on which respondent relied were not a sufficient basis for the experts’ opinions. The first such study involved workers at an Italian capacitor⁴ plant who had been exposed to PCBs. Bertazzi, Riboldi, Pesatori, Radice, & Zocchetti, *Cancer Mortality of Capacitor Manu-*

³ The peritoneum is the lining of the abdominal cavity.

⁴ A capacitor is an electrical component that stores an electric charge.

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facturing Workers, 11 *American Journal of Industrial Medicine* 165 (1987). The authors noted that lung cancer deaths among ex-employees at the plant were higher than might have been expected, but concluded that “there were apparently no grounds for associating lung cancer deaths (although increased above expectations) and exposure in the plant.” *Id.* at 172. Given that Bertazzi et al. were unwilling to say that PCB exposure had caused cancer among the workers they examined, their study did not support the experts’ conclusion that Joiner’s exposure to PCBs caused his cancer.

The second study followed employees who had worked at Monsanto’s PCB production plant. J. Zack & D. Munsch, *Mortality of PCB Workers at the Monsanto Plant in Sauget, Illinois* (Dec. 14, 1979)(unpublished report), 3 *Rec.*, Doc. No. 11. The authors of this study found that the incidence of lung cancer deaths among these workers was somewhat higher than would ordinarily be expected. The increase, however, was not statistically significant and the authors of the study did not suggest a link between the increase in lung cancer deaths and the exposure to PCBs.

The third and fourth studies were likewise of no help. The third involved workers at a Norwegian cable manufacturing company who had been exposed to mineral oil. Ronneberg, Andersen, Skyberg, *Mortality and Incidence of Cancer Among Oil-Exposed Workers in a Norwegian Cable Manufacturing Company*, 45 *British Journal of Industrial Medicine* 595 (1988). A statistically significant increase in lung cancer deaths had been observed in these workers. The study, however, (1) made no mention of PCBs and (2) was expressly limited to the type of mineral oil involved in that study, and thus did not support these experts’ opinions. The fourth and final study involved a PCB-exposed group in Japan that had seen a statistically significant increase in lung cancer deaths. Kuratsune, Nakamura, Ikeda, & Hirohata, *Analysis of Deaths Seen Among Pa-*

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tients with Yusho— A Preliminary Report, 16 *Chemosphere*, Nos. 8/9, 2085 (1987). The subjects of this study, however, had been exposed to numerous potential carcinogens, including toxic rice oil that they had ingested.

Respondent points to *Daubert's* language that the “focus, of course, must be solely on principles and methodology, not on the conclusions that they generate.” 509 U. S., at 595. He claims that because the District Court’s disagreement was with the conclusion that the experts drew from the studies, the District Court committed legal error and was properly reversed by the Court of Appeals. But conclusions and methodology are not entirely distinct from one another. 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 proffered. See *Turpin v. Merrell Dow Pharmaceuticals, Inc.*, 959 F. 2d 1349, 1360 (CA 6), cert. denied, 506 U. S. 826 (1992). That is what the District Court did here, and we hold that it did not abuse its discretion in so doing.

We hold, therefore, that abuse of discretion is the proper standard by which to review a district court’s decision to admit or exclude scientific evidence. We further hold that, 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 PCBs contributed to his cancer, the District Court did not abuse its discretion in excluding their testimony. These conclusions, however, do not dispose of this entire case.

Respondent’s original contention was that his exposure to PCBs, furans, and dioxins contributed to his cancer. The District Court ruled that there was a genuine issue of

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material fact as to whether Joiner had been exposed to PCBs, but concluded that there was no genuine issue as to whether he had been exposed to furans and dioxins. The District Court accordingly never explicitly considered if there was admissible evidence on the question whether Joiner's alleged exposure to furans and dioxins contributed to his cancer. The Court of Appeals reversed the District Court's conclusion that there had been no exposure to furans and dioxins. Petitioners did not challenge this determination in their petition to this Court. Whether Joiner was exposed to furans and dioxins, and whether if there was such exposure, the opinions of Joiner's experts would then be admissible, remain open questions. We accordingly reverse the judgment of the Court of Appeals and remand this case for proceedings consistent with this opinion.

It is so ordered.