SUPERIOR COURT OF NEW JERSEY
APPELLATE DIVISION
DOCKET NO. A-1420-21

VALERIE SEGAR,

Plaintiff-Appellant,

v.

CONSOLIDATED RAIL CORPORATION, a/k/a CONRAIL CORPORATION,

Defendant-Respondent,

and

NORFOLK SOUTHERN RAILWAY COMPANY, a/k/a NORFOLK SOUTHERN CORPORATION, CSX TRANSPORTATION, INC., CSX CORPORATION, JERRY KAMINSKI, RYAN KEATING, RYAN HILL, JON A. HAVLICEK, WILBERT DEN OUDEN, and MARK MATHER,

Defendants.

Argued September 26, 2023 – Decided October 13, 2023

Before Judges Sabatino, Mawla, and Marczyk.

On appeal from the Superior Court of New Jersey, Law Division, Gloucester County, Docket No. L-1241-15.

Thomas N. Sweeney argued the cause for appellant (Messa & Associates, PC, attorneys; Thomas N. Sweeney, on the briefs).

Ira L. Podheiser (Burns White LLC) of the Pennsylvania bar, admitted pro hac vice, argued the cause for respondent (Burns White LLC and Ira L. Podheiser, attorneys; Brian D. Pagano, of counsel and on the brief).

PER CURIAM

This lawsuit arises out of a derailment of a freight train in Paulsboro on November 30, 2012. The railroad, defendant Consolidated Rail Corporation a/k/a Conrail Corporation ("Conrail"), stipulates to its liability for the occurrence of the derailment. The derailment caused vinyl chloride to leak into the atmosphere from four freight cars that toppled off the tracks.

Plaintiff Valerie Segar, a resident of Paulsboro, lived a short distance from the derailment site. After the derailment, she noticed a fog in the air and sweet-smelling odor, which is characteristic of vinyl chloride. She started to feel sick and went to a local hospital emergency room a few days later.

The emergency room medical staff diagnosed a thrombosis (i.e., blood clotting) in plaintiff's right foot. Plaintiff was overweight, a diabetic, and a smoker, although she had no leg ulcers. Her serious condition required her right leg to be amputated below the knee in late December 2012, less than a month after the derailment.

The New Jersey Department of Health ("NJDOH") investigated the derailment and issued a report to the federal government. It found that numerous residents of Paulsboro, in addition to plaintiff, had likewise reported various symptoms and had sought treatment at the emergency room following the leakage of the vinyl chloride.

Plaintiff sued Conrail and several other parties,[1] alleging that the vinyl chloride leakage caused her to sustain the thrombosis and subsequent amputation. She retained as a medical causation expert Philip Levin, M.D. Dr. Levin, a board-certified endocrinologist and internist, is an assistant professor at Johns Hopkins Medical School. His credentials include a medical degree from the University of Maryland, residencies at Yale and Georgetown Medical Schools, and a fellowship at Ohio State Medical School. Dr. Levin has treated patients with diabetes and vascular conditions for several decades. He has

[1] The other named defendants are no longer involved in this litigation.

authored and co-authored numerous professional articles about vascular disease and diabetes. He is not a toxicologist.

Dr. Levin opines that plaintiff's exposure to the dispersed vinyl chloride caused her to develop blood clotting, which led to the amputation. He explains how vinyl chloride, at the molecular level, affects the blood serum and causes arterial blockages. In this regard, Dr. Levin has detailed how vinyl chloride narrows the vascular lumen to cause a complete occlusion, how it inflames or irritates the wall of the artery to reduce blood flow, how it elevates lipoprotein (a)—which is associated with hypovascular coagulability—and how it impairs capillary microcirculation.

Defendant counters Dr. Levin's opinions on medical causation with its own expert, Michael I. Greenberg, M.D. Dr. Greenberg is board certified in toxicology and other fields of medicine. He received his medical degree from Temple Medical School. He also has a master's degree in public health and occupational medicine from the University of Wisconsin, as well as a master's degree in forensic toxicology from the University of Florida. He has taught medical students for many years and, as of the time of the proceedings below, was on the faculty of Drexel University College of Medicine. Like Dr. Levin,

he too has authored and co-authored dozens of professional articles. He is not an endocrinologist.

Dr. Greenberg contends plaintiff's leg clotting was solely the result of her longstanding diabetes and underlying poor health. He opines that plaintiff's short-term ingestion of vinyl chloride was not the medical cause of her thrombus and her ensuing leg amputation.

Initially, plaintiff submitted in discovery a two-page expert report from Dr. Levin. Defendant moved to bar Dr. Levin's testimony as unreliable under the applicable criteria of N.J.R.E. 702, and as an inadmissible net opinion. After reviewing the parties' submissions, the trial court scheduled a "Kemp hearing"[2] to evaluate the admissibility of Dr. Levin's testimony. Both Dr. Levin and Dr. Greenberg testified at the hearing, and were questioned by counsel and the trial court.

Two days before the Kemp hearing, plaintiff served on the defense an eight-page supplemental expert report from Dr. Levin, which bolstered his previous opinions. The supplemental report accompanied over 500 pages of

[2] See Kemp ex rel. Wright v. State, 174 N.J. 412, 432-33 (2002) (prescribing testimonial hearings for trial courts to assess the admissibility of expert testimony).

professional studies, medical literature, and other materials, including the NJDOH investigation report.

The defense moved to exclude the court's consideration of Dr. Levin's supplemental report as untimely. The motion judge instead adjourned the Kemp hearing and allowed the defense to conduct a second deposition of Dr. Levin.

The court thereafter conducted the Kemp hearing and heard Dr. Levin's testimony explaining his methodology. His methodology is based on what Dr. Levin characterizes as a differential diagnosis, ruling out other possible causes of the thrombosis. A critical facet of his analysis is that, unlike most other diabetic patients he has seen in over thirty years of practice who required amputations, plaintiff had no ulcers, cuts, or preexisting swelling.

At the end of the hearing, the motion judge issued an oral ruling on December 6, 2021, concluding that Dr. Levin's methodology was not sufficiently reliable to present to a jury. Among other things, the judge noted that Dr. Levin had never treated a patient with vinyl chloride exposure. The judge further noted that the published studies linking vinyl chloride exposure to circulatory conditions generally involve occupational exposure over long periods of time, not the short-term exposure as in this case. In particular, the judge stated in his

oral ruling that he did not find in the motion record "any evidence that vinyl chloride causes a thrombus in the femoral artery" (emphasis added).

After excluding Dr. Levin's testimony, on March 22, 2022, the judge awarded defendant $15,380 in counsel fees as a sanction for necessitating the defense to incur additional attorney time to address Dr. Levin's late expert report. Since plaintiff could not proceed with her case without a medical causation expert, the judge then entered summary judgment in favor of Conrail, dismissing the lawsuit.

Plaintiff now appeals the exclusion of Dr. Levin's expert testimony, the ensuing entry of summary judgment, and the counsel fee sanction. For the reasons that follow, we remand for further proceedings and more detailed findings by the trial court addressing each of the discrete factors set forth in Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579 (1993) as adopted with certain conditions by the New Jersey Supreme Court in In re Accutane Litigation, 234 N.J. 340 (2018). We affirm, however, the monetary sanction imposed.

Our Supreme Court has instructed that in determining the admissibility of scientific expert testimony in civil (and now criminal) cases, our trial courts must utilize a "methodology-based test for reliability" similar to the standard set

forth by the United States Supreme Court in Daubert. In re Accutane, 234 N.J. at 397. This standard is as follows:

> Our view of proper gatekeeping in a methodology-based approach to reliability for expert scientific testimony requires the proponent to demonstrate that the expert applies his or her scientifically recognized methodology in the way that others in the field practice the methodology. When a proponent does not demonstrate the soundness of a methodology, both in terms of its approach to reasoning and to its use of data, from the perspective of others within the relevant scientific community, the gatekeeper should exclude the proposed expert testimony on the basis that it is unreliable.
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> [Id. at 399-400.]

Applying this standard, our courts must consider "whether an expert's reasoning or methodology underlying the testimony is scientifically valid" and "whether that reasoning or methodology properly can be applied to facts in issue." Id. at 397 (citing Daubert, 509 U.S. at 591, 594-95; Rubanick v. Witco Chem. Corp., 125 N.J. 421, 449 (1991)).

Such an approach is appropriate when dealing with "the issue of causation in toxic-tort litigation concerning diseases of indeterminate origin," where "[m]any such injuries remain latent for years, are associated with diverse risk factors, and occur without any apparent cause." Landrigan v. Celotex Corp., 127 N.J. 404, 413 (1992).

The trial court's role is not to "substitute its judgment for that of the relevant scientific community," but "to distinguish scientifically sound reasoning from that of the self-validating expert, who uses scientific terminology to present unsubstantiated personal beliefs." Id. at 414. Thus, experts "must be able to identify the factual bases for their conclusions, explain their methodology, and demonstrate that both the factual bases and the methodology are scientifically reliable." Id. at 417. Moreover, when an expert relies on scientific or medical studies, "the trial court should review the studies, as well as other information proffered by the parties, to determine if they are of a kind on which such experts ordinarily rely," and if they are "derived from a sound and well-founded methodology that is supported by some expert consensus in the appropriate field." Ibid.

When applying this standard, our judges should now address the multiple Daubert factors, a "'helpful—but not necessary or definitive—guide' for trial courts in New Jersey" to follow when assessing the reliability of scientific or technical expert testimony. State v. Olenowski, 253 N.J. 133, 149 (2023) (quoting In re Accutane, 234 N.J. at 398). These factors are as follows:

> (1) Whether the scientific theory can be, or at any time has been, tested;

> (2) Whether the scientific theory has been subjected to peer review and publication, noting that publication is one form of peer review but is not a "sine qua non";
>
> (3) Whether there is any known or potential rate of error and whether there exist any standards for maintaining or controlling the technique's operation; and
>
> (4) Whether there does exist a general acceptance in the scientific community about the scientific theory.
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> [In re Accutane, 234 N.J. at 398 (citing Daubert, 509 U.S. at 593-95).]

The first listed Daubert factor—testability—relates closely to the dual components of the third factor, error rate and standards. Testability is "a key question" that entails whether a theory or technique "can be (and has been tested)." Daubert, 509 U.S. at 593.

The second Daubert factor—peer review and publication—is significant because submission of a methodology "to the scrutiny of the scientific community is a component of 'good science'" and "increases the likelihood that substantive flaws in methodology will be detected." Ibid.

The third Daubert factor concerns both the known or potential rate of error in testing the methodology as well as any standards for maintaining or controlling the methodology's operation. As the Court noted in Daubert, a trial court "ordinarily" should account for the "known or potential rate of error" of a

methodology. Id. at 594. In addition, a methodology is more reliable if it is governed by well-established standards for operation. Ibid. See also Kumho Tire Co. v. Carmichael, 526 U.S. 137, 154-57 (1999) (rejecting as inadmissible an expert who had not consistently adhered to a protocol with appropriate standards).

Lastly, the fourth Daubert factor—general acceptance—(the former test of Frye v. United States, 293 F. 1013 (D.C. Cir. 1923)) is no longer the dispositive test since the Court has adopted the multifactor Daubert approach, but it is still pertinent. Daubert, 509 U.S. at 594-96; In re Accutane, 234 N.J. at 398.

As the Court stated in In re Accutane and again in Olenowski, these specific factors are not a rigid set of considerations for ascertaining the reliability of a proffered expert's methodology. Nonetheless, they provide an important framework for guiding the analysis. The trial court's consideration of each of these factors is integral to the appellate court's review of whether the trial court abused its discretion in concluding whether an expert's methodology was sufficiently reliable to be admitted to a jury. In re Accutane, 234 N.J. at 391.

Here, the brief oral opinion the court issued immediately after hearing the testimony of Dr. Levin and Dr. Greenberg did not fully analyze, one by one, each of the Daubert factors. The opinion correctly recited the factors in its general overview of the law. Unfortunately, its analysis of the factors was incomplete and seemingly inconsistent in some respects.

To begin with, the opinion did not analyze testability (Daubert factor one) or error rate (a component of factor three).

The opinion referred to some of the published literature (Daubert factor two) about vinyl chloride exposure, including several peer reviewed articles supplied and relied upon by Dr. Levin. It noted the studies addressing long-term exposure to the chemical in occupational settings and contrasted it to plaintiff's short-term exposure. In colloquy with counsel, the court criticized Dr. Levin's analysis because "he didn't find any medical literature that a thrombus was caused by an inhalation [of] vinyl chloride."

On the other hand, the judge did find "there is compelling evidence that such a [medical cause-effect] relationship exists between the inhalation of vinyl chloride and some effect on the vascular system based on what I've heard." The judge also found that "accepting the studies that were sent by Dr. Levin, there does seem to be an association between the inhalation of vinyl chloride and some

effect on vascular structures." The judge characterized the studies, however, as "limited," noting that "there wasn't a particular study about the effect of vinyl chloride on diabetes."

With respect to standards (part of Daubert factor three), the court recognized that the methodology of differential diagnosis is a judicially approved methodology. See Creanga v. Jardal, 185 N.J. 345, 357-58 (2005). However, the court was "troubled by the way Dr. Levin concluded his differential diagnosis," observing that it was not sure that he provided "sufficient reasons why other causes were [not] just as likely to cause this [injury] as vinyl chloride." The court noted that Dr. Levin "used a lot of generalities," and "went through study after study that talked about cardiac issues, that talked about vascular issues, but they weren't very specific." The court further observed that it "had trouble understanding [Dr. Levin's] methodology."

Finally, with respect to Daubert factor four—general acceptance—the judge noted it "had no evidence about whether other experts would rely on this evidence [the studies cited by Dr. Levin]," and that "it's very difficult for me to . . . make that comparison."

These and other observations within the court's oral opinion reflect the court's earnest attempt to perform the factor-based analysis prescribed by

Daubert, In re Accutane, and Olenowski. Even so, our appellate review is hindered by the omission of a discussion of factor one and part of factor three (respectively, testability and error rate),[3] and the occasional non-definitive and inconsistent language used by the court in discussing some of the other factors.

We also have an overarching concern that the trial court's analysis at times appears, at least in how it was expressed, to have failed to sufficiently adhere to the Supreme Court's guidance in Rubanick, 125 N.J. at 449, concerning the specific difficulties inherent in toxic tort litigation. The Court recognized in Rubanick that "toxic-tort litigation does not frequently encounter well-established and widely accepted scientific theories of causation that can, at the level demanded by the scientific method, precisely delineate the causal path between the toxin and the pathology." Id. at 449. "Nevertheless, in such litigation there is often available data and information of a type that that is used and relied on by experts in the field." Ibid. "[F]urther, there are reputable and highly qualified experts who, drawing on such data and information, have the

[3] It is unclear from the submissions whether the parties agree that a differential diagnosis methodology, when used for purposes of medical causation in civil litigation, is testable, and if so, whether there is a potential or known error rate in using such a methodology.

proficiency to apply sound scientific methods sufficient to reach creditable opinions with respect to causation." Ibid.

Hence, the Court in Rubanick was "strongly persuaded that a standard that accounts for those considerations should be employed to determine the reliability of expert opinion testimony relating to causation in toxic-tort litigation." Ibid. The Court held that "in toxic-tort litigation, a scientific theory of causation that has not yet reached general acceptance may be found to be sufficiently reliable if it is based on a sound, adequately founded scientific methodology involving data and information of the type reasonably relied upon by experts in the scientific field." Ibid. In essence, the Court has prescribed a contextualized standard for the admission of expert methodologies in toxic tort cases.

Here, the trial court acknowledged Rubanick, but focused its comments substantially upon (1) the absence of published studies that explicitly address whether short-term exposure to vinyl chloride can impair a person's vascular system, and (2) the soundness of Dr. Levin's differential diagnosis in ruling out other more common causes of arterial thrombus in persons with diabetes. The former may be reasonably accounted for by the (fortunate) rarity in which a short-term escape of high concentrations of vinyl chloride occurs. The court's

opinion does not explain sufficiently why the medical explanations posited by Dr. Levin, in drawing comparisons with the published studies of long-term exposures, are not plausible and reliable enough to be considered by a jury.

In addition, the court's critique of Dr. Levin's application of a differential diagnosis methodology may be suitable fodder for cross-examination, but that does not make the methodology itself an inherently unreliable technique. See Creanga, 185 N.J. at 357-58 (deeming a differential diagnosis an appropriate methodology); see also Hisenaj v. Kuehner, 194 N.J. 6, 25 (2008) (reversing the appellate court's conclusion of inadmissibility and allowing a defense biomechanical engineer's expert testimony to be presented to a jury, despite flaws in his analysis that could be impeached on cross-examination).

The court did not address case law recognizing that in conducting a differential diagnosis, a physician is "not required to rule out all alternative possible causes of [the plaintiff's] illness. Rather, only 'where a defendant points to a plausible alternative cause and the doctor offers no explanation for why [the doctor] has concluded that was not the sole cause, that doctor's methodology is unreliable.'" Heller v. Shaw Indus., Inc., 167 F.3d 146, 156 (3d Cir. 1999) (quoting In re Paoli R.R. Yard PCB Litig., 35 F.3d 717, 758 n.27 (3d Cir.

1994)).[4] Further, the Third Circuit has observed that "a physician need not conduct every possible test to rule out all possible causes of a patient's illness, 'so long as [the doctor] employed sufficient diagnostic techniques to have good grounds for [their] conclusion.'" Ibid. (quoting In re Paoli, 35 F.3d at 761). In this respect, Dr. Levin's alleged failure to apply the methodology correctly, including the so-called "Bradford Hill" factors for a differential diagnosis, should be analyzed more fully by the trial court.

Although we do not resolve these questions here, we are persuaded the best course is to remand this matter to the trial court for a more fulsome analysis of the discrete Daubert factors, viewed through the prism of Rubanick. In all fairness to the motion judge (who has since retired), it does not appear that the parties' briefing before the Kemp hearing focused heavily on the discrete Daubert factors, which may well explain why the court's oral opinion was conveyed in the manner it was delivered.

We accordingly remand this matter for further consideration by a successor judge in the Law Division and ask the judge to provide a more detailed and complete factor-by-factor Daubert analysis, bearing in mind the Court's

[4] We cite this federal case law only for its persuasive value recognizing we are not strictly bound by federal Daubert decisions. In re Accutane, 234 N.J. at 399.

guidance in Rubanick about the special constraints of toxic tort cases. For the benefit of the successor judge, the parties shall provide the trial court within twenty days of this opinion, their appellate briefs and appendices and a transcript of the Kemp hearing testimony (which the original motion judge never saw). The successor judge has the discretion to require additional briefing and a supplemental Rule 104 hearing if that judge deems it helpful. In the meantime, summary judgment is vacated without prejudice, abiding the outcome of the remand on admissibility.[5] We intimate no views on the appropriate outcome.

The remand shall be concluded by January 31, 2024. After the trial court issues its ruling, either side may pursue timely appellate review with a new notice of appeal or motion for leave to appeal.

Lastly, we briefly note that we affirm the trial court's monetary sanction as being within the court's range of discretion. Salazar v. MKGC + Design, 458 N.J. Super. 551, 558-59 (App. Div. 2019). The court could have imposed a more drastic sanction under the circumstances, including total exclusion of the supplemental report tendered two years after the discovery deadline had passed. R. 4:23-1. In addition, our courts must encourage adherence to discovery

[5] For the sake of completeness, the trial court on remand shall adjudicate the "net opinion" argument made by defendant but not resolved in the court's December 2021 opinion.

deadlines and discourage last-minute voluminous submissions that are disruptive and discourteous to the court and opposing counsel. Seoung Ouk Cho v. Trinitas Reg'l Med. Ctr., 443 N.J. Super. 461, 468-72 (App. Div. 2015).

Affirmed in part and remanded in part. We do not retain jurisdiction.