STATE

Frye v. United States

Court of Appeals of District of Columbia

November 7, 1923, Submitted ; December 3, 1923, Decided

No. 3968

Reporter
293 F. 1013 *; 1923 U.S. App. LEXIS 1712 **; 54 App. D.C. 46; 34 A.L.R. 145

FRYE v. UNITED STATES

Prior History: [1]** Appeal from the Supreme Court of the District of Columbia.

Core Terms

blood pressure, deception, systolic, discovery, cases, scientific principle, conscious effort, expert testimony, experiments, Scientific, admissible, admitting, falsehood, witnesses, detected, proceeds, requires, deduced, nervous, skilled, courts, rises

Case Summary

Procedural Posture
Appeal from a judgment of the Supreme Court of the District of Columbia that convicted defendant of murder in the second degree.

Overview
Defendant was convicted of second degree murder and argued on appeal that the trial court erred by refusing to allow an expert witness testify as to the result of a systolic blood pressure deception test taken by defendant. The court affirmed defendant's conviction. The court held that defendant failed to establish that the test was demonstrative and not merely experimental. The systolic blood pressure deception test had not gained the requisite standing and scientific recognition among psychological and physiological authorities at the time of trial to justify the introduction of expert testimony regarding the test.

Outcome
In affirming defendant's conviction, the court held that expert testimony regarding the systolic blood pressure deception test was properly excluded at trial as the test had not gained the required standing and scientific recognition from psychological and physiological authorities.

LexisNexis® Headnotes

Evidence > ... > Testimony > Expert Witnesses > General Overview

HN1[] **Testimony, Expert Witnesses**

The opinions of experts or skilled witnesses are admissible in evidence in those cases in which the matter of inquiry is such that inexperienced persons are unlikely to prove capable of forming a correct judgment upon it, for the reason that the subject-matter so far partakes of a science, art, or trade as to require a previous habit or experience or study in it, in order to acquire a knowledge of it. When the question involved does not lie within the range of common experience or common knowledge, but requires special experience or special knowledge, then the opinions of witnesses skilled in that particular science, art, or trade to which the question relates are admissible in evidence.

Civil Procedure > Discovery & Disclosure > General Overview

Evidence > Admissibility > Expert Witnesses

Evidence > ... > Testimony > Expert Witnesses > General Overview

HN2[] **Civil Procedure, Discovery & Disclosure**

While courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, 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.

Opinion by: VAN ORSDEL

Opinion

[*1013] Before SMYTH, Chief Justice, VAN ORSDEL, Associate Justice, and MARTIN, Presiding Judge of the United States Court of Customs Appeals.

VAN ORSDEL, Associate Justice. Appellant, defendant below, was convicted of the crime of murder in the second degree, and from the judgment prosecutes this appeal.

A single assignment of error is presented for our consideration. In the course of the trial counsel for defendant offered an expert witness to testify to the result of a deception test made upon defendant. The test is described as the systolic blood pressure deception test. It is asserted that blood pressure is influenced by change in the emotions of the witness, and that the systolic blood pressure rises are brought about by nervous impulses sent to the sympathetic branch of the autonomic nervous system. Scientific experiments, it is claimed, have demonstrated that fear, rage, and pain always produce a rise of systolic blood pressure, and that conscious deception or falsehood, concealment of facts, or guilt of crime, accompanied by fear of detection when the person is under examination, **[**2]** raises the systolic blood pressure in a curve, which corresponds exactly to the struggle going on in the subject's mind, between fear and attempted control of that fear, as the examination **[*1014]** touches the vital points in respect of which he is attempting to deceive the examiner.

In other words, the theory seems to be that truth is spontaneous, and comes without conscious effort, while the utterance of a falsehood requires a conscious effort, which is reflected in the blood pressure. The rise thus produced is easily detected and distinguished from the rise produced by mere fear of the examination itself. In the former instance, the pressure rises higher than in the latter, and is more pronounced as the examination proceeds, while in the latter case, if the subject is telling the truth, the pressure registers highest at the beginning of the examination, and gradually diminishes as the examination proceeds.

Prior to the trial defendant was subjected to this deception test, and counsel offered the scientist who conducted the test as an expert to testify to the results obtained. The offer was objected to by counsel for the government, and the court sustained the objection. **[**3]** Counsel for defendant then offered to have the proffered witness conduct a test in the presence of the jury. This also was denied.

Counsel for defendant, in their able presentation of the novel question involved, correctly state in their brief that no cases directly in point have been found. The broad ground, however, upon which they plant their case, is succinctly stated in their brief as follows:

"The rule is that *HN1*[↑] the opinions of experts or skilled witnesses are admissible in evidence in those cases in which the matter of inquiry is such that inexperienced persons are unlikely to prove capable of forming a correct judgment upon it, for the reason that the subject-matter so far partakes of a science, art, or trade as to require a previous habit or experience or study in it, in order to acquire a knowledge of it. When the question involved does not lie within the range of common experience or common knowledge, but requires special experience or special knowledge, then the opinions of witnesses skilled in that particular science, art, or trade to which the question relates are admissible in evidence."

Numerous cases are cited in support of this rule. Just when a scientific **[**4]** principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and *HN2*[↑] while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, 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.

We think the systolic blood pressure deception test has not yet gained such standing and scientific recognition among physiological and psychological authorities as would justify the courts in admitting expert testimony deduced from the discovery, development, and experiments thus far made.

The judgment is affirmed.

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Cornell v. 360 W. 51st St. Realty, LLC

Court of Appeals of New York

January 14, 2014, Argued; March 27, 2014, Decided

No. 16

Reporter
22 N.Y.3d 762 *; 9 N.E.3d 884 **; 986 N.Y.S.2d 389 ***; 2014 N.Y. LEXIS 576 ****; 2014 NY Slip Op 2096; 2014 WL 1237483

[1] Brenda Cornell, Respondent, v 360 West 51st Street Realty, LLC, et al., Defendants, and 360 West 51st Street Corp., Appellant.

Subsequent History: Reargument denied by *Brenda Cornell v 360 W. 51st St. Realty, LLC, 23 NY3d 996, 2014 N.Y. LEXIS 1377, 992 NYS2d 762, 16 NE3d 1240 (N.Y., June 12, 2014)*

Prior History: Appeal, by permission of the Appellate Division of the Supreme Court in the First Judicial Department, from an order of that Court, entered March 6, 2012. The Appellate Division modified, on the law, so much of an order of the Supreme Court, New York County (Marcy S. Friedman, J.; op *26 Misc 3d 1211[A], 906 NYS2d 778, 2009 NY Slip Op 52707[U] [2009]*), as had granted the motion of defendants 360 West 51st Street Corp. and Geoffrey Shotwell for summary judgment dismissing the complaint as against them. The modification consisted of reinstating the complaint as against defendant 360 West 51st Street Corp. The Appellate Division affirmed the order as modified. The following question was certified by the Appellate Division: "Was the order of this Court, which modified the order of the Supreme Court[,] properly made?"

Cornell v 360 W. 51st St. Realty, LLC, 95 AD3d 50, 939 NYS2d 434, 2012 N.Y. App. Div. LEXIS 1614 (N.Y. App. Div. 1st Dep't, 2012), reversed.

Disposition: **[****1]** Order reversed, with costs, defendant 360 West 51st Street Corp.'s motion for summary judgment dismissing the complaint against it granted, and certified question answered in the negative.

Core Terms

causation, exposure, dampness, indoor, landlord, symptoms, illness, disease, studies, allergies, apartment, differential, diagnosis, molds, scientific, injuries, causes, trial judge, respiratory, conditions, tests, reliable, plaintiffs', asthma, summary judgment, contaminated, epidemiological, methodology, microbial, measures

Case Summary

Overview
ISSUE: Whether the intermediate appellate court erred in reversing the trial court's grant of summary judgment to defendant dismissing plaintiff's claims alleging injuries caused by exposure to dampness and mold on defendant's premises. HOLDINGS: [1]-Defendant made a prima facie case that plaintiff could not prove general causation, and plaintiff did not present expert testimony sufficient to rebut this prima facie case; [2]-The intermediate appellate court improperly applied a modified version of the Frye test--whether the expert's opinions found "some support" in the data, studies, and literature--to deem admissible the testimony of plaintiff's expert regarding general causation; [3]-Further, plaintiff did not show the necessary specific causation, as her expert did not identify the specific disease-causing agent to which plaintiff was allegedly exposed.

Outcome
The judgment of the intermediate appellate court was reversed.

LexisNexis® Headnotes

Evidence > Admissibility > Expert Witnesses > Kelly Frye Standard

HN1[] Expert Witnesses, Kelly Frye Standard

Frye has a general requirement that the reliability of a new test, process, or theory must be generally accepted within the relevant scientific community.

Evidence > Admissibility > Expert Witnesses > Kelly Frye Standard

HN2[] Expert Witnesses, Kelly Frye Standard

While the Frye test turns on acceptance by the relevant scientific community, the Court of Appeals of New York has never insisted that the particular procedure be unanimously indorsed by scientists rather than generally acceptable as reliable.

Evidence > Admissibility > Expert Witnesses

Evidence > ... > Preliminary Questions > Admissibility of Evidence > General Overview

Evidence > Admissibility > Expert Witnesses > Kelly Frye Standard

HN3[] Admissibility, Expert Witnesses

Frye focuses on principles and methodology, but these are not entirely distinct from one another. Thus, even though the expert is using reliable principles and methods and is extrapolating from reliable data, a court may exclude the expert's opinion if there is simply too great an analytical gap between the data and the opinion proffered. The Court of Appeals of New York has sometimes expressed this precept in terms of the general foundation inquiry applicable to all evidence.

Environmental Law > Hazardous Wastes & Toxic Substances > Toxic Torts

Evidence > ... > Testimony > Expert Witnesses > General Overview

Torts > ... > Elements > Causation > Causation in Fact

HN4[] Hazardous Wastes & Toxic Substances, Toxic Torts

An opinion on causation should set forth a plaintiff's exposure to a toxin, that the toxin is capable of causing the particular illness (general causation) and that plaintiff was exposed to sufficient levels of the toxin to cause the illness (specific causation). Parker v. Mobil Oil Corp. explains that precise quantification or a dose-response relationship or an exact numerical value is not required to make a showing of specific causation. Parker by no means, though, has dispensed with a plaintiff's burden to establish sufficient exposure to a substance to cause the claimed adverse health effect. Actions in tort for damages focus on the question of whether to transfer money from one individual to another, and under common-law principles that transfer can take place only if one individual proves, among other things, that it is more likely than not that another individual has caused him or her harm. It is therefore not enough for a plaintiff to show that a certain agent sometimes causes the kind of harm that he or she is complaining of. At a minimum, there must be evidence from which the factfinder can conclude that the plaintiff was exposed to levels of that agent that are known to cause the kind of harm that the plaintiff claims to have suffered.

Evidence > Admissibility > Expert Witnesses

HN5[] Admissibility, Expert Witnesses

Where an expert employs differential diagnosis to rule out other potential causes for the injury at issue, he must also rule in the suspected cause, and do so using scientifically valid methodology.

Evidence > Admissibility > Expert Witnesses > Kelly Frye Standard

HN6[] Expert Witnesses, Kelly Frye Standard

A Frye ruling on lack of general causation hinges on the scientific literature in the record before the trial court in the particular case.

Headnotes/Syllabus

Headnotes

Evidence — Scientific Evidence — General Acceptance — Exposure to Mold as Cause of

Adverse Health Effects — General Causation

1. In a motion for summary judgment, plaintiff, who claimed personal injuries in the form of dizziness, disorientation, rashes, breathing problems, congestion, light-headedness, tightness in her chest and headaches caused by exposure to dampness and mold in an apartment formerly owned by defendant, failed to raise a triable issue of fact as to general causation since her expert did not establish that the relevant scientific community generally accepts that molds cause the adverse health effects she alleged. Under the test for scientific reliability, a process or theory must be generally accepted within the relevant scientific community. Defendant made a prima facie case that plaintiff could not prove general causation based upon its expert's opinion that it is generally accepted within the relevant scientific community that exposure to mold causes human disease in three specific ways, none of which was alleged by plaintiff. Plaintiff's expert, in turn, unsuccessfully attacked the qualifications of defendant's expert and failed to indicate that the authorities undergirding his opinion had been repudiated. In addition, plaintiff's evidence that public health agencies treat mold in indoor environments as a public health concern was irrelevant since standards promulgated by regulatory agencies as protective measures are inadequate to demonstrate legal causation. Moreover, the recent reports relied on by plaintiff's expert as establishing an association between a damp and moldy indoor environment and certain respiratory and skin conditions did not establish that the relevant scientific community generally accepts that molds cause these adverse health effects. By equating association with causation, plaintiff's expert departed from the generally accepted methodology for evaluating epidemiologic evidence when determining whether exposure to an agent causes a harmful effect or disease.

Torts — Toxic Torts — Exposure to Mold as Cause of Adverse Health Effect — Specific Causation — Differential Diagnosis

2. In a motion for summary judgment, plaintiff, who claimed personal injuries in the form of dizziness, disorientation, rashes, breathing problems, congestion, light-headedness, tightness in her chest and headaches caused by exposure to dampness and mold in an apartment formerly owned by defendant, failed to raise a triable issue of fact as to specific causation since her expert did not establish that mold in the apartment caused her injuries. A showing of specific causation should demonstrate that plaintiff was exposed to sufficient levels of a toxin to cause the particular illness and plaintiff bears the burden of establishing sufficient exposure. Here, plaintiff's expert, who described the substance as "an unusual mixture of atypical microbial contaminants," did not identify the specific disease-causing agent to which plaintiff was allegedly exposed. Nor did he quantify plaintiff's level of exposure to the substance or refute defendant's expert's statement that the measurement of molds in plaintiff's apartment were of expected level and distribution for any average home. Further, the record did not supply a proper foundation for plaintiff's expert's use of the generally accepted differential diagnosis methodology to establish specific causation. Notwithstanding that many of the medical conditions that plaintiff attributed to her mold exposure were common in the general population and could be ascribed to non-mold-related diseases, her expert did not explain what other possible causes he ruled in or out and why he did so. The expert did not dispute that plaintiff tested negative for mold allergies, but positive for other inhalation allergies or explain how any of the diagnostic findings were consistent with his conclusion that plaintiff's medical problems were mold-induced, based on differential diagnosis.

Counsel: *Bonner Kiernan Trebach & Crociata LLP*, New York City (*Mindy L. Jayne* and *Alan L. Korzen* of counsel), for appellant. I. Respondent failed to establish that her alleged injuries were proximately caused by any breach of duty by appellant. II. Respondent failed to prove that her expert's theory of general causation met the *Frye* test for admissibility. (*Marsh v Smyth, 12 AD3d 307, 785 NYS2d 440*; *Parker v Mobil Oil Corp., 7 NY3d 434, 857 NE2d 1114, 824 NYS2d 584*; *People v Wesley, 83 NY2d 417, 633 NE2d 451, 611 NYS2d 97*; *Rashid v Clinton Hill Apts. Owners Corp., 70 AD3d 1019, 895 NYS2d 524*; *Cabral v 570 W. Realty, LLC, 73 AD3d 674, 900 NYS2d 373*; *Martin v Chuck Hafner's Farmers' Mkt., Inc., 28 AD3d 1065, 814 NYS2d 442*; *Daitch v Naman, 25 AD3d 458, 807 NYS2d 95*; *B.T.N. v Auburn Enlarged City School Dist., 45 AD3d 1339, 845 NYS2d 614*.) III. Even assuming general causation was established, respondent failed to prove specific causation. (*Fraser v 301-52 Townhouse Corp., 57 AD3d 416, 870 NYS2d 266, 12 NY3d 847, 909 NE2d 84, 881 NYS2d 391*; *Parker v Mobil Oil Corp., 7 NY3d 434, 857 NE2d 1114, 824 NYS2d 584*; *Wright v Willamette Indus., Inc., 91 F3d 1105*; *Cabral v 570 W. Realty, LLC, 73 AD3d 674, 900 NYS2d 373*.) IV. Respondent's second through fifth causes of action were improperly reinstated against appellant. (*Barash v Pennsylvania Term. Real Estate Corp., 26 NY2d 77, 256 NE2d 707, 308 NYS2d 649*; *905 5th Assoc., Inc. v 907 Corp., 47*

AD3d 401, 851 NYS2d 393; *Bender v City of New York, 78 F3d 787*; *Howell v New York Post Co., 82 NY2d 690, 619 NE2d 650, 601 NYS2d 572*; *Graupner v Roth, 293 AD2d 408, 742 NYS2d 208*; *Mack v American Handling Equip., 69 AD2d 853, 415 NYS2d 463*; *Sawyer v New York Seven-Up Bottling Co., 63 AD2d 893, 405 NYS2d 726*; *Smith v Johnson Prods. Co., 95 AD2d 675, 463 NYS2d 464*; *Morales v Kiamesha Concord, 43 AD2d 944, 352 NYS2d 26*; *Prozeralik v Capital Cities Communications, 82 NY2d 466, 626 NE2d 34, 605 NYS2d 218*.)

Gallet Dreyer & Berkey, LLP, New York City (*Morrell I. Berkowitz* and *Joseph V. Aulicino* of counsel), for respondent. I. The Court below made plain the significance and applicability of an earlier decision and applied long-standing precedent to the overwhelming evidence of respondent's exposure to a dangerous "mixture" of contaminants which led to her physical condition. (*Parker v Mobil Oil Corp., 7 NY3d 434, 857 NE2d 1114, 824 NYS2d 584*; *Fraser v 301-52 Townhouse Corp., 57 AD3d 416, 870 NYS2d 266, 12 NY3d 847, 909 NE2d 84, 881 NYS2d 391*; *Rowan v Brady, 98 AD2d 638, 469 NYS2d 711*; *Patrolmen's Benevolent Assn. of City of N.Y. v City of New York, 27 NY2d 410, 267 NE2d 259, 318 NYS2d 477*; *Triangle Fire Protection Corp. v Manufacturers Hanover Trust Co., 172 AD2d 658, 570 NYS2d 960*; *Rashid v Clinton Hill Apts. Owners Corp., 70 AD3d 1019, 895 NYS2d 524*; *Lopez v Gem Gravure Co., Inc., 50 AD3d 1102, 858 NYS2d 226*; *Barbuto v Winthrop Univ. Hosp., 305 AD2d 623, 760 NYS2d 199*; *Cabral v 570 W. Realty, LLC, 73 AD3d 674, 900 NYS2d 373*; *Kurtz v Chicorp Fin. Servs., 286 AD2d 753, 731 NYS2d 187*.) II. Appellant had long-time knowledge of dangerous conditions in the building warranting the claims against it.

Schechter & Brucker, P.C., New York City (*Thomas V. Juneau, Jr.*, of counsel), for Council of New York Cooperatives & Condominiums, amicus curiae. I. The Appellate Division majority did not properly apply the *Frye* standard. (*Clemente v Blumenberg, 183 Misc 2d 923, 705 NYS2d 792*; *Styles v General Motors Corp., 20 AD3d 338, 799 NYS2d 38*; *Matter of Seventh Jud. Dist. Asbestos Litig., 9 Misc 3d 306, 797 NYS2d 743*; *People v Wesley, 83 NY2d 417, 633 NE2d 451, 611 NYS2d 97*; *Heckstall v Pincus, 19 AD3d 203, 797 NYS2d 445*; *Marsh v Smyth, 12 AD3d 307, 785 NYS2d 440*; *Lara v New York City Health & Hosps. Corp., 305 AD2d 106, 757 NYS2d 740*; *Selig v Pfizer, Inc., 290 AD2d 319, 735 NYS2d 549, 98 NY2d 603, 772 NE2d 605, 745 NYS2d 502*; *Lewin v County of Suffolk, 18 AD3d 621, 795 NYS2d 659*; *Saulpaugh v Krafte, 5 AD3d 934, 774 NYS2d 194*.) II. The Appellate Division majority departed from this Court's ruling in *Parker v Mobil Oil Corp. (7 NY3d 434, 857 NE2d 1114, 824 NYS2d 584)*. (*Cleghorne v City of New York, 99 AD3d 443, 952 NYS2d 114*; *Todman v Yoshida, 63 AD3d 606, 881 NYS2d 422*; *Cubas v Clifton & Classon Apt. Corp., 82 AD3d 695, 917 NYS2d 320*; *Hellert v Town of Hamburg, 50 AD3d 1481, 857 NYS2d 825*; *Rivera v Crotona Park E. Bristow Elsmere, 107 AD3d 550, 968 NYS2d 48*.)

Judges: READ, J. Opinion by Judge Read. Judges Graffeo, Smith and Rivera concur. Judge Pigott dissents and votes to affirm in an opinion in which Chief Judge Lippman concurs. Judge Abdus-Salaam took no part.

Opinion by: READ

Opinion

[*391] [*765] [**886]** Read, J.

For the reasons that follow, we conclude that plaintiff Brenda Cornell (Cornell) did not raise a triable issue of fact to rebut the prima facie showing made by defendant 360 West 51st Street Corp. (51st Street Corporation or the corporation) that her claimed personal injuries were not caused by indoor exposure to dampness and mold. Accordingly, Supreme Court properly granted the corporation's cross motion for summary judgment to dismiss Cornell's complaint in its entirety.

I

The Complaint **[2]**

With the exception of a nearly two-year gap, Cornell resided in a first-floor apartment in the building at 360 West 51st Street in Manhattan from September 1997 until she vacated **[****2]** the premises on or about October 7, 2003. The corporation owned the building during Cornell's occupancy until September 5, 2003, when 360 West 51st Street Realty, LLC (the landlord) acquired the property by bargain and sale deed and took possession.

[*766] By summons with notice dated September 10 and a complaint dated November 16, 2004, Cornell brought a personal injury action against 51st Street Corporation, the landlord and other parties associated

with the management of the building. In her complaint and amended complaint dated October 2, 2007, Cornell alleged that throughout her occupancy the building's "basement . . . was in a wet, damp, musty condition"; that the radiator in her apartment's living room "leaked on numerous **[**887] [***392]** occasions" and "continued to leak and also released steam into the Apartment" despite 51st Street Corporation's "attempt[s]" at repair; that in July 2003 she first noticed and notified 51st Street Corporation that "there was mold growing in the [apartment's] bathroom," but the corporation "ignored" this condition; and that beginning in the first week of October 2003, the landlord and/or its contractor performed "demolition and/or construction [work] in the basement of the **[****3]** Building . . . , permitting noxious dust, dirt, mold and debris to be released," which infiltrated her first-floor apartment.[1]

Cornell claimed that "[i]mmediately after" the landlord and/or its contractor performed the work in the basement,

> "she became dizzy, disoriented, covered with rashes, unable to breathe, light-headed, congested, experienced tightness in her chest, had severe headaches, had shortness of breath, had a metallic taste in her mouth, and experienced other physical symptoms."[2]

[3] Consequently, on or about October **[****4]** 3, 2003 she notified the landlord that these symptoms prevented her from remaining in her apartment; that beginning on October 7, 2003, she was "unable to sleep in, occupy, or use [her apartment] or engage in any of her usual duties and activities and sustained a loss of **[*767]** quality and enjoyment of life"; that although she had previously been blessed with "excellent health," she was "sick, sore, lame, and disabled" after October 3, 2003;[3] and that on or about April 30, 2004, she surrendered possession of her apartment and the lease, and was "forced to discard virtually all of her personal property because it was contaminated by mold and other harmful substances."

Based on these allegations, Cornell pleaded causes of action for personal injuries and property damage, constructive eviction, attorneys' fees, breach of the covenant **[**888] [***393]** of quiet enjoyment and intentional infliction of emotional distress. She sought $11.8 million in damages, primarily for **[****6]** her alleged health problems, and another $10 million in punitive damages. The landlord and 51st Street Corporation subsequently initiated a third-party action against the contractor who performed the construction and demolition work in the building's basement in the fall of 2003.

II

Summary Judgment

[4] The Landlord's Motion and 51st Street Corporation's Cross Motion

On January 14, 2008, the landlord moved for summary judgment and partial summary judgment to dismiss all Cornell's claims and, importantly for this appeal, specifically sought to dismiss the complaint to the extent

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[1] According to the landlord, in mid-September 2003, signs were posted in the building's lobby to notify residents that a cleanup project would be undertaken in the basement, beginning October 1st; that this project entailed the removal of materials left behind or discarded by the prior owner or tenants, and repainting the area; that the project was completed on October 5, 2003; and that the contractor promptly hauled away all debris. Cornell's experts theorized that the contractor disturbed years of accumulated mold spores and dust when performing this cleanup, and that these materials entered Cornell's apartment through cracks in the floor and a dumbwaiter shaft.

[2] In her verified bill of particulars, Cornell listed as her injuries "[e]nvironmental asthma, allergies and reflux; cognitive and memory issues; fatigue; lack of stamina; sinus and breathing problems; headaches and rashes; seizures." She further stated that she first experienced symptoms in July 2003, but only when in the bathroom; however, as of October 1, 2003, all the listed injuries became permanent, with the possible exception of the seizures.

[3] In her verified bill of particulars, Cornell alleged that as of September 30, 2003, **[****5]** she "was in excellent health and was an athlete, biking 150-200 miles per week," and "[u]ntil August 2003, [she] was employed in a responsible, demanding position in [an] IT department . . . and maintained a part-time business producing music and as a DJ." But since October 1, 2003, Cornell averred, she had been

> "unable to engage in any physical activity; [experiences] difficulty walking any distance, climbing stairs, carrying a bag, breathing, thinking, remembering; suffered a herniated disk in [the] neck, injuries to both elbows [and] exacerbated an existing right shoulder injury; suffered a new right hamstring injury; is required to eat an extremely limited diet and [is] unable to eat foods she previously enjoyed; [is] unable to engage in sexual activity; suffers from extreme fatigue; [and is] unable to work as a DJ or produce music or engage in any work other than low-level, low paid, rote work."

that Cornell alleged mold-induced personal injuries, arguing that she was unable to prove either that mold can cause the type of injuries that she alleged (general causation), or that mold in her apartment caused the **[*768]** specific injuries that she asserted (specific causation). The landlord also sought to preclude Cornell's experts from testifying on causation, or, alternatively, requested a *Frye* hearing on whether her theory of causation enjoyed general scientific acceptance. In support of these aspects of its motion, the landlord, in addition to numerous exhibits, submitted the affidavit of Dr. S. Michael Phillips.

On **[****7]** January 25, 2008, 51st Street Corporation cross-moved for summary judgment to dismiss Cornell's claims. The corporation incorporated by reference and adopted the "factual and legal arguments, references, attachments and exhibits" submitted by the landlord to support its motion, the landlord's memorandum of law and Dr. Phillips's affidavit.

Dr. Phillips, a clinical immunologist with over 30 years of clinical and basic science experience in the fields of internal medicine, allergy and immunology, is also a Senior Scholar in Clinical Epidemiology at the University of Pennsylvania. He assessed Cornell's claim that "a significant portion of her physical and psychological problems is related to adverse reactions stemming from exposures to molds," and, after review of her medical records and the relevant science, opined with reasonable medical certainty that there was "no relationship between the medical problems experienced by Ms. Cornell and exposures to molds."

With respect to general causation, Dr. Phillips principally relied on the position paper of the American Academy of Allergy, Asthma and Immunology (AAAAI) (*see* Robert K. Bush et al., *The Medical Effects of Mold Exposure*, 117 J Allergy & Clinical Immunology **[****8]** [No. 2] at 326 [2006]). The authors of this paper concluded that "[e]xposure to molds can cause human disease through several well-defined mechanisms" (*id.* at 326), including an immune response in allergic individuals (hypersensitivity pneumonitis), direct infection by an organism and ingestion of mycotoxins in large doses from spoiled or contaminated food. The authors added that

> "[f]or each of these [three] defined pathophysiologic mechanisms, there are scientifically documented mold-related human diseases that present with objective clinical evidence of disease. Recently, in contrast to these well-accepted mold-related diseases, a number of new mold-related illnesses have been hypothesized. This has become a particular issue in litigation that has arisen out of unproved assertions **[*769]** that exposure to indoor molds causes avariety of ill-defined illnesses. Many of these illnesses are characterized by the absence of objective evidence of disease and the lack **[**889]** **[***394]** of a defined pathology and are typically without specificity **[5]** for the involved fungus-fungal product purported to cause the illness" (*id.* at 326).

Calling the AAAAI report "the current 'state of the art' and widely accepted as authoritative," Dr. **[****9]** Phillips added that "[l]ess [than] 1% of the [Academy's] members . . . questioned the report," and, in any event, "the criticisms did not in any way support the majority of [Cornell's] contentions." He then made the following points to show that, even *assuming* general causation, Cornell could not demonstrate specific causation; to wit,

1. Although Cornell alleged mold exposure, nothing in the record "substantiate[s] that there were elevated levels of molds in the [apartment] on several occasions." In fact, "[m]olds are ubiquitous." And although there are no "safe" or "toxic" limits for mold, the levels measured in Cornell's former apartment were "of expected level and distribution for any average home" when compared to sampling studies.

2. Many of Cornell's complained-of medical problems are common in the human population, regardless of indoor exposure to molds (e.g., headache, fatigue, cough, itchy eyes, rashes, stuffy noses); conversely, molds have never been shown to cause other physical and psychological problems that Cornell ascribes to indoor mold exposure (e.g., cognitive problems, seizures, depression).

3. Cornell claimed to have been exposed to toxic molds and mycotoxins, **[****10]** but it is generally accepted in the scientific community that mycotoxins cause disease through ingestion of contaminated food, and not through inhalation.

4. Many of Cornell's complained-of medical problems (e.g., allergies, asthma, sinusitis headache, muscle and joint pain, etc.) date back to her teenage years, long before the alleged mold exposure.

5. If mold caused Cornell's complained-of medical problems, her symptoms should have abated when she left the apartment. She states, however, that her

physical status has not improved, and some of her medical records support this.

6. It is "clearly . . . not true" that there is no other logical explanation for Cornell's symptoms as many of them "can be ascribed to other diseases such as other allergies, vasomotor **[*770]** rhinitis, multiple chemical sensitivities, irritable bowel syndrome, GERD [gastroesophogeal reflux disease], depression, anxiety, the use of drugs such as steroids and narcotics, multiple orthopedic issues, trauma, and **[6]** psychosocial interactions."

7. Physical findings and laboratory data did not substantiate mold-related illness; specifically, there was no evidence of mold-induced disease on physical examination or by X rays of her **[****11]** chest and sinuses, Cornell has no mold allergies established by skin testing criteria (although skin tests revealed allergies to inhalants other than molds), and other tests showed no hypersensitivities to mold or significant response to toxic molds.

Cornell's Motion

Cornell submitted papers on April 24, 2008, in opposition to the landlord's motion and the corporation's cross motion, and also moved for summary judgment. Cornell mainly relied on the affidavit of Dr. Eckardt Johanning to counter the claim that she could not prove general or specific causation. Dr. Johanning, a doctor of environmental and occupational medicine who specializes in mold-related illness, made the following points in his affidavit:

1. He repeatedly faulted the landlord's conclusions on the ground they were based on the opinions of Dr. Phillips, a doctor **[**890]** **[***395]** with "no formal training or professional experience in the pertinent field," and "out of date" or "discredited" publications, whereas he had examined Cornell many times since he was "brought into consult at a very early stage at the onset of her condition, which was undeniably caused by exposure to *an unusual mixture of atypical microbial contaminants*" (emphasis **[****12]** added).

2. He criticized as "notably absent" any reference to Civil Court's conclusion, after a full trial at which he testified, that Cornell had "shown by a preponderance of the credible evidence that a combination of metallic dust and fungi existed in her apartment,[which] affected her health."[4]

[*771] **[7]** 3. He stated that "[c]ertain 'quantifications' for determining the adverse health consequences [of] dangerous unsanitary conditions may be misleading," and Cornell was "unquestionably exposed to unsanitary conditions."

4. He averred that it was his "position that the generally accepted and peer-reviewed literature supports the fact that exposure to damp buildings with excessive and atypical microbial (mold) contamination is recognized as a cause of respiratory health complaints and conditions such as asthma, rhino-sinusitis, bronchitis, allergy, infections and irritant-type reactions of the skin and mucous membranes," and attributed "discussion and lack of knowledge about the exact patho-physiological and biochemical mechanisms in humans and specific properties of microbial (i.e., mold) agents" to "limited environmental testing reports."

5. By way of example, he cited a report from 2003, **[****13]** which states that various mold by-products "*may* all have adverse effects to human[s]"; a report from 2001, stating that the *risk* of current asthma, allergenic rhinitis, atopic dermatitis and, especially, the common cold, was higher in damp homes; a report from 2004 that "there is *sufficient evidence of associations* of building dampness and presence of mold in damp indoor environments with nasal and throat symptoms, wheeze, cough, and asthma symptoms in sensitized people[, and] *suggestive evidence of associations* with shortness of breath and development of asthma"; and a 2006 study stating that microbial agents in floor dust may be a good surrogate measure for dampness-related bioaerosol exposure (emphases added).

6. He asserted that two recent studies "should put to

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[4] After Cornell left the apartment in early October 2003, she stopped paying rent. She and the landlord were unable to work out a mutually agreeable accommodation, and the landlord eventually initiated a summary nonpayment proceeding in Civil Court, seeking the unpaid rent. Cornell's answer raised the affirmative defenses of constructive eviction and violation of the warranty of habitability, and she counterclaimed on those grounds in the amount of $25,000. On August 16, 2005, after a several-months-long trial, the Civil Court judge found in Cornell's favor and awarded her judgment in the amount of $17,050. The Appellate Term affirmed (*see* *360 W. 51st St. Realty, LLC v Cornell, 14 Misc 3d 90, 831 NYS2d 634 [App Term, 1st Dept 2007], lv denied* 2007 NY Slip Op 71525[U] [1st Dept 2007]). The corporation did not participate in this hearing.

rest any doubt as to the sound medical bases" for Cornell's claims. First, he cited *Excess Dampness and Mold Growth in Homes: An Evidence-Based Review of the Aeroirritant Effect and its Potential Causes* (Andrew P. Hope, M.D., et al., 28 Allergy & Asthma Proc [No. 3] at 262 [May-June 2007]), which states that "epidemiological studies *support the link* between a damp indoor environment and mold growth with upper airway irritant symptoms. **[8]** MVOCs [microbial **[**891]** **[****14]** **[***396]** volatile organic compounds][5] are **[*772]** produced by indoor fungus, and based on available data, are the most likely candidate compounds as the cause of this aeroirritant effect" (*id.* at 269 [emphasis added]). The second study, *Hydrophilic Fungi and Ergosterol Associated with Respiratory Illness in a Water-Damaged Building* (Ju-Hyeong Park et al., 116 Envtl Health Persp [No. 1] at 45 [Jan. 2008]), states that "mold levels in dust were *associated with* new-onset asthma in this damp indoor environment. Hydrophilic fungi and ergosterol as measures of fungal biomass may have promise as markers of *risk of building-related respiratory diseases* in damp indoor environments" (*id.* [emphases added]).

7. Governmental reports, guidelines and public health initiatives "consistently stat[e] . . . that moisture/dampness, and mold exposure in indoor environments, are *a public health concern*, and advise precautions regarding exposure and handling of such contaminated building material because of the *various possible* adverse health effects" (emphases added).

8. He is "convinced to a degree of medical certainty that [his] repeated medical evaluations and tests, as well as the analysis and review of the science, are in agreement with the published peer-reviewed **[****15]** literature of independent scientists and clinicians."

9. He employs differential diagnosis "to assess the health effects of building dampness and mold exposure," and his use of this methodology has been "validated and affirmed" by a number of courts. In this case, he conducted many different diagnostic tests, including a number of costly general and case-specific laboratory tests.

10. The AAAAI report particularly relied on by Dr. Phillips and another paper cited by the landlord should be "rejected" because their authors included doctors who had testified as defense experts in mold cases.

11. One of the members of the committee that compiled and authored a report cited by the landlord subsequently filed an affidavit on behalf of the plaintiffs in **[9]** the *Fraser* litigation (discussed later) in which she stated that "the products of damp buildings are strongly associated with and are a cause of respiratory symptoms and illness," and also noted that worker protections are widely required for cleanup of mold-contaminated environments.

12. "[S]tudies have now shown that the clear effects on people's health from exposure to dampness and other unsanitary and unhealthy indoor conditions makes **[****16]** the significance of **[*773]** precise quantifiable measures irrelevant"; and "[i]t is now generally accepted . . . that the best policy is to clean and [remedy] indoor dampness and mold situations, and protect the involved building occupants and workers."

13. "A number of recent studies and publications entirely refute the underpinnings upon which [the landlord] rel[ied]," including a 2005 study, which states that "[t]here is abundant documentation of the *association between* building dampness and mold and adverse health effects on occupants, but the [virtual] causal agents of the effects are still unclear"; a 2005 study, which states that it "contributes to the growing literature that water-damaged built [sic] environments can be *associated with* work-related regulatory disease"; and a 2006 report, which examined evidence of fungal-related illnesses and the **[**892]** **[***397]** unique aspects of mold exposure to children, and states that "*[c]ause-and-effect relationships between fungal exposure and allergic disease, asthma, and hypersensitivity pneumonitis* are consistently supported by epidemiologic studies" and "[i]ndoor dampness, by itself seems to be *associated with* increase[d] respiratory illness and symptoms" **[****17]** (emphases added).

14. Based on his differential diagnosis, he concluded that Cornell suffers from "bronchial-asthma, rhino-sinusitis, hypersensitivity reactions, and irritation reactions of the skin and mucous membranes, requiring medical care and intervention"[6] and "within a reasonable degree of medical certainty, the acute illnesses and serious complications that [Cornell] experienced in the summer of 2004, and thereafter, [were] caused by her preventable exposure to the unsanitary, unhygienic conditions which existed in her

[5] MVOCs are gases produced by molds, and are responsible for the earthy, musty odor associated with mold growth.

[6] This list of adverse health effects is considerably scaled back from the allegations in the complaint and the bill of particulars, which Dr. Phillips addressed in his affidavit.

apartment." **[****18]**

[10] III

Supreme Court's Decision

The landlord and 51st Street Corporation argued that they had made a prima facie showing of entitlement to judgment as a matter of law by demonstrating that Cornell was unable to prove either that mold can cause the types of injuries that she alleged (general causation), or that mold in her former apartment caused her injuries (specific causation); and that, in response, Cornell had not come forward with proof sufficient to **[*774]** raise a triable issue of fact on general or specific causation. Supreme Court agreed, and by decision and order dated December 18, 2009, granted the landlord summary judgment to dismiss the causes of action in the complaint with exceptions not relevant to this appeal; dismissed the complaint against 51st Street Corporation in its entirety; and **[****19]** denied Cornell's motion to the extent she sought judgment on the merits of her personal injury claim *(26 Misc 3d 1211[A], 906 NYS2d 778, 906 NYS2d 778, 2009 NY Slip Op 52707[U] [Sup Ct, NY County 2009])*.

The Fraser Litigation

Both the landlord and the corporation relied heavily on the *Fraser* litigation in their motion papers, and in reaching its decision, Supreme Court evaluated their motions from the standpoint of *Fraser*. In that case, a married couple brought suit on behalf of themselves and their infant daughter against the owners of the cooperative apartment building where they formerly resided, alleging adverse health effects caused by exposure to damp and moldy conditions.[7]

The defendants successfully sought a *Frye* hearing to determine whether the plaintiffs' theory of general causation and the methodology they followed to measure the mold were generally accepted in the relevant scientific community. Dr. Johanning was the plaintiffs' key expert witness, and Dr. Phillips testified for the defendants.

After a 10-day hearing, encompassing more than 1,000 pages of testimony and the introduction of more than 70 scientific articles and books, the trial judge concluded that the *Fraser* plaintiffs did not carry **[**893]** **[***398]** their burden under *Frye* to show that "the community of allergists, immunologists, occupational and environmental health physicians and scientists accept their theory—that mold and/or damp indoor environments cause illness" (*Fraser v 301-52 Townhouse Corp., 13 Misc 3d 1217[A], 831 NYS2d 347, 2006 NY Slip Op 51855[U] [Sup Ct, NY County 2006]*). Further, **[*775]** she opined, even if the plaintiffs had been able to demonstrate general causation, they had not **[11]** established specific causation.[8] Accordingly, the judge precluded the plaintiffs from introducing testimony that mold caused their health complaints, and dismissed their personal injury causes of action with prejudice, while severing other causes of action for further proceedings.

The plaintiffs moved to renew and reargue. In response, the trial judge emphasized that

> "the *Frye* hearing only addressed causation of alleged physical injuries. The Decision made no determination regarding whether landlords are required to abate mold conditions in their properties, whether **[****22]** real property with a mold condition is habitable, or whether there is a public health risk where indoor mold is present. The issue in the *Frye* hearing was limited to whether the scientific community accepted plaintiffs' theory of *causation*, which is different from *risk* or *association*" *(Fraser v 301-52 Townhouse Corp.,*

[7] According to the trial judge in *Fraser*, the plaintiffs' mold-related health claims changed considerably over time. At first, they asserted cognitive deficits, infertility, asthma, headaches, cough, sore throat, **[****20]** fatigue, psychological injuries, itchy and swollen eyes, nasal congestion, asthmatic symptoms, upper respiratory infections and frequent cough and rashes. Eventually, their alleged health complaints boiled down to respiratory problems, rash and fatigue.

[8] In particular, the trial **[****21]** judge noted that the plaintiffs' apartment was never tested for the specific mold microbial by-products that their main expert, Dr. Johanning, testified were an irritant when released into ambient air. Further, evidence demonstrated that

> "there are no standards for what amount of mold [is] excessive in terms of human health and the indoor environment; there are no generally accepted standards for measuring indoor airborne mold [or] for the acceptable amount of mold in indoor air; there are many types of mold, each [with] different or no health effects; there are no standard scientific definitions for 'dampness' or 'moisture'; skin prick tests for allergy, which were not done [in *Fraser*], were deemed the most reliable way to test for allergy by the literature [and by the plaintiffs' and the defendants' experts]; and the [allergy-related] test performed on [the parents] . . . did not show allergy to mold." (*Id.*)

2007 NY Misc LEXIS 9123, 2007 NY Slip Op 32086[U] [Sup Ct, NY County 2007]).

The plaintiffs again advocated that the scientific community generally accepts a cause-and-effect relationship between exposure to damp and moldy indoor spaces and the development of upper respiratory and allergic-type reactions because studies evidence an association between this exposure and such symptoms. Noting that even Dr. Johanning conceded, upon her questioning, that causation and association are not synonymous, the trial judge granted reargument and adhered to her **[*776]** original determination that the plaintiffs' theory of **[12]** causation was not generally accepted in the scientific community.[9]

Additionally, the trial judge granted renewal on the basis **[****23]** of our intervening decision in *Parker v Mobil Oil Corp. (7 NY3d 434, 857 NE2d 1114, 824 NYS2d 584 [2006])*, where we "clarified rules for the foundation necessary to admit expert evidence, which are unrelated to the *Frye* standard." (*2007 NY Slip Op 32086[U], *12*.) The plaintiffs attempted to prove specific causation through Dr. Johanning's use of differential diagnosis to conclude that the "plaintiffs' symptoms must have been caused by airborne mold and mold by-products." (*Id. at *13*.) The judge **[**894] [***399]** noted, however, that Dr. Johanning reached this conclusion "without underlying proof of causation or strong association, without proof of mold allergies,[10] without reliable standards for measurement of airborne exposure, and without measurements of mold by-products." (*Id.*) Upon renewal, the judge therefore held that the defendants were entitled to summary judgment dismissing the plaintiffs' personal injury claims "for the *additional* reason that their expert's opinion lack[ed] sufficient foundation to prove specific causation" (*id. at *4* [emphasis added]).

On appeal, the Appellate **[****24]** Division affirmed, with two Justices dissenting *(Fraser v 301-52 Townhouse Corp., 57 AD3d 416, 870 NYS2d 266 [1st Dept 2008], appeal dismissed 12 NY3d 847, 909 NE2d 84, 881 NYS2d 391 [2009])*. The court observed that

> "[w]hile there is general agreement that indoor dampness and mold are associated with upper respiratory complaints, defendants' experts took the position, consistent with the literature they submitted, that the observed association between such conditions and such ailments is not strong enough to constitute evidence of a causal relationship. In other words, *association is not equivalent to causation*. In this regard, even [Dr. Johanning] testified that association is not the same concept as causation. Given that plaintiff[s] failed to demonstrate general acceptance of the notion that a causal **[*777]** relationship has been demonstrated between the conditions and ailments in question, Dr. Johanning's claim to have established causation . . . by means of differential diagnosis is unavailing" (*id. at 417-418* [internal quotations marks and citations omitted]).

Citing *Parker*, the Appellate Division pointed out that preclusion was called for **[13]** whether the plaintiffs' theory of general causation was scrutinized under *Frye* or foundational **[****25]** principles applicable to the admissibility of all evidence. In that vein, the court "stress[ed]" that its ruling was based on the "scientific literature placed before [it] *in the present record*," and did not "set forth any general rule that dampness and mold can never be considered the cause of a disease, only that such causation [had] not been demonstrated by the evidence presented by" the Frasers (*id. at 418* [emphasis added]). Again citing *Parker*, the Appellate Division added that, even assuming general causation, the plaintiffs could not prevail on their personal injury claims because their experts did not specify the threshold level of exposure to dampness or mold required to produce the injuries alleged, or offer a reliable measurement of the level of mold in their former apartment (*id. at 419-420*).

The dissenters' position is perhaps best summed up in their statement that

> "[the Frasers] claim, and the literature confirms, that more than an outlying segment of the scientific community has concluded that there is evidence that building dampness and mold have *the potential* to cause allergic and irritative reaction in sensitized people. [They] simply seek an opportunity to prove to **[****26]** a jury that the dampness and mold in their apartment caused their symptoms" (*id. at 432-433*).

Further, the dissenters considered the differential

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[9] Upon reargument, the trial judge made a minor modification as to the reasoning in her original decision, which is not relevant for present purposes.

[10] The Frasers apparently tested negative for mold allergies. The trial judge remarked that there was evidence that Ms. Fraser was allergic to dust mites and cats, and that the family lived with several pet cats.

diagnosis performed by Dr. Johanning **[**895] [***400]** to be "scientifically valid" (*id. at 435*).

Supreme Court's Reasoning

The trial judge used the *Fraser* litigation as a frame of reference for analysis since, as in this case, *Fraser* involved allegations that respiratory symptoms and rashes were caused by indoor exposure to mold and dampness; Dr. Johanning was the main plaintiff's expert in both cases; and his opinion was essentially the same—i.e., in *Fraser*, that the plaintiffs' illnesses **[*778]** were caused by exposure to "excessive and atypical microbiological contamination"; and here, that Cornell's virtually identical claimed illnesses were attributable to "an unusual mixture of atypical microbial contaminants." (*26 Misc 3d 1211[A], 906 NYS2d 778, 2009 NY Slip Op 52707[U], *2.*) Accordingly, the judge reviewed whether, or to what extent, Dr. Johanning had updated the epidemiological evidence that he reviewed when formulating his opinion on general causation in *Fraser*.

The trial judge related that Dr. Johanning cited only two additional studies, both postdating the record in *Fraser*, but that these studies "[did] not reflect a **[****27]** material change in scientific opinion on the issue of general causation." (*Id. at *3.*) Consequently, since the Appellate Division in *Fraser* "found that the epidemiological evidence on which Dr. Johanning relied was not sufficiently strong to permit a finding of general causation, and as the limited supplemental studies that [were] submitted in this action plainly [did] not remedy [this] insufficiency," the judge considered herself "constrained to hold that [Cornell was] unable to prove general **[14]** causation." (*Id. at *6.*)

The trial judge also concluded that Cornell, like the plaintiffs in *Fraser*, could not prove specific causation because she did not identify the specific type of molds or toxins that allegedly adversely affected her, and did not quantify her exposure. Further, she noted that in *Fraser* the Appellate Division rejected Dr. Johanning's use of differential diagnosis as a substitute for quantitative proof.

While acknowledging that the *Fraser* decision by no means foreclosed a future determination that dampness and mold cause disease, the trial judge decided that *Fraser* nonetheless mandated dismissal of Cornell's personal injury claims because

> "[t]he circumstances in *Fraser*—plaintiffs claiming upper respiratory **[****28]** symptoms, asthmatic symptoms, and allergic reactions, based on an undifferentiated mixture of microbial contaminants—are substantially the same as the circumstances in [this] case. The scientific theory advanced in *Fraser* is the same theory advanced here, by the same witness, Dr. Johanning, on the basis of largely the same scientific evidence." (*Id. at* *7.)

For these reasons, Supreme Court dismissed all of Cornell's causes of action except those for property damage and breach of the covenant of quiet enjoyment as against the landlord and the **[*779]** contractor. Soon after this ruling, Cornell settled her lawsuit against these parties; she appealed the judge's decision in favor of 51st Street Corporation.

IV

The Appellate Division's Decision

On March 6, 2012, the Appellate Division, with one Justice dissenting, reversed the motion court's order and reinstated the complaint as against 51st Street Corporation *(95 AD3d 50, 939 NYS2d 434 [1st Dept 2012])*. The court faulted the lower court for improperly interpreting *Fraser* "as setting forth a categorical rule requiring dismissal of [Cornell's] toxic mold **[**896] [***401]** claim due to failure [to] meet the standard of scientific reliability set forth in" *Frye* (*id. at 52*). Emphasizing that *Fraser* **[****29]** had simply found that the plaintiffs in that particular case had failed to raise any triable issues of fact, the Appellate Division concluded that here, Supreme Court "erred in finding that [Cornell's] proof was not strong enough to constitute a causal relationship, or that the methodologies used to evaluate her condition failed to meet the *Frye* standard" (*id.* [internal quotation marks omitted]).

The Appellate Division then held that "[s]ince [Cornell's] expert's opinions relating [Cornell's] condition to the mold infestation find '*some support* in existing data, studies [and] literature,' . . . the *Frye* standard is satisfied" (*id. at 53* [emphasis added and citations omitted]). The court reviewed three of the submissions relied upon by Dr. Johanning (one of the studies included in the *Fraser* record, and the two "supplemental" studies), then opined that "[t]he **[15]** scientific evidence shows that exposure to molds, particularly the types of molds whose presence in plaintiff's apartment was confirmed by sampling . . . can cause the types of ill effects experienced by [Cornell]" (*id. at 58*). The court further held that neither *Fraser* nor any other case had rejected differential diagnosis **[****30]** as a means of determining the source of a

patient's illness so long as the accused agent was capable of causing the alleged injuries.

The Appellate Division also faulted the trial judge for ruling that differential diagnosis, as undertaken by Dr. Johanning in this case, was insufficient to establish specific causation. The court's decision in this regard seems to reflect the view that because "[i]t is undisputed that exposure to toxic molds is capable of causing the types of ailments from which [Cornell] suffers," *Parker* teaches that threshold and actual exposure levels are not required to perform differential diagnosis (*id. at 60*).

[*780] The dissenting Justice criticized the majority for disregarding ***HN1***[↑] *Frye*'s requirement that "the reliability of a new test, process, or theory [must] be 'generally accepted' within the relevant scientific community" (*id. at 63* [Catterson, J., dissenting]). He concluded that while Dr. Johanning may have demonstrated that there was scientific evidence that mold caused Cornell's injuries, his affidavit fell short of establishing *Frye*'s "essential requirement"—i.e., general acceptance of his theory within the relevant scientific community (*id.*). And like Supreme **[****31]** Court, he was of the view that the two "supplemental" studies did not bear out general acceptance of a causal connection between mold exposure and Cornell's professed injuries (*id. at 63-64*).

On October 2, 2012, the Appellate Division granted 51st Street Corporation leave to appeal and certified the following question to us: "Was the order of [the Appellate Division], which modified the order of the Supreme Court[,] properly made?"

V

Discussion

In *Frye v United States (293 F 1013, 1014 [DC Cir 1923])*, the court rejected the testimony of a defense expert regarding the results of a "systolic blood pressure deception test"—an early type of polygraph test—because it had not yet "gained such standing and scientific recognition among physiological and psychological authorities as would justify the courts in admitting expert testimony deduced from the discovery, development, and experiments thus far made." ***HN2***[↑] While the *Frye* **[**897]** **[***402]** test turns on acceptance by the relevant scientific community, we have never insisted that the particular procedure be " 'unanimously indorsed' " by scientists rather than " 'generally acceptable as reliable' " (*see People v Wesley, 83 NY2d 417, 423, 633 NE2d 451, 611 NYS2d 97 [1994]*, quoting *People v Middleton, 54 NY2d 42, 49, 429 NE2d 100, 444 NYS2d 581 [1981]*).[11] **[16]**

HN3[↑] *Frye* focuses on principles and methodology, but these are "not entirely distinct from one another" (*see General Electric* ***[*781]*** *Co. v Joiner, 522 US 136, 146, 118 S Ct 512, 139 L Ed 2d 508 [1997]*). Thus, even though the expert is using reliable principles and methods and is extrapolating from reliable data, a court may exclude the expert's opinion if "there is simply too great an analytical gap between the data and the opinion **[****33]** proffered" (*id.* [observing that nothing in *Daubert* or the Federal Rules of Evidence requires a district court "to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert"]; *see also Marso v Novak, 42 AD3d 377, 840 NYS2d 53 [1st Dept 2007]* [remarking that a " 'methodology-only, ignore-the-conclusion' approach would circumvent the rationale for the *Frye* doctrine"]). We have sometimes expressed this precept in terms of the general foundation inquiry applicable to all evidence (*see Wesley, 83 NY2d at 422*; *Parker, 7 NY3d at 447*). And in the social science arena, we have measured the reliability of novel hypotheses and theories—not just methodologies—against the *Frye* standard (*see e.g. People v Taylor, 75 NY2d 277, 552 NE2d 131, 552 NYS2d 883 [1990]* [concluding that rape trauma syndrome is generally accepted as reliable within the relevant scientific community]; *People v LeGrand, 8 NY3d 449, 867 NE2d 374, 835 NYS2d 523 [2007]* [identifying three factors relating to eyewitness identifications, which are generally accepted as reliable within the relevant scientific community]).

Here, 51st Street Corporation argues that the Appellate Division "improperly applied a modified version of the *Frye* test to deem [Cornell's] expert's **[****34]** testimony

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[11] The **[****32]** *Frye* test's main competitor is the standard set out by the United States Supreme Court in *Daubert v Merrell Dow Pharmaceuticals, Inc. (509 US 579, 113 S Ct 2786, 125 L Ed 2d 469 [1993])* to replace *Frye* in the federal courts. *Daubert*, which like *Frye* focuses on principles and methodology, calls upon a trial court to consider a nonexclusive list of four factors when assessing the evidentiary reliability of scientific evidence: (1) whether the theory or technique about which the expert is testifying can be tested; (2) whether the object of the testimony "has been subjected to peer review and publication"; (3) the known or potential error rate of the theory or technique; and (4) general acceptance in the relevant scientific community, which, although no longer the sole factor, "can yet have a bearing on the inquiry" (*id. at 593-594*).

regarding general causation admissible." We agree. The corporation made a prima facie case that Cornell could not prove general causation. Dr. Phillips in his affidavit opined that it is generally accepted within the relevant community of scientists (i.e., allergists, immunologists, occupational and environmental health physicians) that exposure to mold causes human disease in three ways: an immune response in allergic individuals (hypersensitivity pneumonitis), direct infection by an organism (e.g., athlete's foot) and ingestion of mycotoxins (any toxic substance produced by a fungus) in large doses from spoiled food. He cited studies, and in particular, the AAAAI report, to support his depiction of the state of the science. And although Cornell claims to suffer from **[17]** various **[*782] [**898] [***403]** respiratory illnesses, hypersensitivity pneumonitis is not one of them.[12]

With 51st Street Corporation having made its prima facie **[****35]** showing, the burden then shifted to Cornell to raise a triable issue of fact with respect to general causation. Her expert, Dr. Johanning, sought to do this in three ways. First, he attacked Dr. Phillips's qualifications and the soundness of the scientific authorities undergirding his opinion on general causation. Dr. Johanning called Dr. Phillips unqualified because he was not a mold specialist. But Dr. Phillips is, by any measure, clearly competent to render an opinion about the possible adverse health effects in humans of indoor exposure to molds (*see* shorthand description of his credentials, *supra* at 768). Dr. Johanning also condemned the AAAAI report as "out of date" and "discredited." He did not, however, claim that the report has ever been withdrawn, or indicate where its conclusions were ever repudiated by the scientific community or have been superseded, or suggest that the AAAAI is not reputable.[13] **[****36]**

Second, Dr. Johanning quite accurately pointed out that government reports and public health initiatives treat mold in damp indoor environments as a public health concern, and public health agencies have issued guidelines and recommended precautions to safeguard against the risk of harm from indoor mold exposure. But this is irrelevant since "standards promulgated by regulatory agencies as protective measures are inadequate to demonstrate legal causation" (*Parker, 7 NY3d at 450*).

Finally, Dr. Johanning relied on various studies or reports in the record to support the proposition that his theory of general causation enjoyed general scientific acceptance; he portrayed the two reports that postdate the close of the record in *Fraser* as game changers (*see supra* at 771-772 [these reports "should **[*783]** put to rest any doubt as to the sound medical bases" **[****37]** for Cornell's personal injury claims]). But these more recent reports, like the others that Dr. Johanning commended to the lower courts' attention, speak in terms of "risk" and "linkage" and "association"—not causation. **[18]** Indeed, Dr. Johanning repeatedly equated association with causation. In so doing, he departed from the generally accepted methodology for evaluating epidemiologic evidence when determining whether exposure to an agent causes a harmful effect or disease.

As summarized in the federal courts' Reference Manual on Scientific Evidence:

> "Epidemiologists are ultimately interested in whether a causal relationship exists between an agent and a disease. However, the first question an epidemiologist addresses is *whether an association* ***[**899] [***404]*** *exists* between exposure to the agent and disease. An association between exposure to an agent and disease exists when they occur together more frequently than one would expect by chance. *Although a causal relationship is one possible explanation for an observed association between an exposure and a disease, an association does not necessarily mean that there is a cause-effect relationship*" (Michael D. Green et al., Reference Guide on Epidemiology, **[****38]** in Federal Judicial Center, Reference Manual on Scientific Evidence at 566, Federal Judicial Center [3d ed 2011] [emphases added]).

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[12] The Appellate Division stated that Dr. Phillips *agreed* with Dr. Johanning that "mold is capable of causing the ill-health effects experienced by [Cornell]" (*95 AD3d at 61*). This is clearly a misreading of Dr. Phillips's affidavit; he opined quite explicitly to the contrary.

[13] According to its website, the AAAAI is a professional organization with more than 6,700 members in the United States and 72 countries. Its members are allergists, immunologists, other medical specialists and allied health and related healthcare professionals, all with a special interest in the research and treatment of allergic and immunologic diseases. The AAAAI dates back to the early 1920s; its official journal, "The Journal of Allergy and Clinical Immunology," traces its roots to 1929, is published monthly and is the most-cited scientific journal in the field of allergy and clinical immunology (*see https://www.aaaai.org.home.aspx*).

[1] Thus, studies that show an *association* between a damp and moldy indoor environment and the medical conditions that Dr. Johanning attributes to Cornell's exposure to mold (bronchial-asthma, rhino-sinusitis, hypersensitivity reactions and irritation reactions of the skin and mucous membranes) do not establish that the relevant scientific community generally accepts that molds *cause* these adverse health effects. But such studies necessarily furnish "some support" for causation since there can be no causation without an association (although, as explained, there can be an association without causation). For these reasons, the Appellate Division was incorrect when it ruled that the *Frye* standard was satisfied in this case because Dr. Johanning's opinions as to general causation find "some support" in the record. In sum, then, Cornell has not raised a triable issue of fact with respect to general causation.

[2] Additionally, even *assuming* that Cornell demonstrated general causation, she did not show the necessary specific **[*784]** causation. As *Parker* explains, ***HN4***[↑] "an opinion on causation should set forth **[****39]** a plaintiff's exposure to a toxin, that the toxin is capable of causing the particular illness (general causation) and that plaintiff was *exposed to sufficient levels* of the toxin to cause the illness (specific causation)" (*Parker, 7 NY3d at 448* [emphasis added]). *Parker* explains that "precise quantification" or a "dose-response relationship" or "an exact numerical value" is not required to make a showing of specific causation (*id. at 448-449*). *Parker* by no means, though, dispensed with a plaintiff's burden to establish sufficient exposure to a substance to cause the claimed adverse health effect (*see id. at 449* [suggesting alternative ways to do this, such as estimating exposure by means of mathematical modeling]). As the Circuit Court of Appeals for the Eighth Circuit commented in *Wright v Willamette Indus., Inc. (91 F3d 1105, 1107 [8th Cir 1996])*, **[19]**

> "[a]ctions in tort for damages focus on the question of whether to transfer money from one individual to another, and under common-law principles . . . that transfer can take place only if one individual proves, among other things, that it is more likely than not that another individual has caused him or her harm. It is therefore not enough **[****40]** for a plaintiff to show that a certain . . . agent sometimes causes the kind of harm that he or she is complaining of. At a minimum, . . . there must be evidence from which the factfinder can conclude that the plaintiff was exposed to levels of that agent that are known to cause the kind of harm that the plaintiff claims to have suffered."

Here, Dr. Johanning did not identify the specific disease-causing agent to which Cornell was allegedly exposed other than to vaguely describe it as "an unusual mixture of atypical microbial contaminants." He made no effort to quantify her level of **[**900]** **[***405]** exposure to this "unusual mixture"; he simply asserted that "[c]ertain 'quantifications' . . . may be misleading," and that she was "unquestionably exposed to unsanitary conditions." He did not respond to, much less refute, Dr. Phillips's statement that the molds in Cornell's former apartment were "of expected level and distribution for any average home" when compared to sampling studies.

Next, Dr. Johanning claimed that he established specific causation through a differential diagnosis. Differential diagnosis is a generally accepted methodology by which a physician considers the known possible **[****41]** causes of a patient's symptoms, then, by utilizing diagnostic tests, eliminates causes from the list until **[*785]** the most likely cause remains. In short, differential diagnosis "requires physicians to both 'rule in' and 'rule out' the possible causes of the [patient's] symptoms through accepted scientific reasoning and diagnostic tests" (*Jazairi v Royal Oaks Apt. Assoc., L.P., 2005 WL 6750570, *9, 2005 US Dist LEXIS 47915, *30 [SD Ga 2005]*, *affd 217 Fed Appx 895 [5th Cir 2007]*). Differential diagnosis, of course, " '*assumes* that general causation has been proven' " (*Norris v Baxter Healthcare Corp., 397 F3d 878, 885 [10th Cir 2005]* quoting *Hall v Baxter Healthcare Corp., 947 F Supp 1387, 1413 (D Or 1996)]*; *see also Ruggiero v Warner-Lambert Co., 424 F 3d 249, 254 [2d Cir 2005]* [***HN5***[↑]] "Where an expert employs differential diagnosis to rule out other potential causes for the injury at issue, he must also rule in the suspected cause, and do so using scientifically valid methodology" (internal quotation marks and citation omitted)]).

First, the Appellate Division is incorrect to the extent that it suggests that performance of a differential diagnosis establishes that a plaintiff has been exposed to enough of an agent to prove specific **[****42]** causation. This is not what we meant when we stated that "precise quantification" of exposure was not necessary, and there exist alternative "potentially acceptable ways to demonstrate [specific] causation" (*Parker, 7 NY3d at 448, 449)*. In any event, this record does not supply a proper foundation for Dr. Johanning's differential diagnosis.

As Dr. Phillips attested, many of the medical conditions that Cornell attributes to **[20]** her mold exposure (e.g., asthmatic symptoms) are common in the general population; additionally, many of her symptoms may be ascribed to non-mold-related diseases. Yet, Dr. Johanning does not explain what other possible causes he ruled out or in, much less why he did so. He states that he performed a panoply of diagnostic tests, but does not give any results. Dr. Phillips, upon review of Cornell's medical records, stated that physical findings and laboratory data did not substantiate mold-related illness; for example, Cornell tested negative for mold allergies, but positive for other inhalation allergies. Dr. Johanning does not dispute this, or explain how any of the diagnostic findings are consistent with his differential diagnosis. Instead, he broadly states his **[****43]** conclusion that Cornell's medical problems are mold-induced, based on differential diagnosis.

Finally, we underscore (as did the Appellate Division in *Fraser*) that ***HN6***[↑] a *Frye* ruling on lack of general causation hinges on the scientific literature in the record before the trial court in the particular case. Here, that record was complete more than six **[*786]** years ago. Meanwhile, scientific understanding, unlike a trial record, is not by its nature static; the scientific consensus prevailing at the time of the *Frye* hearing in a particular case may or may not endure. As a result, this case **[**901]** **[***406]** does not (and indeed cannot) stand for the proposition that a cause-and-effect relationship does not exist between exposure to indoor dampness and mold and the kinds of injuries that Cornell alleged. Rather, Cornell simply did not demonstrate such a relationship on this record.

Accordingly, the order of the Appellate Division should be reversed, with costs; defendant 360 West 51st Street Corporation's motion for summary judgment dismissing the complaint against it granted; and the certified question answered in the negative.[14]

Dissent by: PIGOTT

Dissent

Pigott, J. (dissenting). I respectfully dissent because, in my view, questions of fact exist as to whether plaintiff's injuries were caused by her exposure to mold. In *Parker v Mobil Oil Corp. (7 NY3d 434, 857 NE2d 1114, 824 NYS2d 584 [2006])*, we held that "an opinion on causation should set forth a plaintiff's exposure to a toxin, that the toxin is capable of causing the particular illness (general causation) and that plaintiff was exposed to sufficient levels of the toxin to cause the illness (specific causation)" (*id. at 448*).

Plaintiff alleges that she was exposed to mold after construction work was performed in the basement of her apartment building. There is no dispute that mold is capable of causing some of plaintiff's alleged ailments. Defendant's own expert conceded that it is generally accepted that "molds can cause a wide spectrum of illnesses, including allergies, irritation, **[21]** hypersensitivity pneumonitis, and direct infection." Although the majority takes issues with plaintiff's expert's reliance on studies that show only an *association* between a moldy environment and plaintiff's medical conditions, one study indicates that these associations are "consistent with a causal role" and **[****45]** another declares that "epidemiological studies support the link between a damp indoor environment and mold growth with upper airway irritant symptoms." Indeed, defendant's own expert utilizes the term "association" when discrediting plaintiff's claims: "If mold could cause her problems, then there should be valid epidemiologic studies documenting an association between mold and the signs and symptoms, which she experienced." **[*787]** Plaintiff has proffered such studies. Further, although the standards promulgated by regulatory agencies on mold removal are not dispositive of the issue, they need not be ignored.

As it pertains to "specific causation," plaintiff's expert personally examined plaintiff and performed a differential diagnosis, a method the majority agrees is generally accepted in the scientific community (majority op at 784).

In short, our *Frye* standard was developed primarily to throw out "junk science" or "novel theories." In this case, there is no dispute among the experts that there are causal links between exposure to mold and respiratory illness. The degree of that "association" and whether it is indicative of a "causal relationship" in this particular case, in my view, is **[****46]** a question of fact for the jury. Plaintiff should have her day in court to prove that mold from defendants' premises caused her symptoms.

Judges Graffeo, Smith and Rivera concur with Judge Read; Judge Pigott dissents and votes to **[**902]** **[***407]** affirm in an opinion in which Chief

[14] In light of our disposition of the case, we need not and do not reach the corporation's **[****44]** other arguments.

Judge Lippman concurs; Judge Abdus-Salaam taking no part.

Order reversed, with costs, defendant 360 West 51st Street Corp.'s motion for summary judgment dismissing the complaint against it granted, and certified question answered in the negative. Opinion by Judge .

End of Document

Sean R. v BMW of N. Am., LLC

Court of Appeals of New York

January 4, 2016, Argued; February 11, 2016, Decided

No. 3

Reporter
26 N.Y.3d 801 *; 48 N.E.3d 937 **; 28 N.Y.S.3d 656 ***; 2016 N.Y. LEXIS 134 ****; 2016 NY Slip Op 01000

[1] Sean R., an Infant, by His Mother and Natural Guardian, Debra R., Appellant, v BMW of North America, LLC, et al., Respondents.

Subsequent History: Decision reached on appeal by, Remanded by *Reeps v. BMW of N. Am., LLC, 2018 N.Y. App. Div. LEXIS 2853 (N.Y. App. Div. 1st Dep't, Apr. 26, 2018)*

Prior History: Appeal, by permission of the Appellate Division of the Supreme Court in the First Judicial Department, from an order of that Court, entered March 6, 2014. The Appellate Division (1) affirmed so much of an order of the Supreme Court, New York County (Louis B. York, J.; op *39 Misc 3d 1234[A], 972 NYS2d 146, 2013 NY Slip Op 50874[U] [2013]*), entered May 15, 2013, which was deemed (a) to have granted plaintiff's motion to reargue a prior order of that Supreme Court (op *2012 NY Slip Op 33030[U] [2012]*), entered December 21, 2012, granting defendants' motion to preclude the testimony of two of plaintiff's expert witnesses; and (b) upon reargument, to have adhered to the prior order; and (2) dismissed, as subsumed in the appeal from the order entered May 15, 2013, the appeal from the order entered December 21, 2012. The following question was certified by the Appellate Division: "Was the order of the Supreme Court, as affirmed by . . . this Court, properly made?"

Sean R. v. BMW of N. Am., LLC, 115 A.D.3d 432, 981 N.Y.S.2d 514, 2014 N.Y. App. Div. LEXIS 1465 (N.Y. App. Div. 1st Dep't, Mar. 6, 2014)

Disposition: Order affirmed, with costs, and certified question answered in the affirmative.

Core Terms

exposure, gasoline, odor, vapor, threshold, methodology, exposed, causation, injuries, symptoms, smell, ppm, hose, scientific community, headaches, studies, detect, unleaded gasoline, concentration, reliable, levels, birth, cases, fuel, dizziness, defects, toluene, nausea, toxin

Case Summary

Overview
ISSUE: Whether the courts below properly precluded two of a claimant's expert witnesses from testifying at trial as to causation when the claimant was born with severe mental and physical disabilities, which he attributed to in utero exposure to unleaded gasoline vapor caused by a defective fuel hose in his mother's automobile. HOLDINGS: [1]-It was the claimant's burden to show that the methodology his experts employed was generally accepted in the scientific community. However, because the claimant failed to meet that burden, the courts below properly precluded the experts' testimony that the claimant's exposure to gasoline vapor caused his injuries.

Outcome
Order affirmed.

LexisNexis® Headnotes

Environmental Law > Hazardous Wastes & Toxic Substances > Toxic Torts

Evidence > Burdens of Proof > Allocation

Evidence > Admissibility > Expert Witnesses > Helpfulness

Evidence > ... > Testimony > Expert

Witnesses > Qualifications

HN1[] **Hazardous Wastes & Toxic Substances, Toxic Torts**

In toxic tort cases, an expert opinion on causation must set forth (1) a plaintiff's exposure to a toxin; (2) that the toxin is capable of causing the particular injuries plaintiff suffered (general causation); and (3) that the plaintiff was exposed to sufficient levels of the toxin to cause such injuries (specific causation). Although it is not always necessary for a plaintiff to quantify exposure levels precisely, New York has never dispensed with a plaintiff's burden to establish sufficient exposure to a substance to cause the claimed adverse health effect. At a minimum, there must be evidence from which the factfinder can conclude that the plaintiff was exposed to levels of the agent that are known to cause the kind of harm that the plaintiff claims to have suffered.

Environmental Law > Hazardous Wastes & Toxic Substances > Toxic Torts

Evidence > Burdens of Proof > Allocation

Evidence > Admissibility > Expert Witnesses > Kelly Frye Standard

Evidence > ... > Testimony > Expert Witnesses > Qualifications

HN2[] **Hazardous Wastes & Toxic Substances, Toxic Torts**

Not only is it necessary for a causation expert to establish that a plaintiff was exposed to sufficient levels of a toxin to have caused his injuries, but the expert also must do so through methods found to be generally accepted as reliable in the scientific community. This general acceptance requirement, also known as the Frye test, governs the admissibility of expert testimony in New York. It asks whether the expert's techniques, when properly performed, generate results accepted as reliable within the scientific community generally. Although unanimity is not required, the proponent must show consensus in the scientific community as to the methodology's reliability.

Environmental Law > Hazardous Wastes & Toxic Substances > Toxic Torts

Evidence > Burdens of Proof > Allocation

Evidence > ... > Testimony > Expert Witnesses > Qualifications

Evidence > Admissibility > Expert Witnesses > Kelly Frye Standard

HN3[] **Hazardous Wastes & Toxic Substances, Toxic Torts**

Although it is sometimes difficult, if not impossible, to quantify a plaintiff's past exposure to a substance, New York has not dispensed with the requirement that a causation expert in a toxic tort case show, through generally accepted methodologies, that a plaintiff was exposed to a sufficient amount of a toxin to have caused his injuries. It is the plaintiff's burden to show that the methodology which his experts have employed is generally accepted in the scientific community.

Headnotes/Syllabus

Headnotes

Evidence — Scientific Evidence — Failure to Use Generally Accepted Principles and Methodologies — Causation of Plaintiff's Injuries by *In Utero* Exposure to Unleaded Gasoline Vapor

In a personal injury action in which plaintiff, who was born with severe mental and physical disabilities, claimed that his injuries were caused by his *in utero* exposure to unleaded gasoline vapor caused by a defective fuel hose in his mother's vehicle, the courts below properly precluded two of plaintiff's expert witnesses from testifying at trial as to causation inasmuch as they did not rely on generally accepted principles and methodologies in concluding that plaintiff was exposed to a sufficient concentration of gasoline vapor to cause his injuries. In toxic tort cases, it is necessary for a causation expert to establish that the plaintiff was exposed to sufficient levels of a toxin to have caused his or her injuries, and to do so through methods found to be generally accepted as reliable in the scientific community. One of plaintiff's experts was prepared to testify that plaintiff's mother inhaled 1,000 parts per million (ppm) of gasoline vapor based on the fact that she experienced symptoms of acute toxicity during exposure, and that in controlled studies, at least a 1,000 ppm concentration was required for such symptoms to occur immediately. While controlled

studies are scientifically valid and can be used to measure symptoms in response to a given exposure, the studies cited here did not support the inverse approach employed by plaintiff's expert in this case--working backwards from reported symptoms to divine an otherwise unknown concentration of gasoline vapor. And the expert did not identify any study, report, article or opinion that admitted or employed such a methodology. Moreover, the expert's methodology was fundamentally different from the true odor threshold analysis that has been admitted in other toxic tort cases. Had the expert applied the true odor threshold methodology, the only conclusion she could have reached was that plaintiff was exposed to at least one ppm of unleaded gasoline. Plaintiff failed to show that a "symptom-threshold" methodology, unlike the odor threshold methodology, has been generally accepted in the scientific community.

Counsel: *Phillips & Paolicelli LLP*, New York City (*Steven J. Phillips, Danielle George* and *Victoria E. Phillips* of counsel), for appellant. I. The rulings below misapplied *Frye*, improperly credited false testimony from BMW's causation expert, and deprived plaintiff of his constitutional right to present qualified, competent, and credible causation proofs to a jury. (*People v Drake, 7 NY3d 28, 850 NE2d 630, 817 NYS2d 583*; *Andersen v Bee Line, Inc., 1 NY2d 169, 134 NE2d 457, 151 NYS2d 633*; *Commercial Cas. Ins. Co. v Roman, 269 NY 451, 199 NE 658*; *Cokeng v Ogden Cap Props., LLC, 104 AD3d 550, 961 NYS2d 159*; *People v LeGrand, 8 NY3d 449, 867 NE2d 374, 835 NYS2d 523*; *LaRose v Corrao, 105 AD3d 1009, 22 NY3d 857*; *Cornell v 360 W. 51st St. Realty, LLC, 22 NY3d 762, 986 NYS2d 389, 9 NE3d 884*; *Sadek v Wesley, 117 AD3d 193, 986 NYS2d 25*; *Lugo v New York City Health & Hosps. Corp., 89 AD3d 42, 929 NYS2d 264*; *Frye v United States, 293 F 1013*.) II. The *Frye* ruling concerning exposure overlooked case law confirming the propriety of Dr. Frazier's methods, and wrongly adopted the conclusions of defense expert Peter Lees, despite gaps in his expertise and errors in his analysis. (*People v LeGrand, 8 NY3d 449, 867 NE2d 374, 835 NYS2d 523*; *Matter of Bethany F. [Michael F.], 85 AD3d 1588, 925 NYS2d 737*; *Magistrini v One Hour Martinizing Dry Cleaning, 180 F Supp 2d 584*.) III. The rulings below rest on a misunderstanding of *Parker v Mobil Oil Corp. (7 NY3d 434, 857 NE2d 1114, 824 NYS2d 584 [2006])*, whose requirements are clearly satisfied in this case. (*People v Wesley, 83 NY2d 417, 633 NE2d 451, 611 NYS2d 97*; *Cornell v 360 W. 51st St. Realty, LLC, 22 NY3d 762, 986 NYS2d 389, 9 NE3d 884*.) IV. The procedural improprieties of defendants' motions independently warrant reversal. (*Reeps v BMW of N. Am., LLC, 94 AD3d 475, 941 NYS2d 597*; *Brill v City of New York, 2 NY3d 648, 814 NE2d 431, 781 NYS2d 261*; *Downtown Art Co. v Zimmerman, 232 AD2d 270, 648 NYS2d 101*; *Charter Sch. for Applied Tech. v Board of Educ. for City Sch. Dist. of City of Buffalo, 105 AD3d 1460, 964 NYS2d 366*; *Ofman v Ginsberg, 89 AD3d 908, 933 NYS2d 103*; *West Broadway Funding Assoc. v Friedman, 74 AD3d 798, 901 NYS2d 548*; *Parker v Mobil Oil Corp., 7 NY3d 434, 857 NE2d 1114, 824 NYS2d 584*; *Ronbet 366 LLC v Tobias, 19 AD3d 102, 795 NYS2d 591*; *Sharp v Stavisky, 242 AD2d 447, 662 NYS2d 39*; *Rubeo v National Grange Mut. Ins. Co., 93 NY2d 750, 720 NE2d 86, 697 NYS2d 866*.) V. At a minimum, the trial court should have conducted a hearing. (*People v Middleton, 54 NY2d 42, 429 NE2d 100, 444 NYS2d 581*; *People v Abney, 13 NY3d 251, 889 NYS2d 890*; *Abramson v Pick Quick Foods, Inc., 56 AD3d 702, 868 NYS2d 137*; *Mitchell v Brown, 43 AD3d 1009, 842 NYS2d 507*; *People v Santiago, 17 NY3d 661, 958 NE2d 874, 934 NYS2d 746*.)

Biedermann Hoenig Semprevivo, P.C., New York City (*Philip C. Semprevivo, Jr., Peter Hoenig, Peter W. Beadle* and *Justin A. Guilfoyle* of counsel), for BMW of North America, LLC and others, respondents. I. The Appellate Division, First Department, relying on this Court's decision in *Parker v Mobil Oil Corp. (7 NY3d 434, 857 NE2d 1114, 824 NYS2d 584 [2006])*, properly affirmed the Supreme Court's order precluding two of appellant's general causation experts from testifying at trial. (*Cornell v 360 W. 51st St. Realty, LLC, 22 NY3d 762, 986 NYS2d 389, 9 NE3d 884*.) II. The Supreme Court properly applied *Frye v United States (293 F 1013 [DC Cir 1923])* in precluding two of appellant's causation experts from testifying at trial. (*Parker v Mobil Oil Corp., 7 NY3d 434, 857 NE2d 1114, 824 NYS2d 584*; *People v Wesley, 83 NY2d 417, 633 NE2d 451, 611 NYS2d 97*; *Del Maestro v Grecco, 16 AD3d 364, 791 NYS2d 139*; *Saulpaugh v Krafte, 5 AD3d 934, 774 NYS2d 194*; *Fraser v 301-52 Townhouse Corp., 57 AD3d 416, 870 NYS2d 266*; *People v Wesley, 83 NY2d 417, 633 NE2d 451, 611 NYS2d 97*; *Zito v Zabarsky, 28 AD3d 42, 812 NYS2d 535*; *Cornell v 360 W. 51st St. Realty, LLC, 22 NY3d 762, 986 NYS2d 389, 9 NE3d 884*.) III. There were no procedural improprieties warranting reversal. IV. The Supreme Court properly heard respondents BMW's *Frye* motion on the evidence submitted by appellant and respondents BMW. (*Selig v Pfizer, Inc., 185 Misc 2d 600, 713 NYS2d 898*, *290 AD2d 319, 735 NYS2d 549*, *98 NY2d 603, 772 NE2d 605*; *Oppenheim v United Charities of N.Y., 266 AD2d 116, 698 NYS2d*

144.)

Lawrence, Worden, Rainis & Bard, P.C., Melville (*Leslie McHugh* of counsel), for Martin Motor Sales, Inc., respondent. I. The testimony of Drs. Frazier and Kramer was properly precluded by the court below because they did not utilize causation methodologies or present conclusions generally accepted in the scientific community. (*Frye v United States, 293 F 1013*; *People v Wesley, 83 NY2d 417, 633 NE2d 451, 611 NYS2d 97*; *Cameron v Knapp, 137 Misc 2d 373, 520 NYS2d 917*; *Selig v Pfizer, Inc., 185 Misc 2d 600, 713 NYS2d 898*; *Lewin v County of Suffolk, 293 AD2d 453, 739 NYS2d 645*; *Oppenheim v United Charities of N.Y., 266 AD2d 116, 698 NYS2d 144*; *Gushue v Estate of Levy, 118 AD3d 415, 986 NYS2d 478*; *Cornell v 360 W. 51st St. Realty, LLC, 95 AD3d 50, 22 NY3d 762*; *Parker v Mobil Oil Corp., 7 NY3d 434, 857 NE2d 1114, 824 NYS2d 584*; *Buchholz v Trump 767 Fifth Ave., LLC, 5 NY3d 1, 831 NE2d 960, 798 NYS2d 715*.) II. Plaintiff failed to present competent proof which is generally accepted in the medical and scientific communities that unleaded gasoline can cause the medical conditions from which Sean R. suffers. (*Heckstall v Pincus, 19 AD3d 203, 797 NYS2d 445*; *Ratner v McNeil-PPC, Inc., 91 AD3d 63, 933 NYS2d 323*; *Rodriguez v Ford Motor Co., 17 AD3d 159, 792 NYS2d 468*; *Cumberbatch v Blanchette, 35 AD3d 341, 825 NYS2d 744*; *Perry v Novartis Pharms. Corp., 564 F Supp 2d 452*; *Schudel v General Elec. Co., 120 F3d 991*; *Henricksen v Conoco-Phillips Co., 605 F Supp 2d 1142*; *Doe v Ortho-Clinical Diagnostics, Inc., 440 F Supp 2d 465*; *Whiting v Boston Edison Co., 891 F Supp 12*; *Glastetter v Novartis Pharms. Corp., 252 F3d 986*.) III. Plaintiff failed to demonstrate any scientifically reliable proof of specific causation. (*Cleghorne v City of New York, 99 AD3d 443, 952 NYS2d 114*; *Fraser v 301-52 Townhouse Corp., 57 AD3d 416, 870 NYS2d 266*; *Todman v Yoshida, 63 AD3d 606, 881 NYS2d 422*; *Wright v Willamette Indus., Inc., 91 F3d 1105*; *Johnson v Arkema, Inc., 685 F3d 452*; *Hall v Baxter Healthcare Corp., 947 F Supp 1387*; *Ruggiero v Warner-Lambert Co., 424 F3d 249*; *Magistrini v One Hour Martinizing Dry Cleaning, 180 F Supp 2d 584*.) IV. There was no procedural impropriety by the IAS court entertaining the defendants' *Frye* motions. (*Frye v Montefiore Med. Ctr., 100 AD3d 28, 951 NYS2d 4*.) V. Plaintiff did not request a *Frye* hearing and one was not required to resolve the issues raised on the motions. (*Oppenheim v United Charities of N.Y., 266 AD2d 116, 698 NYS2d 144*; *Selig v Pfizer, Inc., 185 Misc 2d 600, 713 NYS2d 898*.)

Brill & Associates, P.C., New York City (*Haydn J. Brill* of counsel), for Hassel Motors, Inc., respondent. I. The motion court and the First Department correctly interpreted *Frye* and precluded Drs. Frazier and Kramer from testifying at trial. (*Frye v United States, 293 F 1013*; *People v Wesley, 83 NY2d 417, 633 NE2d 451, 611 NYS2d 97*; *Parker v Mobil Oil Corp., 7 NY3d 434, 857 NE2d 1114, 824 NYS2d 584*; *Cameron v Knapp, 137 Misc 2d 373, 520 NYS2d 917*; *Collins v Welch, 178 Misc 2d 107, 678 NYS2d 444*; *People v Middleton, 54 NY2d 42, 429 NE2d 100, 444 NYS2d 581*; *Cornell v 360 W. 51st St. Realty, LLC, 22 NY3d 762, 986 NYS2d 389, 9 NE3d 884*; *General Electric Co. v Joiner, 522 US 136, 118 S Ct 512, 139 L Ed 2d 508*; *Lewin v County of Suffolk, 293 AD2d 453, 739 NYS2d 645*; *Oppenheim v United Charities of N.Y., 266 AD2d 116, 698 NYS2d 144*.) II. Defendants' *Frye* motions were proper motions in limine, as they sought evidentiary rulings as to the admissibility of plaintiff's experts. (*State of New York v Metz, 241 AD2d 192, 671 NYS2d 79*; *Marsh v Smyth, 12 AD3d 307, 785 NYS2d 440*; *Matter of PCK Dev. Co., LLC v Assessor of Town of Ulster, 43 AD3d 539, 839 NYS2d 700*; *Frye v Montefiore Med. Ctr., 100 AD3d 28, 951 NYS2d 4*.) III. The trial court did not abuse its discretion in deciding the motions without live testimony. (*Selig v Pfizer, Inc., 290 AD2d 319, 735 NYS2d 549*; *General Elec. Co. v Joiner, 522 US 136, 118 S Ct 512, 139 L Ed 2d 508*.)

Robert S. Peck, Center for Constitutional Litigation, Washington, D.C. (*Jeffrey R. White* of counsel), for American Association for Justice, amicus curiae. I. The preclusion of causation testimony by plaintiff's experts is inconsistent with the weight of reasoned authority. (*Parker v Mobil Oil Corp., 7 NY3d 434, 857 NE2d 1114, 824 NYS2d 584*; *DeLuca by DeLuca v Merrell Dow Pharms., Inc., 911 F2d 941*; *Ethyl Corp. v Environmental Protection Agency, 541 F2d 1, 176 U.S. App. D.C. 373*; *Globetti v Sandoz Pharms., Corp., 111 F Supp 2d 1174*; *Benedi v McNeil-P.P.C., Inc., 66 F3d 1378*; *Kennedy v Collagen Corp., 161 F3d 1226*; *Frye v United States, 293 F 1013*; *Daubert v Merrell Dow Pharmaceuticals, Inc., 509 US 579, 113 S Ct 2786, 125 L Ed 2d 469*; *Norris v Baxter Healthcare Corp., 397 F3d 878*; *LaRose v Corrao, 105 AD3d 1009, 963 NYS2d 712*.) II. Unwarranted restrictions on the admissibility of expert testimony undermine the constitutional right to trial by jury. (*Kaminsky v Kahn, 20 NY2d 573, 232 NE2d 837, 285 NYS2d 833*; *Granfinanciera, S. A. v Nordberg, 492 US 33, 109 S Ct 2782, 106 L Ed 2d 26*; *Parker v Mobil Oil Corp., 7 NY3d 434, 857 NE2d 1114, 824 NYS2d 584*; *Daubert v Merrell Dow Pharmaceuticals,*

Inc., 509 US 579, 113 S Ct 2786, 125 L Ed 2d 469; *Barefoot v Estelle, 463 US 880, 103 S Ct 3383, 77 L Ed 2d 1090*.)

Judges: Opinion by Judge Pigott. Judges Rivera, Abdus-Salaam, Stein and Fahey concur. Chief Judge DiFiore and Judge Garcia took no part.

Opinion by: PIGOTT

Opinion

[*658] [**939] [*805]** Pigott, J.

Plaintiff Sean R. was born with severe mental and physical disabilities, which he attributes to *in utero* exposure to unleaded gasoline vapor caused by a defective fuel hose in his mother's BMW. The question on this appeal is whether the courts below properly precluded two **[2]** of plaintiff's expert witnesses **[*806]** from testifying at trial as to causation. Because the experts did not rely on generally accepted principles and methodologies in concluding that plaintiff was exposed to a sufficient concentration of gasoline vapor to cause his injuries, we affirm.

I.

In May 1989, plaintiff's father, Guy R., purchased a new BMW 525i for his wife, Debra. She was the only person to drive the car and used it primarily for running local errands.

In the spring of 1991, Debra began to notice a smell of gasoline in the vehicle. She stated the odor "came and went" and that it would often dissipate as she drove. Debra said she could tolerate the smell in the summer when she was able to drive with the windows down, but that at other times it was so strong it caused her headaches, dizziness and throat irritation. Debra's family members also noticed the odor when they rode in the vehicle, and Debra's mother said it made her nauseous and dizzy. Eventually, the couple began to smell the odor in their home from the attached garage where they parked the car at night.

That March, Debra took the car to Hassel Motors complaining of the gasoline odor. Hassel could not identify any problem with the vehicle, however, and made no repairs. Debra continued driving the vehicle, despite the persistent odor of gasoline, when she became pregnant with plaintiff in July or August of 1991. Her husband took the vehicle back to Hassel in November, at which time Hassel discovered a fuel leakage into the engine compartment caused by a split fuel hose. In total, Debra had driven 6,458 miles in the eight months that she smelled gasoline in the vehicle.

Plaintiff was born without difficulty on May 13, 1992. Although his initial Apgar scores were 9 and 10 at one and five minutes after birth, respectively, subsequent testing revealed that plaintiff suffered from severe mental and physical disabilities. He was diagnosed with, among other things, spastic quadriparesis (a form of cerebral palsy), developmental delays, ventricular asymmetry, delayed myelination, microcephaly, aortic stenosis, malformed bicuspid valve, tracheomalacia and impaired visual function.

Two years later, BMW of North America, LLC issued a recall of all 525i vehicles made between 1989 and 1991, due to defects in the feed fuel hoses. It described the defective hoses as being **[*807]** able to "harden and 'set' over time due to engine compartment temperatures," making it "possible that seepage between the hose and [the] fitting could result because the clamp cannot provide sufficient sealing force to compensate for the hardening of the hose." The recall report noted that customers had associated the defect with a "conspicuous fuel odor."

Plaintiff commenced this personal injury action in January 2008 against defendants BMW of North America, LLC, BMW of North America, Inc., BMW (US) Holding **[**940] [***659]** Corp. (collectively, BMW), Martin Motor Sales, Inc. and Hassel. He alleged that the vehicle's defective fuel hose, and Hassel's failure to timely discover and fix the defective hose, caused his injuries by exposing him *in utero* to toxic gasoline vapor.

In furtherance of his claims, plaintiff served notice of his intent to rely on the testimony of 10 expert witnesses at trial, including Linda Frazier, M.D., M.P.H. and Shira Kramer, M.H.S., Ph.D. As plaintiff's primary causation experts, Dr. Frazier and Dr. Kramer were prepared to testify that plaintiff's *in utero* exposure to gasoline vapor proximately caused his birth defects. For her part, Dr. Frazier concluded that plaintiff's mother inhaled 1,000 parts per million (ppm) of gasoline vapor based on the fact that "she and others experienced symptoms of acute toxicity during exposure, such as headache, nausea and irritation of the throat and mucous membranes. In controlled studies, for symptoms such as these to occur immediately, a gasoline vapor

concentration of at least 1000 ppm ... is required." Dr. Frazier then utilized the "Bradford Hill criteria" to conclude that unleaded gasoline vapor is capable of causing the types of birth defects plaintiff suffered based on the link between exposure to the constituent chemicals of gasoline and adverse birth outcomes. Finally, after ruling out other possible causes, Dr. Frazier concluded that Debra's "high peak exposure[ ]" to gasoline vapor during the first trimester of her pregnancy was the most likely cause of plaintiff's injuries.

Dr. Kramer reached similar conclusions with respect to causation. Using a "weight of the evidence" analysis, she explained that "gasoline vapor and/or [the] specific chemical constituents of gasoline vapor"—specifically toluene and benzene—are "causally related to an elevated risk of birth defects." Based on the symptoms that plaintiff's mother said she experienced and Dr. Frazier's estimate that plaintiff was exposed to 1,000 ppm of gasoline vapor, Dr. Kramer further concluded that plaintiff's exposure to unleaded gasoline vapor was a substantial causative factor in plaintiff's birth defects.

[*808] BMW and Hassel moved for summary judgment in November 2010, alleging, as relevant here, that the opinions of plaintiff's causation experts lacked a proper foundation. Supreme Court denied summary judgment, holding that plaintiff's experts provided a foundation for their opinions *(2011 NY Slip Op 32006[U] [2011])*. The Appellate Division modified on grounds not pertinent to this appeal, and otherwise affirmed *(94 AD3d 475, 475, 941 NYS2d 597 [1st Dept 2012])*.

Defendants then moved to preclude plaintiff's causation experts from testifying at trial or, alternatively, to hold a hearing in accordance with *Frye v United States (293 F 1013 [DC Cir 1923])*. In support of their motions, defendants included the expert affidavits of Anthony Scialli, M.D. and Peter Lees, Ph.D., which challenged the opinions of Dr. Frazier and Dr. Kramer for reaching novel conclusions and not using generally accepted principles and methodologies.

After reviewing lengthy submissions and a number of supplemental expert reports, Supreme Court granted defendants' motion to the extent that it precluded the testimony of Drs. Frazier and Kramer. As relevant here, the court determined that those experts did not rely on generally accepted methodologies in concluding that *in utero* exposure to unleaded gasoline vapor caused plaintiff's injuries *(2012 NY Slip Op 33030[U] [2012])*. After granting plaintiff's motion for reargument, Supreme Court adhered to its original decision *(39 Misc 3d 1234[A], 972 NYS2d 146, 2013 NY Slip Op 50874[U] [2013])*.

[941]** **[***660]** The Appellate Division unanimously affirmed *(115 AD3d 432, 981 NYS2d 514 [1st Dept 2014])* and certified the following question to this Court: "Was the order of the Supreme Court, as affirmed by this Court, properly made?" (2014 NY Slip Op 77833[U] [1st Dept 2014]).

II.

HN1[↑] In toxic tort cases, an expert opinion on causation must set forth (1) a plaintiff's exposure to a toxin, (2) that the toxin is capable of causing the particular injuries plaintiff suffered (general causation) and (3) that the plaintiff was exposed to sufficient levels of the toxin to cause such injuries (specific causation) (*see Parker v Mobil Oil Corp., 7 NY3d 434, 448, 857 NE2d 1114, 824 NYS2d 584 [2006])*. Although it is "not always necessary for a plaintiff to quantify exposure levels precisely" (*id.*), we have never "dispensed with a plaintiff's burden to establish sufficient exposure to a substance to cause the claimed adverse health effect" **[*809]** (*Cornell v 360 W. 51st St. Realty, LLC, 22 NY3d 762, 784, 986 NYS2d 389, 9 NE3d 884 [2014])*. "At a minimum, . . . there must be evidence from which the factfinder can conclude that the plaintiff was exposed to levels of th[e] agent that are known to cause the kind of harm that the plaintiff claims to have suffered" (*id.*, quoting *Wright v Willamette Indus., Inc., 91 F3d 1105, 1107 [8th Cir 1996])*.

HN2[↑] Not only is it necessary for a causation expert to establish that the plaintiff was exposed to sufficient levels of a toxin to have caused his injuries, but the expert also must do so through methods "found to be generally accepted as reliable in the scientific community" (*Parker, 7 NY3d at 449*). This "general acceptance" requirement, also known as the *Frye* test, governs the admissibility of expert testimony in New York. It asks "whether the accepted techniques, when properly performed, generate results accepted as reliable within the scientific community generally" (*People v Wesley, 83 NY2d 417, 423, 633 NE2d 451, 611 NYS2d 97 [1994])*. Although unanimity is not required, the proponent must show "consensus in the scientific community as to [the methodology's] reliability" (*id. at 439* [Kaye, Ch. J., concurring]).

Plaintiff and his experts have failed to make that

showing in this case. Dr. Frazier and Dr. Kramer concluded that plaintiff was exposed to a sufficient amount of gasoline vapor to have caused his injuries based on the reports by plaintiff's mother and grandmother that the smell of gasoline occasionally caused them nausea, dizziness, headaches and throat irritation. Plaintiff and his experts have not identified any text, scholarly article or scientific study, however, that approves of or applies this type of methodology, let alone a "consensus" as to its reliability. Therefore, the courts below properly granted defendants' motion to preclude their testimony at trial.[1]

Dr. Frazier claims that it is accepted practice in occupational medicine to use standardized studies of symptoms as a guide when assessing exposures retrospectively. **[**942] [***661]** For support, she cites to the documentation report for gasoline by the American Conference of Governmental Industrial Hygienists (ACGIH), which synthesizes the results of controlled studies and states that the threshold for immediate, mild toxic effect is approximately **[*810]** 1,000 ppm. She also cites to a 1991 study in which subjects exposed to known quantities of toluene and ethanol experienced an increase in headaches as their exposure level increased, as well as a 2008 report on the safety of n-Butyl alcohol in cosmetic products.

None of those sources, however, establish that Dr. Frazier's methodology, "when properly performed, generate[s] results accepted as reliable within the scientific community generally" (*Wesley, 83 NY2d at 422*). They merely support her *conclusion* that there is a dose-response relationship between exposure to the chemical constituents of gasoline and symptoms of toxicity. In Dr. Frazier's own words, the ACGIH report lists the known "exposure levels which cause people to report symptoms such as nausea and headache because, on the whole, controlled exposure studies are reliable." We don't disagree with the scientific validity of controlled studies or their ability to measure symptoms in response to a given exposure. But those controlled studies do not support the inverse approach Dr. Frazier employed in this case—working backwards from reported symptoms to divine an otherwise unknown concentration of gasoline vapor. Dr. Frazier has not identified on this record any study, report, article or opinion that admits or employs such a methodology.

Dr. Frazier's methodology is also fundamentally different from the true "odor threshold" analysis that has been admitted in other toxic tort cases. The odor threshold of a substance is the level at which the substance is capable of olfactory detection (*Manuel v Shell Oil Co., 664 So 2d 470, 477 [La Ct App, 5th Cir 1995]*). Concentrations below the odor threshold are, by definition, not detectable by human smell (*see Dickens v Oxy Vinyls, LP, 631 F Supp 2d 859, 863 [WD Ky 2009]*). Causation experts have used odor thresholds to determine, for example, that a plaintiff was occupationally exposed to 60 ppm of hexane where hexane cannot be detected below that concentration and the plaintiff testified that he smelled hexane while working (*see Beckner v Bayer Cropscience, LP, 2011 U.S. Dist. LEXIS 21501, *18 n 8, 2011 WL 805788 *6 n 8 [SD W Va, Mar. 2, 2011, No. 2:05-0530]*). Similarly, the expert in *Magistrini v One Hour Martinizing Dry Cleaning (180 F Supp 2d 584 [D NJ 2002], affd 68 Fed Appx 356 [3d Cir 2003])* calculated a plaintiff's occupational exposure to perchloroethylene based on the chemical's odor threshold, coupled with other employment information, the cubic footage of the workspace and industrial literature (*id. at 613-614*).

[*811] Odor thresholds can be particularly helpful in occupational exposure cases, where the odor threshold of a substance exceeds permissible workplace safety standards (*see Beckner, 2011 U.S. Dist. LEXIS 21501, *18 n 8, 2011 WL 805788 at * n 8* [noting that if "one detects the odor of hexane, there is necessarily an exposure exceeding the limit set by the National Institute for Occupational Safety and Health . . . of 50 ppm"]). In some cases, however, the odor threshold of a substance is far below toxicity. Indeed, as one of plaintiff's sources explains:

> "Smelling organic solvents is not indicative of a significant exposure, as the olfactory nerve can detect levels as low as several parts per million, which is not **[**943] [***662]** necessarily associated with toxicity. As an example, the odor threshold of toluene is 0.8 parts per million, whereas the [threshold limit value] is 100 parts per million." (Kristen I. McMartin et al., *Pregnancy Outcome Following Maternal Organic Solvent Exposure: A Meta-Analysis [****12] of Epidemiologic Studies*, 34 Am J Indus Med 288, 289 [1998].)

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[1] Due to the procedural posture of this case, our analysis and holding are limited to the *Frye* inquiry of whether the experts' techniques are generally accepted in the scientific community. We express no opinion on the "separate and distinct" question of whether there was a proper foundation for their opinions (*Parker, 7 NY3d at 447*).

Defendants state, and plaintiff does not dispute, that unleaded gasoline in the early 1990s had a very low odor threshold of between 0.50 and 0.76 ppm. Assuming that is correct, a person would have been able to detect the odor of unleaded gasoline vapor at less than one ppm. Had Dr. Frazier applied a true odor threshold methodology in this case, like the experts in *Beckner* and *Magistrini*, the only conclusion she could have reached was that plaintiff was exposed to at least one ppm of unleaded gasoline—the minimum level at which gasoline is detectable by human smell. Instead, Dr. Frazier averred that there is a minimum threshold of gasoline vapor beneath which individuals do not experience headache, nausea or dizziness. And because Debra experienced headaches, nausea and dizziness, Dr. Frazier concluded she must have been exposed to at least that concentration. Plaintiff has not shown that such a "symptom-threshold" methodology, unlike the odor threshold methodology admitted in other cases, has been generally accepted in the scientific community.[2]

[*812] ***HN3***[↑] Although it is sometimes difficult, if not impossible, to quantify a plaintiff's past exposure to a substance, we have not dispensed with the requirement that a causation expert in a toxic tort case show, through generally accepted methodologies, that a plaintiff was exposed to a sufficient amount of a toxin to have caused his injuries (*see* Joseph V. Rodricks, Reference Guide on Exposure Science, in Federal Judicial Center, Reference Manual on Scientific Evidence at 539 [3d ed 2011] ["The methodological tools necessary to 'reconstruct' the plaintiff's past exposure are identical to those used to estimate current exposures, but the availability of the data necessary to apply **[****14]** those methods may be limited or, in some cases, nonexistent"]). It was plaintiff's burden to show that the methodology his experts employed was generally accepted in the scientific community. Having failed to meet that burden, the courts below properly precluded Dr. Frazier's and Dr. Kramer's testimony that plaintiff's exposure to gasoline vapor caused his injuries.

Accordingly, the order of the Appellate Division should be affirmed, with costs, and the certified question answered in the affirmative.

Judges Rivera, Abdus-Salaam, Stein and Fahey concur; Chief Judge DiFiore and Judge Garcia taking no part.

Order affirmed, with costs, and certified question answered in the affirmative.

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[2] Plaintiff's reliance on *Allen v Martin Surfacing (263 FRD 47 [D Mass 2008])* is similarly misplaced. The **[****13]** expert in that case "did not rely *alone* on [the plaintiff's] symptom accounts in forming his opinion" about plaintiff's exposure to toluene (*id. at 56* [emphasis added]). The expert also considered the *known* amount of volatile organic compounds that were used in the resurfacing process, the manner in which those compounds would have dissipated in the gymnasium—including the weather at the time the solvents were used—and the pathways of exposure in concluding that plaintiff's exposure approached the threshold limit value for toluene (*id. at 55-56*). Moreover, the defendant in *Allen* did not challenge the general acceptance of the expert's methodology, as defendants do here.

Parker v. Mobil Oil Corp.

Court of Appeals of New York

September 5, 2006, Argued;; October 17, 2006, Decided

No. 107

Reporter
7 N.Y.3d 434 *; 857 N.E.2d 1114 **; 824 N.Y.S.2d 584 ***; 2006 N.Y. LEXIS 3188 ****; 2006 NY Slip Op 7391

[1] Eric Parker, Appellant, v. Mobil Oil Corporation et al., Respondents. (And Third-Party Actions.)

Subsequent History: [****1] Reargument denied by *Parker v Mobil Oil Corp., 8 NY3d 828, 861 NE2d 104, 2007 N.Y. LEXIS 3, 828 NYS2d 289 (N.Y., Jan. 9, 2007)*

Prior History: Appeal, by permission of the Court of Appeals, from an order of the Appellate Division of the Supreme Court in the Second Judicial Department, entered March 28, 2005. The Appellate Division (1) reversed, on the law, insofar as appealed from, an order of the Supreme Court, Nassau County (Ute Wolff Lally, J.), which had denied motions in limine by defendant and third-party defendant Mobil Oil Corporation, third-party defendant Exxon Mobil Corporation, defendant and third-party plaintiff Getty Petroleum Marketing, Inc. and defendant and second and fifth third-party plaintiff Island Transportation Corporation to preclude plaintiff from introducing expert testimony regarding medical causation and for summary judgment dismissing the complaint and all third-party claims and cross claims insofar as asserted against them; (2) granted the motions; (3) dismissed the complaint in its entirety; and (4) dismissed the third-party complaint insofar as asserted against Mobil Oil Corporation and Exxon Mobil Corporation.

Parker v Mobil Oil Corp., 16 AD3d 648, 793 NYS2d 434, 2005 N.Y. App. Div. LEXIS 3326 (N.Y. App. Div. 2d Dep't, 2005), affirmed.

Disposition: Order affirmed, with costs.

Core Terms

exposure, benzene, gasoline, causation, leukemia, exposed, scientific, ppm, reliable, studies, quantify, levels, increased risk, toxin, service station, methodology, refinery, occupational, threshold, illness, dose-response, epidemiologic, ppm-years, cases

Case Summary

Procedural Posture
Plaintiff former gas station attendant sued defendants, oil-related companies, for damages due to exposure to benzene in gasoline that allegedly caused him to develop acute myelogenous leukemia (AML). The oil companies moved to preclude the attendant's expert testimony on the issue of medical causation. The Appellate Division (New York) reversed the trial court's denial of the motion to preclude the experts and for summary judgment.

Overview
The gas station attendant worked at a gas station for 17 years and was exposed to benzene through inhalation of gasoline fumes and through dermal contact with gasoline. The oil companies did not warn him of the dangers of benzene exposure or provide him with safety or protective gear. The attendant was also exposed to therapeutic radiation. The attendant produced reports from two experts which found it unlikely that he would have contracted AML without his specific occupational exposure to benzene. One expert concluded to a reasonable degree of medical certainty that the attendant contracted his AML as a result of his occupational exposure to benzene. The Court of Appeals of New York held there was a question as to whether the methodologies employed by the attendant's experts led to a reliable result, or whether they provided a reliable causation opinion without using a dose-response relationship and without quantifying the exposure. Although it rejected the lower appellate court's requirement that the amount of exposure needed be quantified exactly, it found the attendant's expert's failed to demonstrate that exposure to benzene as a component of gasoline caused the AML.

Outcome
The order of the lower appellate court was affirmed.

LexisNexis® Headnotes

Evidence > Admissibility > Expert Witnesses > Kelly Frye Standard

HN1[] **Expert Witnesses, Kelly Frye Standard**

The introduction of novel scientific evidence calls for a determination of its reliability. Thus, the Frye test asks whether the accepted techniques, when properly performed, generate results accepted as reliable within the scientific community generally. Frye holds that while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, 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. It emphasizes counting scientists votes, rather than on verifying the soundness of a scientific conclusion.

Evidence > Admissibility > Expert Witnesses > Kelly Frye Standard

HN2[] **Expert Witnesses, Kelly Frye Standard**

The Frye inquiry is separate and distinct from the admissibility question applied to all evidence, whether there is a proper foundation to determine whether the accepted methods were appropriately employed in a particular case. The focus moves from the general reliability concerns of Frye to the specific reliability of the procedures followed to generate the evidence proffered and whether they establish a foundation for the reception of the evidence at trial.

Environmental Law > Hazardous Wastes & Toxic Substances > Toxic Torts

Evidence > Admissibility > Expert Witnesses

HN3[] **Hazardous Wastes & Toxic Substances, Toxic Torts**

As with any other type of expert evidence, the courts recognize the danger in allowing unreliable or speculative information, or "junk science," to go before the jury with the weight of an impressively credentialed expert behind it. But, it is similarly inappropriate to set an insurmountable standard that would effectively deprive toxic tort plaintiffs of their day in court. It is necessary to find a balance between these two extremes.

Environmental Law > Hazardous Wastes & Toxic Substances > Toxic Torts

Evidence > ... > Testimony > Expert Witnesses > General Overview

Torts > ... > Elements > Causation > General Overview

HN4[] **Hazardous Wastes & Toxic Substances, Toxic Torts**

It is well-established that an opinion on causation should set forth a plaintiff's exposure to a toxin, that the toxin is capable of causing the particular illness (general causation) and that plaintiff was exposed to sufficient levels of the toxin to cause the illness (specific causation). It is not always necessary for a plaintiff to quantify exposure levels precisely or use the dose-response relationship, provided that whatever methods an expert uses to establish causation are generally accepted in the scientific community.

Environmental Law > Hazardous Wastes & Toxic Substances > Toxic Torts

Evidence > ... > Testimony > Expert Witnesses > General Overview

HN5[] **Hazardous Wastes & Toxic Substances, Toxic Torts**

While precise information concerning the exposure necessary to cause specific harm to humans and exact details pertaining to the plaintiff's exposure are beneficial, such evidence is not always available, or necessary, to demonstrate that a substance is toxic to humans given substantial exposure and need not invariably provide the basis for an expert's opinion on causation.

Headnotes/Syllabus

Headnotes

Evidence -- Scientific Evidence -- *Frye* Analysis -- Exposure to Toxic Substances -- Medical Causation

1. In an action alleging that exposure to benzene in gasoline caused plaintiff to develop acute myelogenous leukemia, analysis of the opinions of plaintiff's expert witnesses on the issue of medical causation under ***Frye v United States (293 F 1013 [DC Cir 1923])*** was not required. The introduction of novel scientific evidence calls for a determination of its reliability, and the *Frye* test asks whether accepted techniques, when properly performed, generate results accepted as reliable within the scientific community generally. Here, there was a question as to whether the methodologies employed by plaintiff's experts provided a reliable causation opinion without using a dose-response relationship and without quantifying plaintiff's exposure. There was no particular novel methodology at issue requiring a determination whether there was general acceptance. The inquiry here was more akin to whether there was an appropriate foundation for the experts' opinions.

Evidence -- Scientific Evidence -- Exposure to Toxic Substances -- Medical Causation

2. In an action alleging that exposure to benzene in gasoline caused plaintiff to develop acute myelogenous leukemia (AML), the opinions of plaintiff's expert witnesses on the issue of medical causation were properly precluded in the absence of proper foundations and were properly deemed insufficient to defeat summary judgment. Although it was not necessary that the amount of exposure be quantified exactly, plaintiff's experts failed to demonstrate that exposure to benzene as a component of gasoline caused plaintiff's AML. One expert's general, subjective and conclusory assertion that plaintiff had "far more exposure to benzene than did the refinery workers in the epidemiological studies" was insufficient to establish causation. Nor did the opinion of another expert that plaintiff was "frequently" exposed to "excessive" amounts of gasoline and had "extensive exposure ... in both liquid and vapor form" constitute a scientific expression of plaintiff's exposure level. Plaintiffs' experts were unable to identify a single epidemiologic study finding an increased risk of AML as a result of exposure to gasoline, and standards promulgated by regulatory agencies as protective measures were inadequate to demonstrate legal causation.

Counsel: *Kreindler & Kreindler LLP,* New York City (*Marc S. Moller* and *Blanca I. Rodriguez* of counsel), and *Baggett, McCall, Burgess, Watson & Gaughan,* Lake Charles, Louisiana (*William B. Baggett, Sr., Wells T. Watson* and *Jeffrey T. Gaughan* of counsel), for appellant. Where the causal link between benzene and leukemia is established science, and plaintiff's expert uses the generally accepted methodology of differential etiology to opine that plaintiff's 17-year exposure to benzene caused his leukemia, there is no *Frye* test novel science issue, and it is for the jury to decide whether benzene caused plaintiff's leukemia by a preponderance of the evidence, taking account of the facts surrounding plaintiff's exposure to benzene, his personal risk factors, and the expert's testimony based on deductive clinical reasoning and scientific data. (*Stubbs v City of Rochester, 226 NY 516, 124 N.E. 137*; *Ruggiero v Warner-Lambert Co., 424 F3d 249*; *Marsh v Smyth, 12 AD3d 307, 785 NYS2d 440*; *People v Wesley, 83 NY2d 417, 633 NE2d 451, 611 NYS2d 97*; *People v Wernick, 89 NY2d 111, 674 NE2d 322, 651 NYS2d 392*; *People v Lee, 96 NY2d 157, 750 NE2d 63, 726 NYS2d 361*; *People v Carroll, 95 NY2d 375, 740 NE2d 1084, 718 NYS2d 10*; *People v Angelo, 88 NY2d 217, 666 NE2d 1333, 644 NYS2d 460*; *People v Jeter, 80 NY2d 818, 600 NE2d 214, 587 NYS2d 583*; *People v Taylor, 75 NY2d 277, 552 NE2d 131, 552 NYS2d 883*.)

Wilson, Elser, Moskowitz, Edelman & Dicker LLP, Newark, New Jersey, and New York City (*Robert J. Kelly, Richard E. Lerner, Robert P. Scott* and *Suna Lee* of counsel), for Mobil Oil Corporation and another, respondents. I. To defeat a motion for summary judgment in a case requiring expert proof, the expert's opinion must be predicated upon reliable facts and data. (*Alvarez v Prospect Hosp., 68 NY2d 320, 501 NE2d 572, 508 NYS2d 923*; *Winegrad v New York Univ. Med. Ctr., 64 NY2d 851, 476 NE2d 642, 487 NYS2d 316*; *Amatulli v Delhi Constr. Corp., 77 NY2d 525, 571 NE2d 645, 569 NYS2d 337*; *Romano v Stanley, 90 NY2d 444, 684 NE2d 19, 661 NYS2d 589*; *United States v Benson, 941 F2d 598*.) II. The Appellate Division correctly subjected plaintiff's unsworn expert reports to *Frye* scrutiny and properly deemed them insufficient to defeat defendant's motion. (*People v Wesley, 83 NY2d 417, 633 NE2d 451, 611 NYS2d 97*; ***Frye v United States, 293 F 1013***; *People v Wernick, 89 NY2d 111, 674 NE2d 322, 651 NYS2d 392*; *Selig v Pfizer, Inc., 185 Misc 2d 600, 713 NYS2d 898*, *290 AD2d 319 735 NYS2d 549*; *Hammond v Alekna Constr., 269 AD2d 773, 703 NYS2d*

332; Collins v Welch, 178 Misc 2d 107, 678 NYS2d 444; Daubert v Merrell Dow Pharmaceuticals, Inc., 509 US 579, 113 S Ct 2786, 125 L Ed 2d 469; Gallegos v Elite Model Mgt. Corp., 195 Misc 2d 223, 758 NYS2d 777; Zafran v Zafran, 191 Misc 2d 60, 740 NYS2d 596; Cameron v Knapp, 137 Misc 2d 373, 520 NYS2d 917.) III. Plaintiff's reliance upon the "differential etiology" methodology to avoid *Frye* scrutiny is misplaced. (**Frye v United States, 293 F 1013**; McClain v Metabolife Intl., Inc., 401 F3d 1233; Bitler v A.O. Smith Corp., 391 F3d 1114; Norris v Baxter Healthcare Corp., 397 F3d 878; Hall v Baxter Corp., 947 F Supp 1387; Stubbs v City of Rochester, 226 NY 516, 124 N.E. 137; Ruggiero v Warner-Lambert Co., 424 F3d 249; Cavallo v Star Enter., 892 F Supp 756, 100 F3d 1150; Sutera v Perrier Group of Am. Inc., 986 F Supp 655; Whiting v Boston Edison Co., 891 F Supp 12.) IV. Plaintiff's reliance on the practical probability test is misplaced, since no such test exists. (Matter of Miller v National Cabinet Co., 8 NY2d 277, 168 NE2d 811, 204 NYS2d 129; Dangler v Town of Whitestown, 241 AD2d 290, 672 NYS2d 188; Farkas v Saary, 191 AD2d 178, 594 NYS2d 195; *Smith v Johnson & Johnson Co., 6 Misc 3d 1001[A], 800 NYS2d 357, 2004 NY Slip Op 51670[U]*; Matter of New York City Asbestos Litig., 24 AD3d 375, 806 NYS2d 531; Hallahan v Ashland Chem. Co., 267 AD2d 657, 699 NYS2d 612.)

Smith Mazure Director Wilkins Young & Yagerman, P.C., New York City (*Joel Simon* of counsel), for Island Transportation Corporation, respondent. I. The Appellate Division was correct in ruling that under **Frye v United States (293 F 1013 [1923])**, plaintiff's expert testimony was inadmissible. (Zito v Zabarsky, 28 AD3d 42, 812 NYS2d 535; Whiting v Boston Edison Co., 891 F Supp 12; Sutera v Perrier Group of Am. Inc., 986 F Supp 655; Berk v St. Vincent's Hosp. & Med. Ctr., 380 F Supp 2d 334; Becker v National Health Prods., Inc., 896 F Supp 100.) II. The Appellate Division properly granted summary judgment. (Gadman v Catalfo, 251 AD2d 370, 674 NYS2d 391; *Cobb v New York City Hous. Auth., 251 AD2d 362, 673 NYS2d 744*; Shinn v Lefrak Org., 239 AD2d 335, 657 NYS2d 1005.) III. Plaintiff-appellant's argument was not raised in the lower court and is therefore not properly before this Court.

Rivkin Radler LLP, Uniondale (*James Quinn, Jay D. Kenigsberg* and *Harris J. Zakarin* of counsel), for Getty Petroleum Marketing, Inc., respondent. Plaintiff failed to demonstrate that the opinions of plaintiff's expert were based upon principles and procedures generally accepted in the relevant scientific community and therefore admissible under the *Frye* rule. (**Frye v United States, 293 F 1013**.)

Locks Law Firm, PLLC, New York City (*Seth R. Lesser* of counsel), and *Val Washington* for American Trial Lawyers Association and another, amici curiae. I. The Appellate Division erred in applying the *Frye* test to the foundational inquiry into whether a particular expert properly applied a generally accepted methodology to the facts of the case. (*Marsh v Smyth, 12 AD3d 307, 785 NYS2d 440*; Zito v Zabarsky, 28 AD3d 42, 812 NYS2d 535; People v Wesley, 83 NY2d 417, 633 NE2d 451, 611 NYS2d 97; **Frye v United States, 293 F 1013**; People v Brown, 97 NY2d 500, 769 NE2d 1266, 743 NYS2d 374; People v Lee, 96 NY2d 157, 750 NE2d 63, 726 NYS2d 361; McCarthy v Handel, 297 AD2d 444, 746 NYS2d 209; People v Reynolds, 193 Misc 2d 697, 749 NYS2d 687; Daubert v Merrell Dow Pharmaceuticals, Inc., 509 US 579, 113 S Ct 2786, 125 L Ed 2d 469; Sutera v Perrier Group of Am. Inc., 986 F Supp 655.) II. This Court should not impose on trial judges the responsibility to act as gatekeeper to scrutinize whether an expert has properly applied a generally accepted methodology. (Barefoot v Estelle, 463 US 880, 103 S Ct 3383, 77 L Ed 2d 1090; In re Japanese Elec. Prods. Antitrust Litig., 723 F2d 238, *revd on other grounds sub nom.* Matsushita Elec. Industrial Co. v Zenith Radio Corp., 475 US 574, 106 S Ct 1348, 89 L Ed 2d 538; Christophersen v Allied-Signal Corp., 939 F2d 1106, *503 US 912, 112 S Ct 1280, 117 L Ed 2d 506*; Ferebee v Chevron Chem. Co., 736 F2d 1529, 237 US App DC 164; In re Paoli R.R. Yard PCB Litig., 35 F3d 717, *513 US 1190, 115 S. Ct. 1253, 131 L. Ed. 2d 134*; Moore v Ashland Chem. Inc., 151 F3d 269; Maye v Stearns, 19 AD3d 902, 798 NYS2d 152; People v Middleton, 54 NY2d 42, 429 NE2d 100, 444 NYS2d 581; Parklane Hosiery Co. v Shore, 439 US 322, 99 S. Ct. 645, 58 L. Ed. 2d 552; Galloway v United States, 319 US 372, 63 S. Ct. 1077, 87 L. Ed. 1458.)

Metzer Law Group, APLC, Long Beach, California (*Raphael Metzger* of counsel), for Council for Education and Research on Toxics and others, amici curiae. I. A worker should not be required to quantify his cumulative benzene dose, because cumulative dose has not been validated as the scientifically valid dose metric for assessing leukemogenis risk from benzene exposure, and other dose metrics may be more relevant. II. A plaintiff in a benzene leukemia case should not be required to quantify his cumulative benzene dose,

because benzene monitoring is rarely done and estimating a worker's cumulative benzene dose by experimentation or modeling is either impossible or impracticable. (*Industrial Union Dept., AFL-CIO v American Petroleum Institute, 448 US 607, 100 S. Ct. 2844, 65 L. Ed. 2d 1010*.) III. There is no persuasive scientific evidence that a threshold for benzene-induced leukemia exists, and substantial scientific evidence negates the existence of a threshold for benzene-induced leukemia. IV. As more and more scientific research is done, increasingly lower levels of benzene exposure are being reported to cause leukemia. V. Individual factors of susceptibility, i.e., genetic polymorphisms of susceptibility--rather than a worker's benzene dose--are the primary determinants of a worker's risk of leukemia. VI. A quantified dose is not needed to prove that benzene exposure caused a worker's leukemia; benzene induction of leukemia can often be proved by pathology, by cytogenetics, and other means.

Mayer, Brown, Rowe & Maw, Washington, D.C. (*Andrew J. Pincus, Charles A. Rothfeld* and *Rajesh De* of counsel), and *National Chamber Litigation Center, Inc.* (*Robin S. Conrad* and *Amar D. Sarwal* of counsel), for Chamber of Commerce of the United States of America, amicus curiae. I. When expert scientific testimony is necessary to establish the causal connection between plaintiff's alleged injury and defendant's product or conduct, the decision whether to admit or exclude such evidence is of critical importance. (***Frye v United States, 293 F 1013***; *Lara v New York City Health & Hosps. Corp., 305 AD2d 106, 757 NYS2d 740*; *Savage v Union Pac. R.R. Co., 67 F Supp 2d 1021*; *In re Agent Orange Prod. Liab. Litig., 611 F Supp 1223*; *Daubert v Merrell Dow Pharmaceuticals, Inc., 509 US 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469*; *General Electric Co. v Joiner, 522 US 136, 118 S. Ct. 512, 139 L. Ed. 2d 508*; *People v Wesley, 83 NY2d 417, 633 NE2d 451, 611 NYS2d 97*; *People v Wernick, 89 NY2d 111, 674 NE2d 322, 651 NYS2d 392*; *People v Angelo, 88 NY2d 217, 666 NE2d 1333, 644 NYS2d 460*; *People v Lee, 96 NY2d 157, 750 NE2d 63, 726 NYS2d 361*.) II. This Court should affirm the Appellate Division because expert causation testimony is subject to the same standard as all other scientific evidence and is admissible only if it relies upon generally accepted principles to show a link be tween plaintiff's injury and defendant's product or conduct. (***Frye v United States, 293 F 1013***; *People v Wesley, 83 NY2d 417, 633 NE2d 451, 611 NYS2d 97*; *Styles v General Motors Corp., 20 AD3d 338, 799 NYS2d 38*; *Heckstall v Pincus, 19 AD3d 203, 797 NYS2d 445*; *Pauling v Orentreich Med. Group, 14 AD3d 357, 787 NYS2d 311*; *Selig v Pfizer, Inc., 290 AD2d 319, 735 NYS2d 549*; *Zito v Zabarsky, 28 AD3d 42, 812 NYS2d 535*; *Lewin v County of Suffolk, 18 AD3d 621, 795 NYS2d 659*; ***Del Maestro v Grecco, 16 AD3d 364, 791 NYS2d 139***; *Saulpaugh v Krafte, 5 AD3d 934, 774 NYS2d 194*.) III. Failure to preserve the standard for admission of expert causation testimony would subvert the fairness of the trial process, produce insupportable results, and impose significant burdens on the judicial system. (*In re Agent Orange Prod. Liab. Litig., 611 F Supp 1223*.)

Malaby, Carlisle & Bradley, LLC, New York City (*Robert C. Malaby* and *David P. Schaffer* of counsel), *Crowell & Moring LLP,* Washington, D.C. (*William L. Anderson* and *Jennifer G. Knight* of counsel), and *Shook, Hardy & Bacon, LLP* (*Victor E. Schwartz* and *Mark A. Behrens* of counsel), for Coalition for Litigation Justice, Inc., amicus curiae. I. Careful scrutiny of novel tort expert evidence is a necessary part of modern tort jurisprudence under ***Frye v United States (293 F 1013 [1923])*** or *Daubert v Merrell Dow Pharmaceuticals, Inc. (509 US 579, 113 S. Ct. 2786, 125 L. Ed. 2d 469 [1993])*. (*General Electric Co. v Joiner, 522 US 136, 118 S. Ct. 512, 139 L. Ed. 2d 508*; *Bartel v John Crane, Inc., 316 F Supp 2d 603*, ***affd sub nom.*** *Lindstrom v A-C Prod. Liab. Trust, 424 F3d 488*; *Nelson v Tennessee Gas Pipeline Co., 243 F3d 244*.) II. A "differential diagnosis" performed by these and other experts is reviewable under ***Frye v United States (293 F 1013 [1923])***. (*General Electric Co. v Joiner, 522 US 136, 118 S. Ct. 512, 139 L. Ed. 2d 508*; *Lust By & Through Lust v Merrell Dow Pharms., Inc., 89 F3d 594*.) III. Low-dose exposure cases require a more rigorous dose assessment than the anecdotal stories and subjective terminology applied by Drs. Landrigan and Goldstein. (*Brock v Merrell Dow Pharms., Inc., 874 F2d 307, 884 F2d 166*; *Chambers v Exxon Corp., 81 F Supp 2d 661*; *Allen v Pennsylvania Eng'g Corp., 102 F3d 194*; *Hall v Baxter Healthcare Corp., 947 F Supp 1387*; *Conde v Velsicol Chem. Corp., 804 F Supp 972*; *Norris v Baxter Healthcare Corp., 397 F3d 878*; *In re Breast Implant Litig., 11 F Supp 2d 1217*; *Allison v McGhan Med. Corp., 184 F3d 1300*; *McClain v Metabolife Intl., Inc., 401 F3d 1233*; *Bartel v John Crane, Inc., 316 F Supp 2d 603*; *Mitchell v Gencorp Inc., 165 F3d 778*.)

Michael A. Cardozo, Corporation Counsel, New York City (*Leonard Koerner, Fay Leoussis, Christopher G. King, Amy London* and *Elizabeth S. Natrella* of counsel),

for City of New York and another, amici curiae. New York State courts must exercise a strong gatekeeping role to ensure that only expert opinion evidence on causation that is based on sound scientific principles and methodologies is admitted into evidence. In the instant case, the Appellate Division correctly determined that plaintiff did not meet his burden to show that the expert opinion was based on a scientifically reliable methodology. (*People v Wesley, 83 NY2d 417, 633 NE2d 451, 611 NYS2d 97*; ***Frye v United States, 293 F 1013***; *Daubert v Merrell Dow Pharmaceuticals, Inc., 509 US 579, 113 S Ct 2786, 125 L Ed 2d 469*; *People v LeGrand, 196 Misc 2d 179, 747 NYS2d 733*; *Buchholz v Trump 767 Fifth Ave., LLC, 5 NY3d 1, 831 NE2d 960, 798 NYS2d 715*; *Diaz v New York Downtown Hosp., 99 NY2d 542, 784 NE2d 68, 754 NYS2d 195*; *Romano v Stanley, 90 NY2d 444, 684 NE2d 19, 661 NYS2d 589*; *Matter of Angel A., 92 NY2d 430, 704 NE2d 554, 681 NYS2d 787*; *People v Angelo, 88 NY2d 217, 666 NE2d 1333, 644 NYS2d 460*; *Del Maestro v Grecco, 16 AD3d 364, 791 NYS2d 139*.)

Debevoise & Plimpton LLP, New York City (*Anne E. Cohen, Robert D. Goodman* and *Genevieve A. Pope* of counsel), and *Hugh F. Young, Jr.*, Reston, Virginia, for Product Liability Advisory Council, Inc., amicus curiae. I. This Court should articulate a test for trial courts to follow when determining the admissibility of scientific expert testimony that ensures that causation evidence is reliable and genuinely scientific. (***Frye v United States, 293 F 1013***; *People v Wesley, 83 NY2d 417, 633 NE2d 451, 611 NYS2d 97*; *People v Wernick, 89 NY2d 111, 674 NE2d 322, 651 NYS2d 392*; *Clemente v Blumenberg, 183 Misc 2d 923, 705 NYS2d 792*; *Saulpaugh v Krafte, 5 AD3d 934, 774 NYS2d 194*; *Selig v Pfizer, Inc., 290 AD2d 319, 735 NYS2d 549*; *Matter of New York City Asbestos Litig., 24 AD3d 375, 806 NYS2d 531*; *Amorgianos v National R.R. Passenger Corp., 303 F3d 256*; *In re Joint E. & S. Dist. Asbestos Litig., 52 F3d 1124*; *Castellow v Chevron USA, 97 F Supp 2d 780*.) II. Plaintiff's radical and one-sided proposals to rewrite the law governing admissibility of expert causation evidence should be rejected. (*Saulpaugh v Krafte, 5 AD3d 934, 774 NYS2d 194*; *Selig v Pfizer, Inc., 290 AD2d 319, 735 NYS2d 549*; *Hymowitz v Eli Lilly & Co., 73 NY2d 487, 539 NE2d 1069, 541 NYS2d 941*; *Matter of DES Mkt. Share Litig., 79 NY2d 299, 591 NE2d 226, 582 NYS2d 377*; *Elswick v Nichols, 144 F Supp 2d 758*; *Haggerty v Upjohn Co., 950 F Supp 1160*, *158 F3d 588*; *Sutera v Perrier Group of Am. Inc., 986 F Supp 655*; *Whiting v Boston Edison Co., 891 F Supp 12*; *Black v Food Lion, Inc., 171 F3d 308*; *Glastetter v Novartis Pharms. Corp., 107 F Supp 2d 1015*, *252 F3d 986*.)

Jordan and Moses, Saint Simons Island, Georgia (*Randall A. Jordan* and *Mary Helen Moses* of counsel), *Louis P. Warchot*, Washington, D.C., and *Daniel Saphire* for Association of American Railroads, amicus curiae. The Court should affirm the Appellate Division's holding that a plaintiff is required to prove dose by reliable scientific evidence. (*Mancuso v Consolidated Edison Co. of N.Y., Inc., 56 F Supp 2d 391*; *O'Conner v Commonwealth Edison Co., 807 F Supp 1376*, *13 F3d 1090*; *Claar v Burlington N. R.R. Co., 29 F3d 499*; *Kernan v American Dredging Co., 355 US 426, 78 S Ct 394, 2 L Ed 2d 382*; *Wills v Amerada Hess Corp., 379 F3d 32*; *Whiting v Boston Edison Co., 891 F Supp 12*; *Sutera v Perrier Group of Am. Inc., 986 F Supp 655*; *Castellow v Chevron USA, 97 F Supp 2d 780*; *Mitchell v Gencorp, Inc., 165 F3d 778*; *Wright v Willamette Indus., Inc., 91 F3d 1105*.)

National Legal Scholars Law Firm, P.C., Lyme, New Hampshire (*Anthony Z. Roisman* of counsel), for Margaret A. Berger and others, amici curiae. I. The Appellate Division committed reversible error by misapplying the existing New York State *Frye/Wesley* standard for the admissibility of expert evidence and by impermissibly adopting the federal *Daubert* standard, which it also misapplied. (*People v Forte, 279 NY 204, 18 NE2d 31*; ***Frye v United States, 293 F 1013***; *People v Wesley, 83 NY2d 417, 633 NE2d 451, 611 NYS2d 97*; *Sillman v Twentieth Century-Fox Film Corp., 3 NY2d 395, 144 NE2d 387, 165 NYS2d 498*; *LeChase Data/Telecom Servs., LLC v Goebert, 6 NY3d 281, 844 NE2d 771, 811 NYS2d 317*; *Speller v Sears, Roebuck & Co., 100 NY2d 38, 790 NE2d 252, 760 NYS2d 79*; *In re Joint E. & S. Dist. Asbestos Litig., 52 F3d 1124*; *Atkins v Virginia, 536 US 304, 122 S Ct 2242, 153 L Ed 2d 335*; *Amorgianos v National R.R. Passenger Corp., 303 F3d 256*; *Marmo v IBP, Inc., 360 F Supp 2d 1019*.) II. The Appellate Division erred in granting summary judgment because it weighed the evidence and failed to give the appropriate deference to the substantial evidence offered by plaintiff. (*Diaz v New York Downtown Hosp., 99 NY2d 542, 784 NE2d 68, 754 NYS2d 195*; *Reeves v Sanderson Plumbing Products, Inc., 530 US 133, 120 S Ct 2097, 147 L Ed 2d 105*; *Forrest v Jewish Guild for the Blind, 3 NY3d 295, 819 NE2d 998, 786 NYS2d 382*; *LeChase Data/Telecom Servs., LLC v Goebert, 6 NY3d 281, 844 NE2d 771, 811 NYS2d 317*; *Speller v Sears, Roebuck & Co., 100 NY2d 38, 790 NE2d 252, 760*

NYS2d 79; Buchholz v Trump 767 Fifth Ave., LLC, 5 NY3d 1, 831 NE2d 960, 798 NYS2d 715; David v County of Suffolk, 1 NY3d 525, 807 NE2d 278, 775 NYS2d 229.) III. Alternatively, the Appellate Division impermissibly granted summary judgment without allowing Eric Parker to fully complete discovery and present his experts' full reports. (JMD Holding Corp. v Congress Fin. Corp., 4 NY3d 373, 828 NE2d 604,795 NYS2d 502.) IV. This Court should retain the *Frye/Wesley* standard for admissibility, and reject the invitation to adopt the federal *Daubert* standard, because (a) adopting a precise exposure measurement requirement would unacceptably exacerbate the risk that toxic exposure victims will be denied access to the courts and thereby be deprived of the opportunity to obtain compensation for their injuries, (b) courts are ill-equipped to engage in the detailed scientific analyses that Daubert v Merrell Dow Pharmaceuticals, Inc. (509 US 579, 113 S Ct 2786, 125 L Ed 2d 469 [1993]) requires and (c) New York courts are too overburdened by rising caseloads and too limited in their resources to adopt *Daubert* and absorb the burgeoning burdens and costs that accompany the inevitably proliferating *Daubert* motions and *Daubert* hearings. (Zito v Zabarsky, 28 AD3d 42, 812 NYS2d 535; People v Campbell, 97 NY2d 532, 769 NE2d 1288, 743 NYS2d 396; Ferebee v Chevron Chem. Co., 736 F2d 1529, 237 US App DC 164, *469 US 1062, 105 S Ct 545, 83 L Ed 2d 432*; Daubert v Merrell Dow Pharms., Inc., 43 F3d 1311; Cortes-Irizarry v Corporacion Insular De Seguros, 111 F3d 184; Padillas v Stork-Gamco, Inc., 186 F3d 412.)

Judges: Opinion by Judge Ciparick. Chief Judge Kaye and Judges Rosenblatt, Graffeo, Read and R.S. Smith concur; Judge Pigott taking no part.

Opinion by: CIPARICK

Opinion

[*586] [*442] [**1116]** Ciparick, J.

Plaintiff Eric Parker commenced this action in 1999 against Mobil Oil Corporation, Island Transportation Corporation and Getty Petroleum Marketing, Inc., alleging that exposure to benzene in gasoline caused him to develop acute myelogenous leukemia (AML). Parker had worked as a gas station attendant for 17 years and had been exposed to benzene through inhalation of gasoline fumes **[****2]** and through dermal contact with gasoline. There is no **[2]** dispute that benzene is a known carcinogen.

Parker worked at several full-service stations between March 1981 and August 1998. As part of his duties, he pumped gasoline for customers, exposing him to gasoline vapors; the pumps were not fitted with vapor recovery systems to reduce exposure to fumes until the early 1990s. He was also exposed to fumes upon receipt of **[**1117]** deliveries of gasoline and upon daily gauging of gasoline levels in the tanks and he was responsible for cleaning up gasoline spills, occasioning it to remain on his hands and clothing throughout the day. Defendants did not warn him of the dangers of benzene exposure or provide him with safety or protective gear. It should be noted that Parker was also exposed to therapeutic radiation.

Prior to the completion of discovery, and before the exchange of expert reports, defendant Mobil Oil and several third-party defendants moved to preclude Parker's expert testimony on the issue of medical causation. Defendants argued that the expert testimony was scientifically unreliable and should be excluded under ***Frye v United States (54 App DC 46, 293 F 1013 [DC Cir 1923])***. **[****3]** Further, defendants moved for summary judgment dismissing all claims, arguing that they lacked the necessary support in the absence of appropriate causation evidence.

In support of the motion, defendants introduced the opinions of two experts prepared for other litigations. The first, Dr. Gerhard K. Raabe--an epidemiologist and Director of Medical Information Health Risk Assessment for Mobil--acknowledged **[*443]** that there is an increased risk of AML for service station employees exposed to large amounts of benzene ("typically over 100 PPM TWA" [1]) over an extended period of time, but concluded that the low levels of benzene exposure resulting from gasoline service station work are "below the practical threshold for the dose necessary to initiate the leukemia process." Raabe cited to a National Institute for Occupational Safety and Health (NIOSH) study of benzene exposure for service station employees (the maximum concentration of benzene in gasoline was 2% with the greatest level of exposure 0.19 ppm TWA, which is less than the 1 ppm

[1] PPM means parts per million--here, 100 parts benzene per one million parts of air. The TWA, or time-weighted average, is the average amount of a substance to which an individual is exposed over an eight-hour work shift. This measurement can also be expressed in ppm-years.

occupational standard set by the Occupational Safety and Health Administration [OSHA]); to a study of petroleum workers exposed **[****4]** to gasoline with a concentration of 2% to 3% benzene that did not show any additional risk of AML from exposure to gasoline; and to a European study of service station workers exposed to gasoline that was 3% to 5% benzene that did not find an elevated risk of AML. Defendants also **[3]** provided a letter from Raabe responding to an expert opinion in another litigation citing a **[***587]** study he coauthored, which found an increased risk of AML for those exposed to "increasing cumulative doses of benzene above 200 ppm-years ... [and] no excess risk for AML for doses below" that level.

Defendants also offered the affidavit of Richard D. Irons, Ph.D., a toxicologist--likewise prepared for other litigation. Irons explained that the dose-related relationship **[****5]** was a unifying concept in the medical sciences and a cornerstone of pharmacology and toxicology; that there is usually a threshold below which no effect can be observed; and that the evidence of an association between chronic exposure to benzene and AML became less reliable as the dosage decreased; and that there was "virtually no reliable evidence to indicate that a causal relationship exists between chronic exposure to benzene at 10 ppm or lower and the development of AML." In order to determine causation, according to Irons, it is necessary to know the amount of benzene sufficient to cause AML and the amount of benzene to which the particular plaintiff was exposed. He noted that the plaintiff's expert in that case did not quantify the benzene exposure and did not **[**1118]** address studies finding no increased risk **[*444]** of AML in service station or petroleum distribution workers. Irons also pointed out that AML has been known to develop in those who have been exposed to the drugs and chemicals used in chemotherapy.

In opposition to defendants' motion, Parker argued that whether benzene can cause AML is not novel scientific evidence subject to *Frye* review, and that there is a difference of **[****6]** opinion in the scientific community as to what level of benzene exposure causes leukemia. To support his arguments, he produced reports from two experts. Philip J. Landrigan, M.D., a board-certified physician in occupational medicine and fellow of the American College of Epidemiology, detailed Parker's medical history as well as his exposure to benzene as a component of gasoline. Landrigan noted that Parker had received radiation treatment for a prior illness. The doctor also observed that, during his service station employment, Parker frequently had cuts or abrasions on his hands that would have increased the absorption of benzene directly into his bloodstream. Further, there was at least one instance where Parker was doused with gasoline but continued to work in his gasoline-saturated clothing for the remainder of the day.

Landrigan cited several studies that linked benzene exposure to leukemia. He noted that a NIOSH study of rubber plant workers in Ohio found a relationship between increasing cumulative benzene exposure and leukemia mortality. He concluded that the study showed a risk of mortality from leukemia of about "150 times above background" over a 40-year working lifetime **[****7]** from exposure to benzene at 10 ppm. At 5 ppm, the risk was 12 times over background and at 1 ppm (or 40 ppm-years) the risk was doubled. The expert went on to explain that "[e]xtensive mathematical modeling was conducted to determine the shape of this positive **[4]** dose-response relationship. These analyses found that a linear model best explained the association. No evidence was found for a threshold level below which no leukemia occurs."

Landrigan further noted several studies that found an increased risk of leukemia in petroleum refinery workers and pointed out that the studies that did not find an increased risk of leukemia considered all refinery workers rather than specifically addressing only those exposed to benzene. He also stated that, in recognition of the carcinogenic nature of benzene, OSHA lowered the previous workplace standard **[***588]** from 10 ppm to 1 ppm. Landrigan found it unlikely that Parker would have **[*445]** contracted AML without his specific occupational exposure to benzene and therefore concluded "to a reasonable degree of medical certainty that Mr. Parker contracted his [AML] as a result of his personal occupational exposure to benzene."

Parker also submitted a **[****8]** two-page report from Bernard D. Goldstein, M.D., an expert in toxicology and epidemiology. Dr. Goldstein stated that Parker had greater levels of exposure to benzene than the workers in the refinery studies, as modern refineries function within the 1 ppm workplace standard and "[g]asoline has been approximately 2% benzene (i.e., 20,000 ppm)." He also noted that although a study of British refinery workers found no increased risk of leukemia, a "nested case-control study ... [found] more than a doubling in the likelihood that those who did die of leukemia had been exposed to higher levels of benzene than appropriate controls." Finally, he observed that there was evidence that Parker's medical history--having

received radiation treatment--made him more susceptible to leukemia from exposure to benzene. While Goldstein **[**1119]** did give a number in ppm of how much benzene is in gasoline, neither of Parker's experts quantified Parker's exposure to benzene from gasoline.

Without conducting a *Frye* hearing (which neither party had requested), Supreme Court denied defendants' motion to preclude Parker's expert testimony. The court identified the issue as whether the causal relationship **[****9]** between benzene in gasoline and AML has general acceptance in the scientific community--particularly whether the experts used generally accepted principles and methodologies in arriving at their conclusions. The court recognized that Parker's experts did not cite to studies linking AML to exposure to benzene in gasoline or quantify Parker's exposure, but concluded that the experts distinguished the studies finding no increased risk of leukemia and that, while the failure to quantify exposure might require a hearing in some cases where there was less exposure, it was not necessary here.

Finally, the court determined that plaintiff's experts followed generally accepted principles and methodologies by detailing Parker's exposure, demonstrating the link between benzene and leukemia and presenting a dose-response relationship of 40 ppm-years (or the theory that there is no threshold of exposure under which there will be no negative effects to health). The court also found that Landrigan "track[ed]" the process of generating an opinion on **[5]** causation in toxic tort cases recommended **[*446]** by the World Health Organization (WHO) and National Academy of Sciences (NAS). [2]

[**10]** The Appellate Division reversed and dismissed the complaint, framing the issue as "to what extent the plaintiff was required to establish the precise level of his exposure to benzene in order to establish that his AML was caused by it through a scientifically-reliable methodology" (*16 AD3d 648, 651, 793 NYS2d 434 [2005]*). The Court noted that neither of Parker's experts quantified his exposure to benzene--in particular, neither provided a time-weighted average in parts per million. Even if the experts had established a **[***589]** threshold, they could not show that Parker's exposure exceeded it, and any conclusions as to the amount of Parker's exposure or whether the exposure caused his AML were therefore speculative.

The Court also rejected Landrigan's position that there is no threshold below which leukemia would not occur as "the scientific reliability of th[at] methodology has flatly been rejected as merely a hypothesis" (*16 AD3d at 653*). The Court noted that the experts did not use the three-step process approved by the WHO/NAS and that although they used studies demonstrating a link between benzene and AML, they did not prove the causal connection between the exposure **[****11]** to benzene *in gasoline*. We now affirm.

Discussion

At issue in this case is the admissibility of Parker's experts' opinions. The parties dispute whether the opinions should be analyzed under *Frye*. *HN1*[⬆] The introduction of novel scientific evidence calls for a determination of its reliability. Thus, the *Frye* test asks "whether the accepted techniques, when properly performed, generate results accepted as reliable within **[**1120]** the scientific community generally" (*People v Wesley, 83 NY2d 417, 422, 633 NE2d 451, 611 NYS2d 97 [1994]*; *see also People v Wernick, 89 NY2d 111, 115-116, 674 NE2d 322, 651 NYS2d 392 [1996]*). *Frye* holds that "while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction **[*447]** is made must be sufficiently established to have gained general **[6]** acceptance in the particular field in which it belongs" (*Frye, 293 F at 1014*). [3] It "emphasizes 'counting scientists' votes, rather than on verifying the soundness of a scientific conclusion' " (*Wesley, 83 NY2d at 439*

[2] Those steps are: (1) determining the plaintiff's exposure to the particular toxin; (2) general causation, which is proof that the toxin in question can in fact cause the illness, and the amount of exposure required to cause the illness (the dose-response relationship); and (3) specific causation--meaning the likelihood that plaintiff's illness was caused by the toxin, including eliminating other potential causes of the disease (*see Mancuso v Consolidated Edison Co. of N.Y., Inc., 56 F Supp 2d 391, 399 [SD NY 1999]*).

[3] Although some amici urge the Court to adopt the federal standard (or some portions of it) as expressed in *Daubert v Merrell Dow Pharmaceuticals, Inc. (509 US 579, 589-590, 113 S Ct 2786, 125 L Ed 2d 469 [1993]* [requiring that scientific testimony be relevant and reliable in order to assist the trier of fact under *Federal Rule of Evidence 702*]), the parties make no such argument and acknowledge that *Frye* is the current standard in New York.

[citation omitted] [Kaye, Ch.J., concurring]).

[**12]** HN2[↑] The *Frye* inquiry is separate and distinct from the admissibility question applied to all evidence--whether there is a proper foundation--to determine whether the accepted methods were appropriately employed in a particular case (*Wesley, 83 NY2d at 429*). "The focus moves from the general reliability concerns of *Frye* to the specific reliability of the procedures followed to generate the evidence proffered and whether they establish a foundation for the reception of the evidence at trial" (*Wesley, 83 NY2d at 429*).

[1] Here, there is a question as to whether the methodologies employed by Parker's experts lead to a reliable result--specifically, whether they provided a reliable causation opinion without using a dose-response relationship and without quantifying Parker's exposure. There is no particular novel methodology at issue for which the Court needs to determine whether there is general acceptance. Thus, the inquiry here is more akin to whether there is an appropriate foundation for the experts' opinions, rather than whether the opinions are admissible under *Frye*.

[*590]** HN3[↑] As with any other type of expert evidence, we recognize the danger **[****13]** in allowing unreliable or speculative information (or "junk science") to go before the jury with the weight of an impressively credentialed expert behind it. But, it is similarly inappropriate to set an insurmountable standard that would effectively deprive toxic tort plaintiffs of their day in court. It is necessary to find a balance between these two extremes.

One problem with establishing causation in toxic tort cases is that, often, a plaintiff's exposure to a toxin will be difficult or impossible to quantify by pinpointing an exact numerical value. Here, for example, defendants did not monitor the level of benzene in the air at the service stations. Nor were they **[*448]** required to do so by law or regulation. Further complicating the process of arriving at a specific quantification in this case is that a significant portion of Parker's benzene exposure was through dermal contact--a factor that would not be addressed in the air-based ppm-years standard.

[2] HN4[↑] It is well-established that an opinion on causation should set forth a plaintiff's **[7]** exposure to a toxin, that the toxin is capable of causing the particular illness (general causation) and that plaintiff was exposed to sufficient **[****14]** levels of the **[**1121]** toxin to cause the illness (specific causation) (*see e.g. McClain v Metabolife Intl., Inc., 401 F3d 1233, 1241 [11th Cir 2005]*; *Wright v Willamette Indus., Inc., 91 F3d 1105, 1106 [8th Cir 1996]*). Where we depart from the Appellate Division is that we find it is not always necessary for a plaintiff to quantify exposure levels precisely or use the dose-response relationship, provided that whatever methods an expert uses to establish causation are generally accepted in the scientific community.

The argument that precise quantification is not necessary finds support in case law from other jurisdictions. For example, the Fourth Circuit has noted that

> HN5[↑] "while precise information concerning the exposure necessary to cause specific harm to humans and exact details pertaining to the plaintiff's exposure are beneficial, such evidence is not always available, or necessary, to demonstrate that a substance is toxic to humans given substantial exposure and need not invariably provide the basis for an expert's opinion on causation" (*Westberry v Gislaved Gummi AB, 178 F3d 257, 264 [4th Cir 1999]* **[****15]** ; *see also Heller v Shaw Indus., Inc., 167 F3d 146, 157 [3d Cir 1999] Hardyman v Norfolk & W. Ry. Co., 243 F3d 255, 265-266 [6th Cir 2001]*). [4]

Some cases requiring an expert to establish the dosage at which a substance is toxic and the amount of exposure a plaintiff actually experienced also appear to recognize that an exact number may not be necessary (*see Wright, 91 F3d at 1107* ["We do not require a mathematically precise table equating levels of exposure with levels of harm, but there must be evidence from which a reasonable person could conclude that a defendant's **[*449]** emission has probably caused a particular plaintiff the kind of harm of which he or she complains"]; *McClain, 401 F3d at 1241 n 6*

[**16]** There could be several other ways an expert might demonstrate causation. For instance, amici note that the intensity of exposure to benzene may be more important than a cumulative dose for determining the

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[4] We recognize that these cases employ a *Daubert* analysis. However, they are instructive to the extent that they address the reliability of an expert's methodology.

risk of developing leukemia. Moreover, exposure can be estimated through the use of mathematical modeling by taking a plaintiff's work history into **[***591]** account to estimate the exposure to a toxin. It is also possible that more qualitative means could be used to express a plaintiff's exposure. Comparison to the exposure levels of subjects of other studies could be helpful provided that the expert made a specific comparison sufficient to show **[8]** how the plaintiff's exposure level related to those of the other subjects. These, along with others, could be potentially acceptable ways to demonstrate causation if they were found to be generally accepted as reliable in the scientific community.

Turning to the opinions offered by Parker's experts, although we reject the Appellate Division's requirement that the amount of exposure need be quantified exactly, we nonetheless conclude that the Appellate Division properly precluded them and properly deemed them insufficient to defeat summary **[****17]** judgment. The experts, although undoubtedly highly qualified in their respective fields, failed to demonstrate that exposure to benzene as a component of gasoline caused Parker's AML. Dr. Goldstein's general, subjective and conclusory assertion--based on Parker's deposition testimony--that Parker had "far more exposure to benzene than did the refinery workers in the epidemiological studies" is plainly insufficient to establish causation. It neither states the level of the refinery workers' exposure, **[**1122]** nor specifies how Parker's exposure exceeded it, thus lacking in epidemiologic evidence to support the claim.

Dr. Landrigan's submissions were likewise insufficient. He reported that Parker was "frequently" exposed to "excessive" amounts of gasoline and had "extensive exposures ... in both liquid and vapor form," which--even given that an expert is not required to pinpoint exposure with complete precision--cannot be characterized as a scientific expression of Parker's exposure level. Moreover, Landrigan concentrates on the relationship between exposure to benzene and the risk of developing AML--an association that is not in dispute. Key to this litigation is the relationship, if **[****18]** any, between exposure to *gasoline* containing **[*450]** benzene as a component and AML. Landrigan fails to make this connection perhaps because, as defendants claim, no significant association has been found between gasoline exposure and AML. Plaintiff's experts were unable to identify a single epidemiologic study finding an increased risk of AML as a result of exposure to gasoline. In addition, standards promulgated by regulatory agencies as protective measures are inadequate to demonstrate legal causation. Thus, the experts' opinions were properly excluded.

Parker's remaining contentions are without merit.

Accordingly, the order of the Appellate Division should be affirmed, with costs.

Chief Judge Kaye and Judges Rosenblatt, Graffeo, Read and R.S. Smith concur; Judge Pigott taking no part.

Order affirmed, with costs.

End of Document

Styles v. GMC

Supreme Court of New York, Appellate Division, First Department

July 21, 2005, Decided; July 21, 2005, Entered

4070

Reporter
20 A.D.3d 338 *; 799 N.Y.S.2d 38 **; 2005 N.Y. App. Div. LEXIS 7986 ***

Ann Styles, et al., Respondents-Appellants, v. General Motors Corporation, Appellant-Respondent, and Philip Wiener, et al., Respondents. et al., Defendants. Index 100081/99

Subsequent History: [***1] Subsequent appeal at ***Styles v. General Motors Corp., 27 AD3d 289, 810 NYS2d 330, 2006 N.Y. App. Div. LEXIS 2922 (N.Y. App. Div. 1st Dep't, Mar. 16, 2006)***

Core Terms

plaintiffs', roof, experiment, scientific, angle, tests, general acceptance, degrees, roll, conditions, drop, passenger, height, pitch

Case Summary

Procedural Posture
Plaintiffs, who were representatives of a decedent who died in a car accident, sued defendants, a car manufacturer, the other car's driver, and another, for negligence. The Supreme Court, New York County, after a jury trial, entered its judgment for plaintiffs. Defendants appealed.

Overview
The decedent was a passenger in a car that overturned after being hit head-on by another vehicle that crossed a median. The decedent's car spun counterclockwise, slid on its side, rolled over, and came to rest on its roof. The roof then collapsed on the front passenger's side. The parties agreed that plaintiffs were not at fault. Plaintiffs' expert conducted two tests to replicate the forces placed upon the car at and after the collision. The expert explained the tests' similarities to tests used by federal agencies and car manufacturers. The tests and testimony were to prove that the manufacturer did not properly design the car to protect the decedent from those forces. Although the phases of the two tests were, separately viewed, widely accepted techniques under Frye, the expert failed to demonstrate that the use of both tests, in combination, on the same vehicle, had gained general acceptance within the pertinent scientific community. The appeals court required a posttrial Frye hearing during which plaintiffs were, inter alia, to establish the general acceptance of their combination of the tests, to discuss only the test presented at trial, and to introduce no new tests.

Outcome
The appeals court held the appeal in abeyance and ordered that the case be remanded to the trial court for a posttrial Frye hearing to be conducted in accordance with its instructions.

LexisNexis® Headnotes

Evidence > Admissibility > Demonstrative Evidence

Evidence > ... > Testimony > Examination > General Overview

Evidence > ... > Testimony > Expert Witnesses > General Overview

HN1[] **Admissibility, Demonstrative Evidence**

Evidence of experiments is properly admissible so long as the proponent establishes a substantial similarity between the conditions under which the experiments are conducted and the conditions at the time of the event in question, particularly where the opponent has an unrestricted opportunity to cross-examine.

Evidence > ... > Testimony > Expert

Witnesses > General Overview

HN2 **Testimony, Expert Witnesses**

Scientific matters not within the knowledge of the ordinary juror must be demonstrated to be sufficiently established to have gained general acceptance within the scientific community.

Evidence > Admissibility > Expert Witnesses

Civil Procedure > ... > Entry of Judgments > Stays of Judgments > General Overview

Civil Procedure > Appeals > Remands

Evidence > Admissibility > Scientific Evidence > Standards for Admissibility

Evidence > ... > Testimony > Expert Witnesses > General Overview

Evidence > Admissibility > Expert Witnesses > Kelly Frye Standard

HN3 **Admissibility, Expert Witnesses**

Where a trial court admits expert testimony without conducting a preliminary inquiry into the reliability of the procedures utilized by the experts, the proper course is to hold the appeal in abeyance while the matter is remanded for a posttrial Frye hearing.

Headnotes/Syllabus

Headnotes

Evidence--Scientific Evidence.--Appeal held in abeyance, and matter remanded for *Frye* hearing; although each phase of plaintiffs' experts' two-phase test on vehicle akin to plaintiffs' was, separately viewed, widely accepted technique, plaintiffs failed to demonstrate that use of both tests, in combination, on same vehicle, had gained general acceptance within pertinent scientific community; translating roll-over accident into angles of pitch and roll, and dropping and pressurizing, entailed scientific matters not within knowledge of ordinary juror.

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Mauro Goldberg & Lilling LLP, Great Neck (Barbara D. Goldberg of counsel), for respondents-appellants.

O'Connor, Redd, Gollihue & Sklarin, LLP, White Plains (Christopher C. Caiazzo of counsel), for Wiener respondents.

Judges: Concur--Buckley, P.J., Mazzarelli, and Gonzalez, JJ. All concur except Friedman and Catterson, JJ. who concur in a separate memorandum by Catterson, J.

Opinion

[*338] **[**39]** Appeal from judgment, Supreme Court, New York County (Donna Mills, J.), entered October 1, 2002, after a jury trial, in favor of plaintiffs in the amount of $ 5,206,553, held in abeyance, and the matter remanded for a *Frye* hearing.

Plaintiffs' decedent sustained fatal injuries when the Chevrolet Suburban SUV in which he was a passenger overturned after being hit by another vehicle. The parties agreed that plaintiffs were without fault in the accident, which happened when the Wiener defendants' vehicle suddenly crossed a median **[***2]** divider and struck plaintiffs' SUV head-on, causing it to spin counterclockwise, slide on its side and roll over, eventually coming to rest on its roof, which collapsed on the front passenger's side. Sharp factual disagreements about the SUV's crashworthiness were submitted for the jury's determination including how many times plaintiffs' vehicle rolled over, how much force was applied to the front passenger roof area, and whether any automobile manufacturer could adequately protect a passenger from the force to which the roof was subjected.

[*339] Plaintiffs' experts conducted a test, composed of two phases, on a single vehicle that was akin to plaintiffs'. First, the windshield was removed and the vehicle was gradually lowered, upside down, at a pitch angle of 16 degrees and a roll angle of 36 degrees onto the junction of the "A pillar" and the roof; after two minutes, when the weight on the junction reached 4,424 pounds, the roof crushed eight inches. Next, the vehicle was lifted and dropped on its roof, at a pitch angle of 0 degrees and a roll angle of 36 degrees, from a height of six inches.

According to plaintiffs' experts, the first part of the test is

substantially similar to the **[***3]** generally accepted Federal Motor Vehicle Safety Standard (FMVSS) 216, **[**40]** promulgated by the National Highway Traffic Safety Administration, pursuant to which a plate is pushed down on the junction of the A pillar and the roof, at a pitch angle of 5 degrees and a roll angle of 25 degrees, for two minutes until a maximum pressure of 1.5 times the vehicle's weight or 5,000 pounds is reached. Plaintiffs' experts presented evidence that the angle used in step one of their test is more indicative of the accident, at least under plaintiffs' theory of what occurred. The variations in the angles in the two tests, and the fact that in plaintiffs' experiment the vehicle was inverted and lowered, rather than pressed by a plate as in FMVSS 216, do not render plaintiffs' experiment a novel scientific test within the meaning of (*Frye v United States, 54 App DC 46, 293 F 1013 [DC Cir 1923]*). ***HN1***[↑] Evidence of experiments is properly admissible so long as the proponent establishes a "substantial similarity between the conditions under which the experiments were conducted and the conditions at the time of the event in question" (*People v Laufer, 275 AD2d 655, 655, 713 NYS2d 322 [2000],* **[***4]** *lv denied 96 NY2d 785, 749 NE2d 218, 725 NYS2d 649 [2001]*), particularly where the opponent has an unrestricted opportunity to cross-examine (*see Uss v Town of Oyster Bay, 37 NY2d 639, 641, 339 NE2d 147, 376 NYS2d 449 [1975]*). Indeed, plaintiffs presented evidence that, at least in the 1980s, defendant General Motors conducted FMVSS 216-type tests at greater angles than specified in that standard and with the windshield removed.

With respect to the second phase of plaintiffs' experiment, it is uncontroverted that "drop testing" of vehicles to determine the crashworthiness of roofs is a routine, widely accepted scientific technique. Internal documents of General Motors indicate that the company had contemplated, if not actually conducted, drop tests from a height of 5 1/2 feet, at a pitch angle of 0 degrees and a roll angle of 45 degrees, which is substantially similar to plaintiffs' test. Plaintiffs' experts explained the reasons for the particular angles and height selected for their experiment, and defendants conducted a thorough cross-examination and presented their own experts.

[*340] Although each phase of plaintiffs' test is, separately viewed, a widely accepted technique, plaintiffs failed to demonstrate **[***5]** that the use of both tests, *in combination, on the same vehicle*, has gained general acceptance within the pertinent scientific community. It is self-evident that an automobile subjected to two roof-stress tests is more likely to suffer a collapsed roof than a vehicle that undergoes only one such test. Moreover, plaintiffs' experts did not use the two parts of their test because they did not believe either of the tests alone would exert enough force on the roof; if those experts had, they presumably could have simply increased the pressure or the height of the drop. Rather, plaintiffs' experts indicated that the two components of their experiment were necessary to reflect different forces and factors of the accident. Translating a roll-over accident into angles of pitch and roll, and dropping and pressurizing, entails ***HN2***[↑] scientific matters not within the knowledge of the ordinary juror, and therefore must be demonstrated to be sufficiently established to have gained general acceptance within the scientific community.

HN3[↑] Where, as here, the trial court admits expert testimony without conducting a preliminary inquiry into the reliability of the procedures utilized by the experts, the proper **[***6]** course is to hold the appeal in abeyance while the matter is remanded for a posttrial *Frye* hearing (*see People v Roraback, 242 AD2d 400, 406, 662 NYS2d 327 [1997], lv denied 91 NY2d 878, 879,* ***[**41]*** *91 NY2d 879, 691 NE2d 649, 668 NYS2d 577 [1997]*). At such a hearing, plaintiffs' experts would need to establish, inter alia, the general acceptance of their combination of the tests discussed *supra*, and substantiate how the precise measurements of angle, weight, height, time, and other components were taken. Plaintiffs' experts would be limited to discussing the experiment they presented at trial, and would be precluded from offering any new or supplemental tests. Concur--Buckley, P.J., Mazzarelli and Gonzalez, JJ.

Concur by: CATTERSON; Friedman

Concur

Friedman and Catterson, JJ., concur in a separate memorandum by Catterson, J., as follows: Although I join with the majority in remanding the matter for a posttrial *Frye* hearing, I write separately in order to point out that the record supports going further, and ordering a new trial as to liability. As set forth below, it is clear from the existing record that the testimony and proof of the plaintiffs' experts was deficient.

Plaintiff's decedent **[***7]** sustained fatal injuries when the Chevrolet Suburban sport utility vehicle in which he was a passenger overturned after being hit by another vehicle. The jury returned a liability verdict against General Motors, the Suburban's designer and

manufacturer, finding that the Suburban had a defective roof structure and that such defect was a substantial factor in enhancing the decedent's injuries and causing his death.

[*341] The trial court permitted plaintiffs' expert Dr. Nash to testify concerning an experiment on a similar vehicle that allegedly demonstrated the Suburban's defective roof structure. In that experiment, the test vehicle was lifted in the air and then lowered so that the entire weight of the vehicle was resting on one small area of the roof at the right front corner adjacent to the windshield. The vehicle was suspended in that position until the roof eventually deformed. The vehicle was lifted again and then dropped on the deformed roof, causing the roof to collapse.

The results of a test intended to show the nature or tendency of an object are only admissible at trial if the test was conducted under conditions "sufficiently similar to the ones at issue to make the results achieved **[***8]** relevant." (*Cramer v. Kuhns, 213 AD2d 131, 138, 630 NYS2d 128, 132 (3d Dept 1995), lv. dismissed 87 NY2d 860, 639 NYS2d 312, 662 NE2d 793 [1995]*). While the test conditions need not be identical, there must be sufficient similarity to permit the inference that the results of the experiment shed light on what occurred in the accident. Where plaintiff fails to make the necessary showing of similarity, the experimental evidence must be excluded. (*People v. Cohen, 50 NY2d 908, 910, 431 NYS2d 446, 447, 409 NE2d 921, 922 [1980]; see also Weinstein v. Daman, 132 AD2d 547, 548-549, 517 NYS2d 278, 280-281 [2d Dept 1987], lv. dismissed 70 NY2d 951, 524 NYS2d 678, 519 NE2d 624 [1988].*)

It is uncontroverted that the test performed by plaintiffs' experts was not conducted under conditions "sufficiently similar" to that of the accident in question. Indeed, under cross-examination, plaintiffs' expert testified that the test conditions only represented the crash "in a general way." Additionally, the time frame of the test as well as the altitude at which the test vehicle was suspended **[***9]** did not match the uncontested details of the accident in any way whatsoever.

There is an additional reason that evidence heard on the Nash experiment should not have been admitted. It is well settled in New York that scientific opinion **[**42]** evidence will only be admitted at trial if the procedure and results are generally accepted as reliable in the scientific community. (*People v. Wernick, 89 NY2d 111, 115-116, 651 NYS2d 392, 394-395, 674 NE2d 322, 324 [1996]; People v. Wesley, 83 NY2d 417, 423, 611 NYS2d 97, 100, 633 NE2d 451, 454 n 2 [1994]; People v. Hughes, 59 NY2d 523, 537, 466 NYS2d 255, 261, 453 N.E.2d 484, 490 [1983]; see also Frye v. United States, 54 App DC 46, 293 F 1013 [DC Cir 1923]; Selig v. Pfizer, Inc., 290 AD2d 319, **[**43]** 735 NYS2d 549 [2002], lv. denied 98 NY2d 603, 745 NYS2d 502, 772 NE2d 605 [2002].*)

This "general acceptance" or "*Frye* test" applies to all areas of scientific analysis including engineering. (*Clemente v. Blumenberg, 183 Misc 2d 923, 705 NYS2d 792 [Sup Ct, Richmond County 1999].*) It puts upon the proponent **[***10]** of scientific evidence the "burden of establishing the general scientific acceptance of the expert's theories." *People v. Kanani, 272 AD2d 186, 187, 709 NYS2d 505, 506 [2000], lv. denied* **[*342]** *95 NY2d 935, 721 NYS2d 612, 744 NE2d 148 [2000]; People v. Fortin, 289 AD2d 590, 591, 735 NYS2d 819, 819 [2d Dept 2001].*)The *Frye* "general acceptance" test is intended to "protect juries from being misled by expert opinions that may be couched in formidable scientific terminology but that are based on fanciful theories." (*People v. Weinstein, 156 Misc 2d 34, 37, 591 NYS2d 715, 719 [Sup Ct, NY County 1992]*), citing Note, *The Dark Side of DNA Profiling: Unreliable Scientific Evidence Meets the Criminal Defendant, 42 Stan L Rev 465, 497 [1990].*) An expert's inability to show that his or her proffered theories have achieved general acceptance requires that his or her testimony be excluded. (*See People v. Burton, 153 Misc 2d 681, 683, 687, 690-691, 590 NYS2d 972, 973, 975, 978 [Sup Ct, Bronx County 1992].*) This is in keeping with the "inherent power of all trial court Judges **[***11]** to keep unreliable evidence ('junk science') away from the trier of fact regardless of the qualifications of the expert. A well-credentialed expert does not make invalid science valid merely by espousing an opinion." (*Clemente v Blumenberg, 183 Misc 2d at 932, 705 NYS2d at 798.*)

In order to satisfy the *Frye* test, proponents of opinion testimony must show that the theories propounded by their experts were based on tests, procedures or methodology which have been "sufficiently established to have gained general acceptance in the particular field to which it belongs." (*People v. Wesley, 83 NY2d at 423, 611 NYS2d at 100*, quoting *Frye v. United States, 293 F at 1014*[emphasis omitted].) While this does not mean that the methodology used must be "unanimously indorsed by the scientific community[, it must be shown to] be generally acceptable as reliable." (*Id.*, quoting *People v. Middleton, 54 NY2d 42, 49, 444 NYS2d 581, 584, 429 NE2d 100, 103 [1981]*[internal quotation marks omitted].)

The trial court failed to address this issue at all. Plaintiffs' experts conceded that the test described above has never been used to assess the structural strength of a **[***12]** vehicle. There was no recognized protocol for the test and no body of scientific or engineering data to verify the results of the test and the conclusions drawn therefrom. Plaintiffs' experts could not show that the Nash experiment had gained general acceptance, and evidence of the experiment and its purported results should not have been admitted in evidence. (*Lara v. New York City Health & Hosps. Corp., 305 AD2d 106, 106, 757 NYS2d 740, 741 [2003]* [court properly struck expert testimony where plaintiff "failed to meet his burden of proof at the *Frye* hearing held during trial, that his expert's theory is generally accepted in the medical community" (citation omitted)]; *see Selig v Pfizer, Inc., 290 AD2d 319, 735 NYS2d 549 [2002]* [same]; *see also People v Wesley, 83 NY2d at 422, 611 NYS2d at 100* ["(i)t should be emphasized that the inquiry here is into the reliability of the DNA evidence *at the time of the proceedings in this case*" (emphasis added)].) **[***13]**

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N.Y. Pattern Jury Instr.--Civil 1:90

New York Pattern Jury Instructions--Civil December 2017 Update
Committee on Pattern Jury Instructions Association of Supreme Court Justices

Division 1. General Charges
C. General Instructions Not Applicable to All Cases
6. Witnesses
a. Expert

PJI 1:90 General Instruction—Expert Witness

You will recall that [*state name(s) of expert witness(es)*] testified concerning (his, her, their) qualifications in the field(s) of [*state profession(s)*] and gave (his, her, their) opinion(s) concerning issues in this case. When a case involves a matter of science or art or requires special knowledge or skill that most people do not have, a qualified witness is permitted to state (his, her) opinion(s) for the information of the court and jury. The opinion(s) stated by [*state name(s) of expert witness(es)*] (was, were) based on particular facts, as (he, she, they) obtained knowledge of them and testified about them or as the attorney(s) who questioned (him, her, them) asked (him, her, them) to assume. You may reject any opinion if you find the facts to be different from the facts that formed the basis for the opinion. You may also reject an opinion if, after careful consideration of all the evidence in the case, including the cross-examination of [*state name(s) of expert witness(es)*], you decide that an opinion is not convincing. In other words, you are not required to accept any opinion to the exclusion of the facts and circumstances disclosed by other evidence. Opinion testimony should be evaluated in the same way as the testimony of any other witness. It is given to assist you in reaching a proper conclusion; it is entitled to such weight as you find the witness's qualifications in the field warrant and must be considered by you, but is not controlling upon your judgment.

Comment

Based on De Long v Erie, 60 NY2d 296, 469 NYS2d 611, 457 NE2d 717 (1983); Matott v Ward, 48 NY2d 455, 423 NYS2d 645, 399 NE2d 532 (1979); Selkowitz v Nassau, 45 NY2d 97, 408 NYS2d 10, 379 NE2d 1140 (1978); Matter of Estate of Sylvestri, 44 NY2d 260, 405 NYS2d 424, 376 NE2d 897 (1978); Commercial Casualty Ins. Co. v Roman, 269 NY 451, 199 NE 658 (1936); Dougherty v Milliken, 163 NY 527, 57 NE 757 (1900); Herring v Hayes, 135 AD2d 684, 522 NYS2d 583 (2d Dept 1987); see Hambsch v New York City Transit Authority, 63 NY2d 723, 480 NYS2d 195, 469 NE2d 516 (1984); People v Cronin, 60 NY2d 430, 470 NYS2d 110, 458 NE2d 351 (1983); Prince, Richardson on Evidence (11th Ed Farrell) § 7-305.

2. On Summary Judgment

Ordinarily, a qualified expert's opinion, such as a conclusion that plaintiff's injuries were caused by a deviation from relevant industry standards would preclude a grant of summary judgment in favor of defendants but not where the expert's affidavit is conclusory and nonspecific, Murphy v Conner, 84 NY2d 969, 622 NYS2d 494, 646 NE2d 796 (1994). An expert's affidavit proffered as the sole evidence to defeat summary judgment must contain sufficient allegations to demonstrate that its conclusions are more than mere speculation and would, if offered alone at trial, support a verdict in the proponent's favor, Romano v Stanley, 90 NY2d 444, 661 NYS2d 589, 684 NE2d 19 (1997); see Diaz v New York Downtown Hosp., 99 NY2d 542, 754 NYS2d 195, 784 NE2d 68 (2002); Grynberg v Giffen, 119 AD3d 526, 989 NYS2d 103 (2d Dept 2014); Clarke v Helene Curtis, Inc., 293 AD2d 701, 742 NYS2d 325 (2d Dept 2002); Bova v Saratoga, 258 AD2d 748, 685 NYS2d 834 (3d Dept 1999) (expert's affidavit lacking both reference to outside material supporting conclusions and litany of witness's professional licenses, degrees, or other affiliations insufficient); Marconi v Reilly, 254 AD2d 463, 678 NYS2d 785 (2d Dept 1998) (toxicologist's affidavit regarding effects of alcohol sufficiently probative to defeat summary judgment where opinion based on knowledge acquired through expert's personal professional experience and affidavit included scientific data underlying conclusions); see also People v Oddone, 22 NY3d 369, 980 NYS2d 912, 3 NE3d 1160 (2013) (expert may base opinion on experience). Thus, the "expert" affidavit of a registered architect and licensed engineer indicating that the window through which decedent fell lacked necessary safety features was insufficient to defeat summary judgment, where the affidavit cited no authority, treatise, standard, applicable building code provision, article or other corroborating evidence, Buchholz v Trump 767 Fifth Ave., LLC, 5 NY3d 1, 798 NYS2d 715, 831 NE2d 960 (2005). Similarly, a meteorologist's affidavit opining that there was a storm in progress when the plaintiff fell on ice and snow was insufficient where it was not accompanied by the meteorological data on which the opinion was based, Schuster v Dukarm, 38 AD3d 1358, 831 NYS2d 619 (4th Dept 2007).

Although an expert's affidavit cannot be merely speculative, a medical expert's opinion on deviation from relevant standards need not be based on medical literature, studies or professional group rules if it does not involve a novel scientific theory, Mitrovic v Silverman, 104 AD3d 430, 961 NYS2d 75 (1st Dept 2013). Such an opinion may be based instead on personal knowledge acquired through professional experience, id.

IV. Novel Scientific Evidence

A. Background

In determining admissibility of novel scientific evidence, New York State courts have adhered to the test set forth in Frye v United States, 293 F 1013 (DC Cir 1923), which holds that, to be sufficiently reliable to be admissible, novel evidence must be generally accepted in the relevant scientific community, Cornell v 360 West 51st Street Realty, LLC, 22 NY3d 762, 986 NYS2d 389, 9 NE3d 884 (2014); People v Angelo, 88 NY2d 217, 644 NYS2d 460, 666 NE2d 1333 (1996); People v Wesley, 83 NY2d 417, 611 NYS2d 97, 633 NE2d 451 (1994); Nonnon v New York, 32 AD3d 91, 819 NYS2d 705 (1st Dept 2006), aff'd, 9 NY3d 825, 842 NYS2d 756, 874 NE2d 720 (2007); Johnson v Guthrie Medical Group, P.C., 125 AD3d 1445, 3 NYS3d 828 (4th Dept 2015); see Sean R. ex rel. Debra R. v BMW of North America, LLC, 26 NY3d 801, 28 NYS3d 656, 48 NE3d 937 (2016). The general-acceptance test is ordinarily used to determine the reliability of the expert's methodologies used to reach deductions and conclusions, Sean R. ex rel. Debra R. v BMW of North America, LLC, supra; Parker v Mobil Oil Corp., 7 NY3d 434, 824 NYS2d 584, 857 NE2d 1114 (2006); People v Wernick, 89 NY2d 111, 651 NYS2d 392, 674 NE2d 322 (1996); Nonnon v New York, supra; Frye v Montefiore Medical Center, 100 AD3d 28, 951 NYS2d 4 (1st Dept 2012); Muhammad v Fitzpatrick, 91 AD3d 1353, 937 NYS2d 519 (4th Dept 2012); Ratner v McNeil-PPC, Inc., 91 AD3d 63, 933 NYS2d 323 (2d Dept 2011); Lugo v New York City Health and Hospitals Corp., 89 AD3d 42, 929 NYS2d 264 (2d Dept 2011). "General acceptance" does not necessarily require that a majority of scientists in the discipline subscribe to the expert's conclusion; rather, the test demands only that those espousing the theory or conclusion must have followed generally accepted scientific principles and methodology in evaluating data and reaching conclusions, Johnson v Guthrie Medical Group, P.C., supra; Ratner v McNeil-PPC, Inc., 91 AD3d 63, 933 NYS2d 323 (2d Dept 2011); Lugo v New York City Health and Hospitals Corp., supra; Zito v Zabarsky, 28 AD3d 42, 812 NYS2d 535 (2d Dept 2006); see Sean R. ex rel. Debra R. v BMW of North America, LLC, supra; Sadek v Wesley, 117 AD3d 193, 986 NYS2d 25 (1st Dept 2014), aff'd, 27 NY3d 982, 32 NYS3d 42, 51 NE3d 553 (2016).

Before 1993, the Frye analysis was almost exclusively confined to the admissibility of scientific evidence in criminal cases, and the opinion in Frye v United States, 293 F 1013 (DC Cir 1923), was cited in only a few instances, see People v Taylor, 75 NY2d 277, 552 NYS2d 883, 552 NE2d 131 (1990) (rape trauma syndrome); People v Smith, 63 NY2d 41, 479 NYS2d 706, 468 NE2d 879 (1984) (bite mark analysis); People v Hughes, 59 NY2d 523, 466 NYS2d 255, 453 NE2d 484 (1983) (hypnotic induced memory); People v Middleton, 54 NY2d 42, 444 NYS2d 581, 429 NE2d 100 (1981) (bite mark comparisons). In 1993, however, the United States Supreme Court held in Daubert v Merrell Dow Pharmaceuticals, Inc., 509 US 579, 113 SCt 2786 (1993), that Federal Rule of Evidence 702 did not require rigid adherence to the general-acceptance standard of Frye. Instead, the Daubert Court set forth four non-exclusive factors for determining admissibility: (1) general acceptance in the relevant scientific community, (2) peer review and publication, (3) known error rate, and (4) maintenance of proper standards. Although the Daubert Court eschewed a strict test for admissibility, it

stressed that federal trial judges must still act as "gatekeepers" to prevent unreliable and irrelevant scientific data from being placed before juries in civil as well as criminal cases. The importance of "gatekeeping" was emphasized in General Elec. Co. v Joiner, 522 US 136, 118 SCt 512 (1997), and expanded to include non-scientific technical evidence in Kumho Tire Co., Ltd. v Carmichael, 526 US 137, 119 SCt 1167 (1999). In General Elec. Co. v Joiner, supra, a case involving allegations that the plaintiff's exposure to PCB's caused his cancer, the court stated, "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." After Daubert, New York State and federal trial courts began holding hearings or reviewing paper submissions in a variety of civil contexts before admitting expert evidence based on novel science, see Bennett v Saeger Hotels, Inc., 209 AD2d 946, 619 NYS2d 424 (4th Dept 1994) (stating that Frye test applies in civil cases).

Notwithstanding the decision in Daubert v Merrell Dow Pharmaceuticals, Inc., 509 US 579, 113 SCt 2786 (1993), the New York Court of Appeals reiterated its adherence to the Frye standard for admissibility of scientific evidence in People v Wesley, 83 NY2d 417, 611 NYS2d 97, 633 NE2d 451 (1994), and has repeatedly applied that standard in both criminal, People v Abney, 13 NY3d 251, 889 NYS2d 890, 918 NE2d 486 (2009)(abuse of discretion to exclude expert on eye witness identification); People v LeGrand, 8 NY3d 449, 835 NYS2d 523, 867 NE2d 374 (2007); People v Lee, 96 NY2d 157, 726 NYS2d 361, 750 NE2d 63 (2001); People v Wernick, 89 NY2d 111, 651 NYS2d 392, 674 NE2d 322 (1996) ("neonaticide syndrome" evidence); People v Angelo, 88 NY2d 217, 644 NYS2d 460, 666 NE2d 1333(1996) (polygraph results); People v Wesley, supra (DNA evidence), and civil cases, Cornell v 360 West 51st Street Realty, LLC, 22 NY3d 762, 986 NYS2d 389, 9 NE3d 884 (2014); see Parker v Mobil Oil Corp., 7 NY3d 434, 824 NYS2d 584, 857 NE2d 1114 (2006). However, while the *Frye* general-acceptance standard continues to control in New York, the State's trial judges have embraced the "gatekeeper" role and have increasingly taken an active part in assessing the admissibility of "novel" scientific evidence in formal hearings, see People v Santiago, 17 NY3d 661, 934 NYS2d 746, 958 NE2d 874 (2011); People v LeGrand, 8 NY3d 449, 835 NYS2d 523, 867 NE2d 374 (2007); Styles v General Motors Corp., 20 AD3d 338, 799 NYS2d 38 (1st Dept 2005) (remitting for *Frye* hearing to determine reliability of trial expert's theory, which combined two different, previously accepted crash tests); DeMeyer v Advantage Auto, 9 Misc3d 306, 797 NYS2d 743 (Sup 2005); Clemente v Blumenberg, 183 Misc2d 923, 705 NYS2d 792 (Sup 1999).

B. Application of the Frye Test in New York

The Frye test has traditionally asked whether the expert's methodologies and deductions have gained general acceptance as reliable in the relevant scientific community, Sean R. ex rel. Debra R. v BMW of North America, LLC, 26 NY3d 801, 28 NYS3d 656, 48 NE3d

937 (2016); see Frye v Montefiore Medical Center, 100 AD3d 28, 951 NYS2d 4 (1st Dept 2012) (plaintiff's expert's opinion on causation inadmissible where other experts on whose work plaintiff's expert relied submitted affidavits directly controverting plaintiff's expert's theories and explaining how plaintiff's expert had misinterpreted their work); see State v Ian I., 127 AD3d 766, 7 NYS3d 199 (2d Dept 2015) (court should have held Frye hearing where, although use of actuarial risk assessment instruments is scientifically accepted as means to measure risk of recidivism, use of such instruments to determine existence of mental abnormality as defined in Mental Hygiene Law § 10.03[i] is novel). The burden of proving general acceptance rests upon the party offering the disputed expert testimony, Nonnon v New York, 32 AD3d 91, 819 NYS2d 705 (1st Dept 2006), aff'd, 9 NY3d 825, 842 NYS2d 756, 874 NE2d 720 (2007); Lugo v New York City Health and Hospitals Corp., 89 AD3d 42, 929 NYS2d 264 (2d Dept 2011); Zito v Zabarsky, 28 AD3d 42, 812 NYS2d 535 (2d Dept 2006); Saulpaugh ex rel. Saulpaugh v Krafte, 5 AD3d 934, 774 NYS2d 194 (3d Dept 2004). In determining whether a theory has gained general acceptance in the relevant scientific community, the court may consider controlled studies, clinical data, professional literature, recognized text books, peer review and judicial opinions indicating general acceptance of the theory, see Lahey v Kelly, 71 NY2d 135, 524 NYS2d 30, 518 NE2d 924 (1987); Lewin v Suffolk, 18 AD3d 621, 795 NYS2d 659 (2d Dept 2005); Pauling v Orentreich Medical Group, 14 AD3d 357, 787 NYS2d 311 (1st Dept 2005); Saulpaugh ex rel. Saulpaugh v Krafte, supra; People v Scoon, 303 AD2d 525, 756 NYS2d 100 (2d Dept 2003); People v Morales, 227 AD2d 648, 643 NYS2d 217 (2d Dept 1996); see also Heckstall v Pincus, 19 AD3d 203, 797 NYS2d 445 (1st Dept 2005) (unverified listings and reporting of adverse reactions from drug not generally accepted in scientific community as evidence of causation).

Where the scientific evidence proffered is not novel but there may be insufficient foundation for its application in the specific case, the court focuses not on the general reliability concerns addressed in the Frye test but on the specific reliability of the procedures followed to generate the evidence, Parker v Mobil Oil Corp., 7 NY3d 434, 824 NYS2d 584, 857 NE2d 1114 (2006); Lugo v New York City Health and Hospitals Corp., 89 AD3d 42, 929 NYS2d 264 (2d Dept 2011); Jackson v Nutmeg Technologies, Inc., 43 AD3d 599, 842 NYS2d 588 (3d Dept 2007). In such cases, there must be a separate inquiry concerning whether there is a sufficient foundation to apply the science to a particular case before the expert evidence is admissible, Parker v Mobil Oil Corp, supra; see Sean R. ex rel. Debra R. v BMW of North America, LLC, 26 NY3d 801, 28 NYS3d 656, 48 NE3d 937 (2016). However, the court may conduct a preliminary assessment as to whether there is a sufficiently reliable basis for the evidence, Parker v Mobil Oil Corp., 7 NY3d 434, 824 NYS2d 584, 857 NE2d 1114 (2006); Nonnon v New York, 32 AD3d 91, 819 NYS2d 705 (1st Dept 2006), aff'd, 9 NY3d 825, 842 NYS2d 756, 874 NE2d 720 (2007); Muhammad v Fitzpatrick, 91 AD3d 1353, 937 NYS2d 519 (4th Dept 2012); Ratner v McNeil-PPC, Inc., 91 AD3d 63, 933 NYS2d 323 (2d Dept 2011); Lugo v New York City Health and Hospitals Corp., 89 AD3d 42, 929 NYS2d 264 (2d Dept 2011);

Ellis v Eng, 70 AD3d 887, 895 NYS2d 462 (2d Dept 2010); Jackson v Nutmeg Technologies, Inc., 43 AD3d 599, 842 NYS2d 588 (3d Dept 2007); see Sadek v Wesley, 117 AD3d 193, 986 NYS2d 25 (1st Dept 2014), aff'd, 27 NY3d 982, 32 NYS3d 42, 51 NE3d 553 (2016).

In ruling upon whether a proper foundation has been established, the court should not make a determination on whether the evidence is true, Nonnon v New York, 32 AD3d 91, 819 NYS2d 705 (1st Dept 2006), aff'd, 9 NY3d 825, 842 NYS2d 756, 874 NE2d 720 (2007); Lugo v New York City Health and Hospitals Corp., 89 AD3d 42, 929 NYS2d 264 (2d Dept 2011). Once the Frye reliability test and foundation requirements have been satisfied, it is for the jury to consider the weight of the evidence, including any possible infirmities in the collection and analysis of data, Nonnon v New York, supra. The fact that there is no textual material to directly support the expert's testimony may be relevant to the weight, not the admissibility, of the testimony, Lugo v New York City Health and Hospitals Corp., supra; Zito v Zabarsky, 28 AD3d 42, 812 NYS2d 535 (2d Dept 2006). Testimony from an expert who gives an opinion based on personal experience rather than published studies is admissible without regard to established scientific basis as long as it is subject to cross-examination and the jury is not misled into thinking that the opinion reflects generally accepted principles, People v Oddone, 22 NY3d 369, 980 NYS2d 912, 3 NE3d 1160 (2013).

There is a question whether Frye's "general acceptance" standard should be applied to the theory or conclusion reached by the expert, or to the principles and methodology used in arriving at the theory or conclusion, or to both. The courts have sometimes used terms such as "theory," "methodology," "principles" and "conclusion." Before its decision in Cornell v 360 West 51st Street Realty, LLC, 22 NY3d 762, 986 NYS2d 389, 9 NE3d 884 (2014), the Court of Appeals appeared to limit Frye's "general acceptance" standard to the methodology upon which the expert's opinion was based, see Parker v Mobil Oil Corp., 7 NY3d 434, 824 NYS2d 584, 857 NE2d 1114 (2006); People v Wesley, 83 NY2d 417, 611 NYS2d 97, 633 NE2d 451 (1994); People v Middleton, 54 NY2d 42, 444 NYS2d 581, 429 NE2d 100 (1981); see also People v Oddone, 22 NY3d 369, 980 NYS2d 912, 3 NE3d 1160 (2013) (expert opinion based upon personal experience, and not scientific principle supported by published studies or texts, not barred by Frye); Doviak v Finkelstein & Partners, LLP, 137 AD3d 843, 27 NYS3d 164 (2d Dept 2016) (same). In Cornell, however, the Court of Appeals noted that, in the area of social science, it has gone beyond consideration of methodology and measured the reliability of experts' conclusions and theories against the Frye standard, Cornell v 360 West 51st Street Realty, LLC, 22 NY3d 762, 986 NYS2d 389, 9 NE3d 884 (2014) (citing People v LeGrand, 8 NY3d 449, 835 NYS2d 523, 867 NE2d 374 (2007); People v Taylor, 75 NY2d 277, 552 NYS2d 883, 552 NE2d 131 (1990)). The Cornell Court noted that the expert in that case failed to show that his "theory of causation enjoyed general scientific acceptance" because he "departed from the generally accepted methodology for evaluating epidemiological evidence." Cornell cited both Daubert v Merrell Dow Pharmaceuticals, Inc., 509 US 579, 113 SCt 2786 (1993),

and General Elec. Co. v Joiner, 522 US 136, 118 SCt 512 (1997), for the proposition that "even where the expert is using reliable principles and is extrapolating from reliable data, a court may exclude opinion if there is 'too great an analytical gap between the data and the opinion proffered'" or "if the opinion evidence is connected to existing data only by the *ipse dixit* of the expert," see Fraser v 301-52 Townhouse Corp., 57 AD3d 416, 870 NYS2d 266 (1st Dept 2008).

Subsequently, some courts have applied the Frye "general acceptance" standard to an expert's "causation theory" outside of the social science context, Matter of Bausch & Lomb Contact Lens Solution Index Product Liability Litigation, 125 AD3d 461, 999 NYS2d 743 (1st Dept 2015) (citing Cornell v 360 West 51st Street Realty, LLC, 22 NY3d 762, 986 NYS2d 389, 9 NE3d 884 (2014)); Pullman v Silverman, 125 AD3d 562, 5 NYS3d 38 (1st Dept 2015) ("general acceptance" applied to both theory and methodology); see Marso v Novak, 42 AD3d 377, 840 NYS2d 53 (1st Dept 2007) (rejecting "methodology-only approach, noting that Frye also applies "when there is a generally or widely held view in the scientific community rejecting [the expert's] conclusions outright"). Other courts, however, have refused to apply the "general acceptance" standard to an expert's theory or conclusion, see Johnson v Guthrie Medical Group, P.C., 125 AD3d 1445, 3 NYS3d 828 (4th Dept 2015); Keilany B. ex rel. Xiomara S. v New York, 122 AD3d 424, 997 NYS2d 372 (1st Dept 2014) (expert's opinion regarding standard of care in treating injured's condition not "the type of novel theory that necessitates [Frye] hearing"); Ratner v McNeil-PPC, Inc., 91 AD3d 63, 933 NYS2d 323 (2d Dept 2011) (discussing applicability of Frye); see also Sadek v Wesley, 117 AD3d 193, 986 NYS2d 25 (1st Dept 2014) (same), affd 27 NY3d 982, 32 NYS3d 42, 51 NE3d 553 (2016).

In the medical malpractice context, courts have, with increasing frequency, applied the Frye and Parker analyses to exclude expert theories of causation that are not derived from sound or generally accepted methodology, Frye v Montefiore Medical Center, 100 AD3d 28, 951 NYS2d 4 (1st Dept 2012); Ratner v McNeil-PPC, Inc., 91 AD3d 63, 933 NYS2d 323 (2d Dept 2011); Lugo v New York City Health and Hospitals Corp., 89 AD3d 42, 929 NYS2d 264 (2d Dept 2011); Marso v Novak, 42 AD3d 377, 840 NYS2d 53 (1st Dept 2007); Cumberbatch v Blanchette, 35 AD3d 341, 825 NYS2d 744 (2d Dept 2006); Saulpaugh ex rel. Saulpaugh v Krafte, 5 AD3d 934, 774 NYS2d 194 (3d Dept 2004); Lara v New York City Health and Hospitals Corp., 305 AD2d 106, 757 NYS2d 740 (1st Dept 2003); Selig v Pfizer, Inc., 290 AD2d 319, 735 NYS2d 549 (1st Dept 2002); Stanski v Ezersky, 250 AD2d 422, 673 NYS2d 90 (1st Dept 1998). However, the application of Frye in Zito v Zabarsky, 28 AD3d 42, 812 NYS2d 535 (2d Dept 2006), was found to be too restrictive where the expert's "novel" causation theory was supported by an extrapolation from certain generally accepted scientific principles. Similarly, the trial court's determination to exclude plaintiff's expert's causation theory after a Frye hearing was found to be error in Marsh v Smyth, 12 AD3d 307, 785

NYS2d 440 (1st Dept 2004), and Sadek v Wesley, 117 AD3d 193, 986 NYS2d 25 (1st Dept 2014), affd 27 NY3d 982, 32 NYS3d 42, 51 NE3d 553 (2016).

V. Specific Issues for Expert Testimony

A. Causation

Expert testimony has been admitted as to the cause or effect of a particular event, Nallan v Helmsley-Spear, Inc., 50 NY2d 507, 429 NYS2d 606, 407 NE2d 451 (1980) (effect presence of lobby attendant may have on deterring criminal activity); Tarlowe v Metropolitan Ski Slopes, Inc., 28 NY2d 410, 322 NYS2d 665, 271 NE2d 515 (1971) (cause of skiing accident); Karasik v Bird, 98 AD2d 359, 470 NYS2d 605 (1st Dept 1984) (effect of medication); Ward v Kovacs, 55 AD2d 391, 390 NYS2d 931 (2d Dept 1977) (effect that taking LSD may have had on hand infection).

In toxic tort cases, expert opinion is often introduced to establish the causative relationship between the injured's exposure and his or her symptoms. In such cases, both "general causation" and "specific causation" must be shown, Sean R. ex rel. Debra R. v BMW of North America, LLC, 26 NY3d 801, 28 NYS3d 656, 48 NE3d 937 (2016); Cornell v 360 West 51st Street Realty, LLC, 22 NY3d 762, 986 NYS2d 389, 9 NE3d 884 (2014); see Nonnon v New York, 88 AD3d 384, 932 NYS2d 428 (1st Dept 2011). "General causation" refers to the conclusion, generally accepted in the scientific community, that there is a cause-and-effect relationship between exposure to a toxin and particular symptoms, Cornell v 360 West 51st Street Realty, LLC, supra; see Sean R. ex rel. Debra R. v BMW of North America, LLC, supra. "Specific causation" refers to the conclusion that plaintiff was exposed to the toxin and that it actually caused his or her symptoms, id. Notably, an expert's testimony establishing an "association" or "linkage" between exposure and certain symptoms is not alone sufficient to prove "general causation," Cornell v 360 West 51st Street Realty, LLC, supra; see Sean R. ex rel. Debra R. v BMW of North America, LLC, supra; Fraser v 301-52 Townhouse Corp., 57 AD3d 416, 870 NYS2d 266 (1st Dept 2008). Standards promulgated by regulatory agencies as protective measures are also not sufficient to demonstrate legal causation, Cornell v 360 West 51st Street Realty, LLC, supra; Parker v Mobil Oil Corp., 7 NY3d 434, 824 NYS2d 584, 857 NE2d 1114 (2006); see Hamilton v Miller, 23 NY3d 592, 992 NYS2d 190, 15 NE3d 1199 (2014) (in scientifically complex cases such as those involving lead paint injuries, general causation requires proof through scientific evidence that exposure can cause plaintiff's alleged injuries; plaintiff's burden of proving general causation not satisfied by court's taking judicial notice of legislative statutory preamble opining on dangers of exposure).

Generally, the foundation for opinion evidence on causation should include a statement that (a) the injured was exposed to a particular toxin, (b) the toxin is capable of causing the

injured's illness or symptoms (general causation) and (c) the injured was exposed to sufficient levels of the toxin to cause his or her illness or symptoms (specific causation), Cornell v 360 West 51st Street Realty, LLC, 22 NY3d 762, 986 NYS2d 389, 9 NE3d 884 (2014); Parker v Mobil Oil Corp., 7 NY3d 434, 824 NYS2d 584, 857 NE2d 1114 (2006); Nonnon v New York, 88 AD3d 384, 932 NYS2d 428 (1st Dept 2011); see Sean R. ex rel. Debra R. v BMW of North America, LLC, 26 NY3d 801, 28 NYS3d 656, 48 NE3d 937 (2016). However, it is not always necessary for plaintiff's expert precisely to quantify the exposure level, as long as whatever method of establishing causation used is generally accepted in the scientific community, Parker v Mobil Oil Corp., supra; Nonnon v New York, supra; Jackson v Nutmeg Technologies, Inc., 43 AD3d 599, 842 NYS2d 588 (3d Dept 2007); see Sean R. ex rel. Debra R. v BMW of North America, LLC, supra; Kendall v Amica Mut. Ins. Co., 135 AD3d 1202, 23 NYS3d 702 (3d Dept 2016). At a minimum though, there must be evidence from which the factfinder can conclude that the plaintiff was exposed to levels of the agent that are known to cause the kind of harm that the plaintiff claims to have suffered, Sean R. ex rel. Debra R. v BMW of North America, LLC, supra. For example, in a case involving an alleged injury from exposure to benzene at the workplace, the Court of Appeals suggested that exposure levels could be estimated through the use of a mathematical model, comparison to the exposure levels of study subjects and qualitative means, Parker v Mobil Oil Corp., supra; see Nonnon v New York, supra. In Jackson v Nutmeg Technologies, Inc., supra, the court held that an adequate foundation was laid despite the fact that only marginal levels of toxin were found in the air and surfaces at plaintiff's work site, where there was evidence that the particular toxin dissipates rapidly, plaintiff's expert affirmed that the manner in which the toxin had been fed into the steam system caused concentrated levels to be released, the expert's conclusion on causation was based on a report that detailed the epidemiological methods he used to conduct the study and the facts relating to plaintiff's accident were compared to those recorded in other studies.

In contrast, in a case involving symptoms allegedly resulting from exposure to dampness and mold, the expert evidence of causation was insufficient where the expert failed to specify the level of exposure needed to produce plaintiff's symptoms and plaintiff failed to offer a reliable measurement of the level of mold in the apartment, Fraser v 301-52 Townhouse Corp., 57 AD3d 416, 870 NYS2d 266 (1st Dept 2008); see Cleghorne v New York, 99 AD3d 443, 952 NYS2d 114 (1st Dept 2012). In Cornell v 360 West 51st Street Realty, LLC, 22 NY3d 762, 986 NYS2d 389, 9 NE3d 884 (2014), plaintiff could not establish general causation where defendant's expert opined that it is not generally accepted within the relevant scientific community that exposure to mold can cause the particular illnesses of which plaintiff complained. In Cornell, plaintiff's expert made no effort to identify the specific disease-causing agent to which plaintiff was allegedly exposed, nor did he attempt to quantify plaintiff's level of exposure to an allegedly "unusual mixture" of molds. The Cornell Court declined on the evidence presented to accept the view that the performance of a differential

diagnosis was sufficient to prove that plaintiff had been exposed to enough of a toxic agent to establish specific causation where general causation had not been established. However, the Cornell Court noted that there is no categorical rule that exposure to dampness and mold cannot be considered a cause of a plaintiff's disease, Cornell v 360 West 51st Street Realty, LLC, supra.

As to the use of an "odor threshold analysis" to show that a plaintiff was exposed to a certain level of a substance, see Sean R. ex rel. Debra R. v BMW of North America, LLC, 26 NY3d 801, 28 NYS3d 656, 48 NE3d 937 (2016) (concluding that "symptom-threshold" methodology, unlike "odor threshold analysis," has not been shown to be generally accepted in scientific community).

B. Malpractice

In malpractice cases, plaintiff must present expert testimony to support the allegations of malpractice, unless the alleged act of malpractice is within the competence of a lay jury, 530 East 89 Corp. v Unger, 43 NY2d 776, 402 NYS2d 382, 373 NE2d 276 (1977) (architectural malpractice); McDermott v Manhattan Eye, Ear and Throat Hospital, 15 NY2d 20, 255 NYS2d 65, 203 NE2d 469 (1964) (medical malpractice); see States v Lourdes Hosp., 100 NY2d 208, 762 NYS2d 1, 792 NE2d 151 (2003) (same); Kambat v St. Francis Hosp., 89 NY2d 489, 655 NYS2d 844, 678 NE2d 456 (1997) (discussing necessity of expert testimony in medical malpractice cases based upon res ipsa loquitur); Koehler v Schwartz, 48 NY2d 807, 424 NYS2d 119, 399 NE2d 1140 (1979) (medical malpractice); Columbus v Smith & Mahoney P.C., 259 AD2d 857, 686 NYS2d 235 (3d Dept 1999) (negligent design); PJI 2:150; PJI 2:152, PJI 2:153 and PJI 2:154. Failure to adduce expert testimony as to causation in a medical malpractice action may result in the failure to make out a prima facie case, see Prete v Rafla-Demetrious, 224 AD2d 674, 638 NYS2d 700 (2d Dept 1996); Kennedy v Peninsula Hosp. Center, 135 AD2d 788, 522 NYS2d 671 (2d Dept 1987).

As a general rule, in a medical malpractice action against a doctor, the opinion of a witness who is not a doctor as to the proper course of treatment is not competent evidence on the issue of defendant's negligence, Parese v Shankman, 300 AD2d 1087, 752 NYS2d 503 (4th Dept 2002); Jordan v Glens Falls Hosp., 261 AD2d 666, 689 NYS2d 538 (3d Dept 1999); see Elliot v Long Island Home, Ltd., 12 AD3d 481, 784 NYS2d 615 (2d Dept 2004); LaMarque v North Shore University Hosp., 227 AD2d 594, 643 NYS2d 221 (2d Dept 1996). A medical expert need not be a specialist in a particular field in order to testify regarding accepted practices in that field, but the witness nonetheless should be possessed of the requisite skill, training, education, knowledge or experience from which it can be assumed that his or her opinion is reliable, Tsimbler v Fell, 123 AD3d 1009, 999 NYS2d 863 (2d Dept 2014); Mitrovic v Silverman, 104 AD3d 430, 961 NYS2d 75 (1st Dept 2013); Ozugowski v New York, 90 AD3d

875, 935 NYS2d 613 (2d Dept 2011); Mustello v Berg, 44 AD3d 1018, 845 NYS2d 86 (2d Dept 2007); Behar v Coren, 21 AD3d 1045, 803 NYS2d 629 (2d Dept 2005); Postlethwaite v United Health Services Hospitals, Inc., 5 AD3d 892, 773 NYS2d 480 (3d Dept 2004). Thus, where a physician opines outside his or her area of specialization, a foundation must be laid tending to support the reliability of the opinion rendered, DiLorenzo v Zaso, 148 AD3d 1111, 50 NYS3d 503 (2d Dept 2017) (pediatrician and neonatologist failed to lay proper foundation for opinion regarding rheumatology); Ozugowski v New York, supra (internist/cardiologist failed to establish foundation for opinion regarding psychiatric treatment); Bartolacci-Meir v Sassoon, 149 AD3d 567, 50 NYS3d 395 (1st Dept 2017) (general surgeon failed to lay proper foundation for opinion regarding gastroenterological treatment); Mustello v Berg, supra (same); Behar v Coren, supra (pathologist failed to establish proper foundation to opine on surgical and gastroenterological treatment); Postlethwaite v United Health Services Hospitals, Inc., supra (physician whose expertise confined to anesthesiology and pharmacology properly permitted to testify regarding certain accepted medical practices in internal medicine, gastroenterology, general surgery and nursing, but properly precluded from testifying as to whether surgeon and gastroenterologist correctly diagnosed and treated decedent based upon accepted diagnostic practices in their respective fields); see Escobar v Allen, 5 AD3d 242, 774 NYS2d 28 (1st Dept 2004) (podiatrist licensed to treat the type of injury sustained by plaintiff should not have been precluded from testifying against defendant physician without exploring information concerning his or her professional and educational experience); Parese v Shankman, supra.

Whether a duty is owed by a consulting physician to a treating physician and, ultimately to the patient, is a question of law and expert opinion on the subject is not permissible, Sawh v Schoen, 215 AD2d 291, 627 NYS2d 7 (1st Dept 1995); Lipton by Lipton v Kaye, 214 AD2d 319, 624 NYS2d 590 (1st Dept 1995); but see Cogswell by Cogswell v Chapman, 249 AD2d 865, 672 NYS2d 460 (3d Dept 1998) (question of fact as to whether doctor-patient relationship had arisen where there was evidence that defendant doctor had more than informal interest and involvement in plaintiff's condition and in light of defendant's expertise in area of treatment and emergency room doctor's lack of expertise in area).

C. Speed

The opinion evidence of a properly qualified police officer is admissible and sufficient to sustain a conviction for speeding even in the absence of a mechanical device to gauge a vehicle's speed, People v Olsen, 22 NY2d 230, 292 NYS2d 420, 239 NE2d 354 (1968). Additionally, where a proper foundation is laid, lay witnesses may properly be allowed to testify as to the speeds of automobiles and buses, Senecal v Drollette, 304 NY 446, 108 NE2d 602 (1952); Guthrie v Overmyer, 19 AD3d 1169, 797 NYS2d 203 (4th Dept 2005); Sweeney v Peterson, 1 AD3d 650, 766 NYS2d 255 (3d Dept 2003); Lo Faso v Jamaica Buses, Inc.,

63 AD2d 998, 406 NYS2d 131 (2d Dept 1978); Beechey v De Sorbo, 53 AD2d 727, 383 NYS2d 925 (3d Dept 1976); see Nikolov v Cheektowaga, 96 AD3d 1372, 946 NYS2d 734 (4th Dept 2012) (lay witness's testimony inadmissible where witness stated that she "was not a driver" and "can't tell speed"). In Soto v New York City Transit Authority, 6 NY3d 487, 813 NYS2d 701, 846 NE2d 1211 (2006), the Court of Appeals upheld the admission of a plaintiff's estimate of his own running speed where the plaintiff established a sufficient foundation by demonstrating that he had two years' experience running on a treadmill calibrated to measure miles per hour.

D. Accident Reconstruction

Cases in which testimony from accident reconstruction experts has been approved include: Wellington v New York City Transit Authority, 117 AD3d 592, 985 NYS2d 872 (1st Dept 2014) (explanation of how photographs demonstrated that accident was bus driver's fault); Hilton v Jones, 114 AD3d 1113, 981 NYS2d 223 (3d Dept 2014) (testimony based on accident reconstruction report); Felicia v Boro Crescent Corp., 105 AD3d 697, 964 NYS2d 158 (2d Dept 2013) (accident reconstruction testimony); Van Scooter v 450 Trabold Road, Inc., 206 AD2d 865, 616 NYS2d 129 (4th Dept 1994) (testimony that lack of bumper on truck contributed to injuries); Sullivan v Locastro, 178 AD2d 523, 577 NYS2d 631 (2d Dept 1991) (testimony as to how unusual configuration and traffic patterns of intersection affected plaintiff's conduct in his attempt to cross street); Sitaras v James Ricciardi & Sons, Inc., 154 AD2d 451, 545 NYS2d 937 (2d Dept 1989) (testimony that plaintiff's vehicle would have been more heavily damaged if accident had occurred as plaintiff described); Norfleet v New York City Transit Authority, 124 AD2d 715, 508 NYS2d 468 (2d Dept 1986) (accident-reconstruction evidence admissible even where there were certain dissimilarities between simulation and actual accident, at least where several variations more favorable to plaintiff than actual conditions).

In the following cases, accident-reconstruction evidence from experts was held inadmissible: Groninger v Mamaroneck, 17 NY3d 125, 927 NYS2d 304, 950 NE2d 908 (2011) (plaintiff's expert engineer's testimony speculative where premises inspection made and photographs taken over two years after accident); Feldsberg v Nitschke, 49 NY2d 636, 427 NYS2d 751, 404 NE2d 1293 (1980) (investigator properly precluded from testifying as to cause of skid marks, since he was not shown to have been familiar with circumstances of particular accident); Costanzo v Chautauqua, 110 AD3d 1473, 972 NYS2d 791 (4th Dept 2013) (accident reconstruction expert's affidavit speculative and of no probative worth where expert failed to submit data on which opinions based); Lopez v Yannotti, 24 AD2d 758, 263 NYS2d 523 (2d Dept 1965) (insufficient record evidence to support opinion of police officer's accident reconstruction testimony).

E. Biomechanical Engineers

In personal injury actions, the testimony of a biomechanical engineer is sometimes offered to establish the amount of force generated as a result of an event (such as an automobile accident), that the amount of force did or did not cause the plaintiff's injuries (i.e., the mechanics of injuries), or both, see Shillingford v New York City Transit Authority, 147 AD3d 465, 46 NYS3d 110 (1st Dept 2017); Vargas v Sabri, 115 AD3d 505, 981 NYS2d 914 (1st Dept 2014). Cases in which opinions from biomechanical engineers were allowed include: Shillingford v New York City Transit Authority, supra (opinion regarding maximum force that may have been applied to plaintiff and likelihood that it caused resulting injury); Vargas v Sabri, supra (opinion that force of accident could not have caused alleged injuries; biomechanical engineer's lack of medical training did not render him unqualified); Plate v Palisade Film Delivery Corp., 39 AD3d 835, 835 NYS2d 324 (2d Dept 2007) (opinion regarding whether force of impact in accident could have caused injury or exacerbated preexisting injury); Valentine v Grossman, 283 AD2d 571, 724 NYS2d 504 (2d Dept 2001) (opinion that force generated in accident was not sufficient to cause alleged injury); but see Gates v Longden, 120 AD3d 980, 991 NYS2d 229 (4th Dept 2014) (biomechanical engineer, who was not medical doctor, lacked requisite qualifications to render opinion regarding injury causation).

F. Miscellaneous Issues

Expert testimony may be used to establish the monetary value of the services of a homemaker in an action for her wrongful death, De Long v Erie, 60 NY2d 296, 469 NYS2d 611, 457 NE2d 717 (1983); see Smith v M.V. Woods Const. Co., 309 AD2d 1155, 764 NYS2d 749 (4th Dept 2003) (vocational rehabilitation expert not qualified to express opinion on past and future loss of earnings, past and future loss of household services and future medical expenses; such matters are generally the subject of expert testimony by an economist); see also PJI 2:320.3. As to the use of expert testimony to establish the extent of future lost business profits, see Wathne Imports, Ltd. v PRL USA, Inc., 101 AD3d 83, 953 NYS2d 7 (1st Dept 2012).

Value is not strictly a subject for expert testimony, S. Nicolia & Sons Realty Corp. v A.J.A. Concrete Ready Mix, Inc., 137 AD3d 994, 30 NYS3d 636 (2d Dept 2015). The opinion of a nonexpert witness may be received concerning the value of property where the witness is shown to be acquainted with the value of similar things, id. The amount of knowledge that a witness must be shown to possess in order to qualify to testify to an opinion as to value is largely discretionary with the judge, id.

VI. Pre-trial Procedure

A. Expert Disclosure Requirements Under CPLR 3101(d)(1)

CPLR 3101(d)(1)(i) provides that, upon request, each party must identify the experts he or she intends to call at trial and must also disclose in reasonable detail (a) the subject matter on which each expert is expected to testify, (b) the substance of the facts and opinions on which each expert is expected to testify, (c) the qualifications of each expert witness and (d) a summary of the grounds for each expert's opinion, see Carter v Isabella Geriatric Center, Inc., 71 AD3d 443, 896 NYS2d 332 (1st Dept 2010) (dismissing complaint where all of plaintiff's claims required expert testimony and expert disclosure statements contained a "sea of generalities"). CPLR 3101(d)(1)(i) only applies to expert witnesses, not fact witnesses, Sheppard v Blitman/Atlas Building Corp., 288 AD2d 33, 734 NYS2d 1 (1st Dept 2001). Expert disclosure need not be as detailed as the expert's report, which need not itself be disclosed, see Barrowman v Niagara Mohawk Power Corp., 252 AD2d 946, 675 NYS2d 734 (4th Dept 1998). Where a party for good cause shown has retained an expert too close to the time of trial to give the adversary appropriate notice, the party is not automatically precluded from introducing the expert's testimony at the trial. In fact, preclusion as a penalty for late disclosure is not permitted where "good cause" exists for a party's retention of an expert "an insufficient period of time before the commencement of trial to give appropriate notice," CPLR 3101(d)(1)(i); see Shopsin v Siben & Siben, 289 AD2d 220, 733 NYS2d 697 (2d Dept 2001) (preclusion improvident where delay not willful or intentional and prejudice could be obviated by adjournment); Carringi v International Paper Co., 184 AD2d 137, 591 NYS2d 600 (3d Dept 1992); see also Burbige v Siben & Ferber, 115 AD3d 632, 981 NYS2d 537 (2d Dept 2014) (preclusion of expert testimony not required where delay in disclosure not willful and no prejudice shown); Rowan v Cross County Ski & Skate, Inc., 42 AD3d 563, 840 NYS2d 414 (2d Dept 2007) (preclusion of expert testimony not required where delay in retaining expert not willful and disclosure occurred two weeks before scheduled trial date); Quinn v Artcraft Const., Inc., 203 AD2d 444, 610 NYS2d 598 (2d Dept 1994) (preclusion permitted where party failed to show good cause of late retention of expert). Instead, on motion of any party made before or at trial, or on its own initiative, the court may fashion an order in the interest of justice, CPLR 3101(d)(1)(i).

Moreover, CPLR 3212(b) provides, in relevant part, that "[w]here an expert affidavit is submitted in support of, or opposition to, a motion for summary judgment, the court shall not decline to consider the affidavit because an expert exchange pursuant to [CPLR 3101[d][1][i]] was not furnished prior to the submission of the affidavit." That provision took effect on December 11, 2015 and applies to all pending cases for which a summary judgment motion was made on or after that date and all cases commenced on or after it, L 2015, ch 529, § 2.

For motions made prior to the effective date, the fact that disclosure has occurred after the filing of a note of issue and certification of readiness does not, by itself, render the disclosure untimely or require that the expert's affidavit be disregarded on a motion for summary judgment, Rivers v Birnbaum, 102 AD3d 26, 953 NYS2d 232 (2d Dept 2012). In Rivers v Birnbaum, the Second Department clarified its view that "the fact that the disclosure of an expert pursuant to CPLR 3101(d)(1)(i) takes place after the filing of the note of issue and certificate of readiness does not, by itself, render the disclosure untimely," see Abreu v Metropolitan Transp. Authority, 117 AD3d 972, 986 NYS2d 557 (2d Dept 2014); Buchanan v Mack Trucks, Inc., 113 AD3d 716, 979 NYS2d 342 (2d Dept 2014); Begley v New York, 111 AD3d 5, 972 NYS2d 48 (2d Dept 2013).

Rather, that fact is but one factor for the trial court to use in determining whether disclosure was untimely and, if untimely, whether the court should nevertheless, in its discretion, impose a sanction short of preclusion, Rivers v Birnbaum, 102 AD3d 26, 953 NYS2d 232 (2d Dept 2012). At least one post-Rivers decision, however, indicates that a party's failure to disclose his or her expert pursuant to CPLR 3101(d)(1)(i) prior to the filing of a note of issue and certificate of readiness precludes a court, absent good cause, from considering an affidavit submitted by that party's expert in the context of a timely motion for summary judgment, see DeSimone v New York, 121 AD3d 420, 993 NYS2d 551 (1st Dept 2014).

1. Failure to Comply with Expert Disclosure Requirements

Trial courts possess broad discretion in their supervision of expert disclosure under CPLR 3101(d)(1)(i), Rivera v Montefiore Medical Center, 28 NY3d 999, 41 NYS3d 454, 64 NE3d 274 (2016). A determination regarding whether to preclude a party from introducing the testimony of an expert witness at trial based on the party's failure to comply with 3101(d)(1)(i) is left to the sound discretion of the trial court, id. Where a defendant's timely-served CPLR 3101(d)(1)(i) statement contained a purported deficiency that was readily apparent from the face of the statement and could have been raised before trial, but the plaintiff did not object to the alleged deficiency until mid-trial immediately prior to the expert's testimony, the trial court acted within its discretion in determining that the time to challenge the statement's content had passed, id. Supreme Court has broad discretion in determining whether to impose the sanction of preclusion for a failure of timely disclosure regarding expert testimony, see Hansel v Lamb, 257 AD2d 795, 684 NYS2d 20 (3d Dept 1999); Marra v Hensonville Frozen Food Lockers Inc., 189 AD2d 1004, 592 NYS2d 525 (3d Dept 1993). Where a party has failed to provide required disclosure, the court may preclude the testimony of the undisclosed expert, Donacik v Pool Mart, Inc., 270 AD2d 921, 705 NYS2d 784 (4th Dept 2000); Hudson v Manhattan and Bronx Surface Transit Operating Authority, 188 AD2d 355, 591 NYS2d 31 (1st Dept 1992); Olden v Bolton, 137 AD2d 878, 524 NYS2d 562 (3d Dept 1988). There is no specific time limit for disclosing information about a

party's experts, Mead v Dr. Rajadhyax' Dental Group, 34 AD3d 1139, 824 NYS2d 790 (3d Dept 2006); Gushlaw v Roll, 290 AD2d 667, 735 NYS2d 667 (3d Dept 2002); see Rivers v Birnbaum, 102 AD3d 26, 953 NYS2d 232 (2d Dept 2012). The Third Judicial District has adopted a local rule requiring an expert disclosure response to be served with or before the filing of the Note of Issue, but the Third Department has held that the courts have discretion to excuse untimely disclosure in the absence of prejudice or intentional misconduct, Washington v Albany Housing Authority, 297 AD2d 426, 746 NYS2d 99 (3d Dept 2002); Gushlaw v Roll, supra. Individual judges, local districts and particular parts (including the Commercial Division and the Matrimonial Parts) may have rules establishing deadlines for expert disclosures, see 22 NYCRR 202.70(g)(13)(c).

2. Medical, Dental and Podiatric Malpractice Actions

In an action for medical, dental or podiatric malpractice, a party responding to a request for disclosure under CPLR 3101(d)(1)(i) may omit the names of medical, dental or podiatric experts but is still required to disclose all of the other information about such experts required by the statute, CPLR 3101(d)(1)(i). The Fourth Department has held that if disclosure of the expert's qualifications would tend to reveal the expert's identity, the qualifications may be withheld, Thompson v Swiantek, 291 AD2d 884, 736 NYS2d 819 (4th Dept 2002). In contrast, the Second Department has held that a plaintiff in a medical malpractice action may avoid full disclosure of its expert's qualifications only when he or she can establish that there is a reasonable probability that such disclosure (a) would lead to the discovery of the actual identity of its expert and (b) would cause the expert to be subjected to unreasonable annoyance, expense, embarrassment, disadvantage or other prejudice, Thomas v Alleyne, 302 AD2d 36, 752 NYS2d 362 (2d Dept 2002); see Mattis v Keen, 54 AD3d 610, 864 NYS2d 6 (1st Dept 2008).

Despite efforts by parties to force disclosure of the names of their adversaries' expert by moving for summary judgment and thereby requiring the submission of the expert's affidavit, the courts have held that a party opposing a summary judgment motion in a medical, dental or podiatric malpractice action may do so without disclosing the identity of the party's medical experts, as long as an unredacted version of the physician's affidavit is provided in camera, Turi v Birk, 118 AD3d 979, 988 NYS2d 670 (2d Dept 2014); Rojas v McDonald, 267 AD2d 130, 701 NYS2d 21 (1st Dept 1999); Carrasquillo v Rosencrans, 208 AD2d 488, 617 NYS2d 51 (2d Dept 1994); see Napierski v Finn, 229 AD2d 869, 646 NYS2d 415 (3d Dept 1996). However, a party moving for summary judgment in a medical, dental or podiatric malpractice action must reveal the identity of any expert submitting an affidavit in support of the motion, Rivera v Albany Medical Center Hosp., 119 AD3d 1135, 990 NYS2d 310 (3d Dept 2014); Marano v Mercy Hosp., 241 AD2d 48, 670 NYS2d 570 (2d Dept 1998).

CPLR 3101(d)(1) applies only to experts retained to give testimony at trial, and not to treating physicians, Mantuano v Mehale, 258 AD2d 566, 685 NYS2d 467 (2d Dept 1999), even where the treating physician is offering expert testimony at trial, Hamer v New York, 106 AD3d 504, 965 NYS2d 99 (1st Dept 2013); Malanga v New York, 300 AD2d 549, 752 NYS2d 391 (2d Dept 2002); Overeem v Neuhoff, 254 AD2d 398, 679 NYS2d 74 (2d Dept 1998); but see Norton v Nguyen, 49 AD3d 927, 853 NYS2d 671 (3d Dept 2008).

3. Commercial Division Rules

The Uniform Rules for Commercial Division cases, which may be found in 22 NYCRR § 202.70, contain provisions with respect to expert disclosure. Those Rules, along with the Individual Part Rules, should be consulted for a complete understanding of the current expert disclosure requirements in the Commercial Division.

B. Required Medical Disclosure in Personal Injury and Wrongful Death Actions—22 NYCRR § 202.17

Section 202.17 of the Uniform Rules for the Supreme and County Courts, 22 NYCRR § 202.17, provides for physical examinations and exchange of medical reports in personal injury and wrongful death actions. A party's obligation to provide a report under § 202.17 of the Uniform Rules may not be avoided by the failure of the medical expert to prepare a report after the examination, Kelly v Tarnowski, 213 AD2d 1054, 624 NYS2d 504 (4th Dept 1995). Under § 202.17(h), plaintiff may be precluded from offering in evidence any hospital record not made available for inspection pursuant to the rule unless the court orders otherwise. Further, no party may offer (a) evidence of injuries or conditions not set forth or challenged in the medical reports exchanged between the parties or (b) testimony of any treating or examining physician whose medical report has not been exchanged, see Stern v Calzado, 163 AD2d 299, 557 NYS2d 156 (2d Dept 1990). However, plaintiffs are not required to document or create medical evidence of every alleged injury. Thus, 202.17(b)(1) does not oblige plaintiffs to hire a medical provider to conduct an examination solely for purposes of litigation. Rather, plaintiffs are required only to produce reports from medical providers who have previously treated or examined them, Hamilton v Miller, 23 NY3d 592, 992 NYS2d 190, 15 NE3d 1199 (2014) (plaintiffs, who alleged childhood injuries from lead paint, may never have been contemporaneously treated for such injuries).

Notwithstanding 22 NYCRR § 202.17, a medical expert may testify regarding a party's injury without an exchange of medical reports if the expert's testimony is based solely upon the records already in evidence and not upon the expert's examination of the injured party, Putchlawski v Diaz, 192 AD2d 444, 597 NYS2d 10 (1st Dept 1993); Campoli v Lobmeyer, 183

AD2d 1049, 583 NYS2d 639 (3d Dept 1992); Markey v Eiseman, 114 AD2d 887, 495 NYS2d 61 (2d Dept 1985). The expert may be permitted to testify, even if he or she examined a party, where the testimony will be based solely upon other evidence in the case, Neils v Darmochwal, 6 AD3d 589, 774 NYS2d 809 (2d Dept 2004). However, if the opinion being offered is also based upon an examination, it will be precluded, Kelly v Tarnowski, 213 AD2d 1054, 624 NYS2d 504 (4th Dept 1995); Erena v Colavita Pasta & Olive Oil Corp., 199 AD2d 729, 605 NYS2d 475 (3d Dept 1993). Absent unfair surprise to the opposing party, a treating or examining physician is permitted to testify regarding causation notwithstanding any failure to provide an opinion regarding causation in disclosure under § 202.17, see Kowalsky v Suffolk, 139 AD3d 903, 34 NYS3d 75 (2d Dept 2016); Moreno v Roberts, 161 AD2d 1099, 557 NYS2d 657 (3d Dept 1990); see also Overeem v Neuhoff, 254 AD2d 398, 679 NYS2d 74 (2d Dept 1998) (CPLR 3101[d][1][i]); Holshek v Stokes, 122 AD2d 777, 505 NYS2d 664 (2d Dept 1986) (physician properly allowed to testify that plaintiff's condition permanent, since permanence not an "injury" or "condition" within § 202.17).

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