

THE COURTROOM TURNED CLASSROOM: A MODEL PROCEDURE FOR EDUCATING THE GATEKEEPERS OF EXPERT EVIDENCE IN COMPLEX TOXIC TORT CASES

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INTRODUCTION

During his State of the State Address shortly after taking office, Missouri Governor Eric Greitens discussed some of the problems in Missouri’s judicial system that he believed contributed to its classification as “the worst judicial hellhole in America.”¹ Governor Greitens promised to address these problems, which he claimed were driving businesses and jobs out of the state.² One critical step, according to his proposal, was to adopt the *Daubert* standard for expert witness testimony.³

This push towards the *Daubert* standard in Missouri reflects the criticism the state has received for its lenient former standard.⁴ The old standard required that the facts on which an expert bases his opinions “be of a type reasonably relied upon by other experts in the field.”⁵ This standard does not require judges to independently assess the reliability

¹ Eric Greitens, Governor of Missouri, 2017 State of the State Address (Jan. 17, 2017). Governor Greitens was referring to a report published by the American Tort Reform Foundation, which named St. Louis, Missouri as the number one judicial hellhole in the country for 2016–2017. See AM. TORT REFORM FOUND., JUDICIAL HELLHOLES 2016–2017, <http://www.judicialhellholes.org/wp-content/uploads/2016/12/JudicialHellholes-2016.pdf> [<https://perma.cc/M3YX-PVYE>].

² Greitens, *supra* note 1.

³ *Id.* See *infra* Section I.A for an overview of the *Daubert* standard.

⁴ See Dennis Harms & Lawrence Hall, *How New Expert Witness Rules May Impact Missouri Courts*, LAW360 (Apr. 10, 2017), <https://www.law360.com/articles/911458/how-new-expert-witness-rules-may-impact-missouri-courts>.

⁵ Russell Baker & Kassandra N. Garrison, *Raising the Bar: Missouri’s New Daubert Law*, SEGAL MCCAMBRIDGE: LITIG. BLOG (Apr. 12, 2017), <http://www.smsm.com/blogs-litigation-blog/raising-the-bar-missouris-new-daubert-law> [<https://perma.cc/WF2W-JZWM>]. While this standard sounds similar to the *Frye* “general acceptance” standard, in practice it was far more lenient. *Id.*

of expert evidence before admitting it for jury review.⁶ Critics of the old standard argued that it allowed “junk science” into evidence through expert witnesses.⁷

In a recent series of toxic tort cases in Missouri, these critics claimed that the evidence linking Johnson & Johnson baby powder with talc to ovarian cancer is junk science, but that the lenient Missouri expert evidence standard did not effectively bar this questionable evidence from reaching the factfinder.⁸ Missouri emerged as one of the hubs of talc powder litigation, which has developed into a massive area of toxic tort litigation over the past several years.⁹ Despite the prevalence of these cases across the country, many argue that the claims lack strong scientific support.¹⁰ While the science underlying talc-cancer claims may be uncertain, the trend of large damages awards in the Missouri cases is undeniable.¹¹

⁶ See *id.*

⁷ See, e.g., Harms & Hall, *supra* note 4.

⁸ See *id.* As of July 2018, approximately 9,000 plaintiffs have sued Johnson & Johnson (J&J), claiming that using J&J baby powder for feminine hygiene purposes caused the plaintiffs or their loved ones to develop ovarian cancer. Tiffany Hsu, *Johnson & Johnson Told to Pay \$4.7 Billion in Baby Powder Lawsuit*, N.Y. TIMES (July 12, 2018), <https://www.nytimes.com/2018/07/12/business/johnson-johnson-talcum-powder.html> [<https://perma.cc/2XD2-RFEJ>]. The plaintiffs point to studies published since 1971, claiming that the talc in baby powder can be absorbed into the reproductive system, leading to inflammation, and ultimately cancer, in the ovaries. Tiffany Hsu, *Risk on All Sides as 4,800 Women Sue Over Johnson’s Baby Powder and Cancer*, N.Y. TIMES (Sept. 28, 2017), <https://www.nytimes.com/2017/09/28/business/johnson-and-johnson-baby-talcum-powder-lawsuits.html> [<https://perma.cc/F357-5QN3>]. However, the National Cancer Institute has found that “[t]he weight of evidence does not support an association between perineal talc exposure and an increased risk of ovarian cancer.” *Ovarian, Fallopian Tube, and Primary Peritoneal Cancer Prevention (PDQ®) – Health Professional Version*, NAT’L CANCER INST., https://www.cancer.gov/types/ovarian/hp/ovarian-prevention-pdq#link/_220_toc [<https://perma.cc/ULK9-WAGD>] (last updated Mar. 1, 2019).

⁹ Nate Raymond, *J&J Ordered to Pay \$110 Million in U.S. Talc-Powder Trial*, REUTERS (May 4, 2017, 8:05 PM), <https://www.reuters.com/article/us-johnson-johnson-cancer-lawsuit/jj-ordered-to-pay-110-million-in-u-s-talc-powder-trial-idUSKBN18100F> [<https://perma.cc/6N2E-C2XZ>].

¹⁰ See, e.g., Michael Hiltzik, *Ovarian Cancer and Talc: Did Junk Science Cost Johnson & Johnson \$127 Million in Court?*, L.A. TIMES (May 6, 2016, 1:38 PM), <http://beta.latimes.com/business/hiltzik/la-fi-hiltzik-talc-cancer-johnson-20160506-snap-story.html> [<https://perma.cc/G3WH-NEQS>] (calling the science underlying talc-cancer claims “murky at best”).

¹¹ While operating under the old expert witness rule, Missouri juries awarded plaintiffs over \$300 million in compensatory and punitive damages over the course of four trials. Raymond,

It is in the wake of these talc powder cases that the new Missouri expert evidence rule went into effect on August 28, 2017.¹² The text of the new rule mirrors Federal Rule of Evidence 702 (Rule 702).¹³ Because Missouri courts typically use federal decisions as persuasive authority for interpreting state law that parallels federal law, Missouri judges will likely adhere to the standard outlined in *Daubert*.¹⁴ Proponents of the new rule argue that the more stringent standard is a victory against junk science.¹⁵ However, this view assumes that Rule 702 and *Daubert* act as successful barriers against the admission of shaky science, which this Note argues is not consistently the case under current applications of the Rule.

This Note maintains that in order for Rule 702 and the *Daubert* standard to have their intended effect, judges need more guidance and structure in how they approach scientific admissibility decisions. An analysis of how courts following *Daubert* currently address novel science, specifically in toxic tort cases where some members of the scientific community label causation evidence as junk science, supports this argument. This Note will focus on procedures courts have used to make gatekeeping decisions. From a study of these procedures, this Note will suggest a model framework that courts should employ to tackle novel science issues in mass tort litigation.

Part I of this Note discusses the development of the *Daubert* standard, efforts to use court-appointed experts, and pre-trial science tutorials that assist the court in executing its gatekeeping role. Part II addresses the limited capacity of judges to analyze complex scientific issues, along with the limitations and criticisms regarding the use of court-appointed experts and tutorials. Part III of this Note proposes a model procedure for judges to use in assessing the admissibility of expert testimony in mass toxic tort litigations. The model procedure draws from lessons learned through judges' varied uses of court-appointed experts and science tutorials. Judges have adapted to their

supra note 9. The largest individual damages award for a talc case in Missouri under the old standard was for over \$110 million. *Id.*

¹² MO. ANN. STAT. § 490.065 (West 2018).

¹³ Compare MO. ANN. STAT. § 490.065, with FED. R. EVID. 702.

¹⁴ Harms & Hall, *supra* note 4. See *infra* Section I.A for an overview of the *Daubert* standard.

¹⁵ See, e.g., Harms & Hall, *supra* note 4.

gatekeeping role, but they have done so inconsistently and with varied success. The procedure recognizes the novel approaches judges have taken to *Daubert* issues, but it seeks to streamline those approaches to create a system that encourages efficiency and consistency in complex science cases.

I. BACKGROUND

A. Judges as Gatekeepers

Before the Federal Rules of Evidence¹⁶ were enacted in 1975, federal courts employed the “general acceptance” test from *Frye v. United States* for admitting expert testimony.¹⁷ In *Frye*, the Court excluded expert testimony where the expert used a blood pressure device as a lie detector, finding that the method was not sufficiently recognized in the scientific community.¹⁸ The premise of *Frye* is that the scientific community, not the courtroom, is the proper venue for gauging the reliability of scientific evidence.¹⁹ Judges operating under *Frye* make admissibility determinations on a legal basis, rather than one that requires an independent analysis of scientific principles and findings.²⁰ Courts widely applied the *Frye* standard in the twentieth century, and some state courts continue to apply a similar standard.²¹

¹⁶ See generally FED. R. EVID.

¹⁷ The “general acceptance” test requires that evidence reach a threshold level of acceptance in the scientific community before it is admissible in court. *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923). See also Maria Isabel Hoelle, Robert P. DeMott & Jeffrey B. Shapiro, *Establishing Reliability: Daubert or Frye: Does it Really Matter?*, 59 NO. 7 DRI FOR DEF. 30 (2017).

¹⁸ *Frye*, 293 F. at 1014.

¹⁹ Hoelle, DeMott & Shapiro, *supra* note 17.

²⁰ See James P. Flannery, Kara Howe & Blanca Dominguez, *Frye, Daubert, Donaldson, and Junk Science: The Admissibility of Novel Science Evidence in Illinois*, 18-MAY CBA REC. 30, 31 (2004).

²¹ William J. Giacomo, *Scientific Proof Versus Junk Science: The Court’s Role as Gatekeeper for Admitting Scientific Expert Testimony*, 41 WESTCHESTER B.J. 29, 31 (2016). Nine states, including New York, still use *Frye* or a similar standard. Michael Morgenstern, *Daubert v. Frye—A State-by-State Comparison*, EXPERT INST. (Apr. 3, 2017), <https://www.theexpertinstitute.com/daubert-v-frye-a-state-by-state-comparison> [https://perma.cc/5KGG-4BKM]. To determine “general acceptance,” courts may take judicial notice or rely on

When the Federal Rules of Evidence were enacted, Rule 702 announced a new standard that did not appear to codify the “general acceptance” test.²² In the decades after the Rules were enacted, the federal standard for admitting expert testimony varied across jurisdictions, with courts adopting different understandings of whether Rule 702 replaced the *Frye* rule.²³ A debate emerged as to whether this new rule would allow for more or less admissible expert testimony.²⁴ Some commentators believed that the new test would widen the range of evidence admissible in court.²⁵ Others interpret the rule as presenting the opposite problem, making the standard too rigid and narrow.²⁶

The Supreme Court addressed the issue underlying this confusion and concern in *Daubert v. Merrell Dow Pharmaceuticals*,²⁷ definitively holding that the adoption of the Federal Rules of Evidence superseded the *Frye* test in federal court.²⁸ *Daubert* involved allegations that an anti-nausea drug caused birth defects in children whose mothers used the

legal precedent. See David Paul Horowitz, *Is Frye Still Generally Accepted?*, 78-MAY N.Y. ST. B.J. 22, 22–23 (2006). However, if the evidence is not clearly generally accepted, the judge may choose to hold a hearing where the proponent of the evidence can demonstrate acceptance through other evidence, including the expert’s own testimony. *Id.*

²² The text of Rule 702 at the time of the *Daubert* decision was: “If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.” *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 588 (1993) (internal quotations omitted). The Rule was amended following *Daubert*. See FED. R. EVID. 702; *infra* text accompanying note 59. See also Giacomo, *supra* note 21.

²³ See Giacomo, *supra* note 21. Some federal courts interpreted the silence regarding *Frye* in the Federal Rules of Evidence as an indication that the “general acceptance” test no longer applied, while other federal courts took that silence as an acceptance of the *Frye* standard within the new rule. See Vicki Christian, *Admissibility of Scientific Expert Testimony: Is Bad Science Making Law?*, 18 N. KY. L. REV. 21, 26–28 (1990).

²⁴ *United States v. Scholl*, 959 F. Supp. 1189, 1191 (D. Ariz. 1997).

²⁵ Erica Beecher-Monas, *Blinded by Science: How Judges Avoid the Science in Scientific Evidence*, 71 TEMP. L. REV. 55, 75 (1998).

²⁶ See David E. Bernstein, *The Misbegotten Judicial Resistance to the Daubert Revolution*, 89 NOTRE DAME L. REV. 27, 28 (2013). Those who believed *Daubert* was too rigid argued that judges would now be applying a stricter standard to scientific evidence than that used by scientists. *Id.* This standard would keep reliable evidence from reaching the jury simply because it did not conform to the formulaic approach of *Daubert* and Rule 702. *Id.*

²⁷ 509 U.S. 579 (1993).

²⁸ *Id.* at 587.

drug while pregnant.²⁹ Defendants offered the expert testimony of a physician and epidemiologist³⁰ who, after reviewing all available literature involving the relationship between the drug and human birth defects, concluded that there was no showing that the drug was a risk factor for birth defects.³¹ Plaintiffs offered testimony from experts who focused on in vitro and animal tests, along with a reanalysis of previous human studies, through which they determined that the drug was linked with birth defects in humans.³² Because plaintiffs' evidence was not based on epidemiological data,³³ the lower courts determined that it was inadmissible under the general acceptance standard.³⁴

When *Daubert* reached the Supreme Court, the Court confirmed that the lower courts had applied the incorrect standard under Rule 702.³⁵ Instead of gauging "general acceptance" within the scientific community, trial judges are now responsible for determining what scientific evidence is reliable.³⁶ The reliability analysis involves a two-part assessment of (1) whether the reasoning or methodology is scientifically valid, and (2) whether that reasoning or methodology can be applied to the particular facts of the case at bar.³⁷ The *Daubert* majority was confident in federal judges' ability to undertake this

²⁹ *Id.* at 582.

³⁰ Epidemiologists study the causes and distributions of health-related events in humans, such as disease, in order to determine how to control or prevent certain health problems. *Epidemiology*, WORLD HEALTH ORG., <http://www.who.int/topics/epidemiology/en> [https://perma.cc/BSU3-Z52D] (last visited Apr. 21, 2019). See *infra* text accompanying notes 176–87 for further explanation of epidemiology and its importance in toxic tort cases.

³¹ *Daubert*, 509 U.S. at 582.

³² *Id.* at 583.

³³ "Epidemiological data" as used here refers to studies of disease in humans. See *What is Epidemiology?*, BMJ, <http://www.bmj.com/about-bmj/resources-readers/publications/epidemiology-uninitiated/1-what-epidemiology> [https://perma.cc/9LSY-3D3P] (last visited Feb. 10, 2019). Plaintiffs' experts relied primarily on animal studies, which were not generally accepted by the relevant scientific community as reliable evidence of human disease factors. *Daubert*, 509 U.S. at 583.

³⁴ *Daubert*, 509 U.S. at 583–85.

³⁵ *Id.* at 587.

³⁶ Trial judges must "ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable." *Id.* at 589.

³⁷ *Id.* at 592–93.

scientific review.³⁸ The Court offered factors for the trial judge to consider when determining the admissibility of a scientific technique or methodology under Rule 702.³⁹ To assess a particular technique or methodology, judges should consider: (1) whether it can be (and has been) tested; (2) whether it has been subjected to peer review and publication; (3) the known or potential rate of error; and (4) the “general acceptance” of the theory or technique in the scientific community.⁴⁰ However, the Court specified that the inquiry must be flexible, based on what is applicable to the type of evidence presented.⁴¹ In addition, the trial judge must determine the relevance, or “fit,” of the scientific evidence to the particular case.⁴² Overall, *Daubert* stressed a discretionary “gatekeeping” role for trial judges in determining the relevance and reliability of expert testimony.⁴³

In *General Electric v. Joiner*⁴⁴ and *Kumho Tire v. Carmichael*,⁴⁵ the Supreme Court clarified and expanded the *Daubert* doctrine.⁴⁶ The *Joiner* Court held that an appellate court may only review a trial judge’s decision to exclude scientific evidence under a *Daubert* analysis for abuse of discretion.⁴⁷ *Joiner* highlights the broad deference awarded to trial judges in executing their gatekeeping role.⁴⁸ The Court confirmed that judges executing their gatekeeping functions are permitted to consider not only the methodology involved, but also the conclusions

³⁸ The Court addressed the capabilities of federal judges specifically, offering no opinion on the capability of state court judges to undertake a similar review. *Id.* at 593.

³⁹ *Id.* at 593–94.

⁴⁰ *Id.* Note that “general acceptance” was not entirely stripped from consideration, but simply became one element of the analysis, rather than the conclusive basis for a judge’s admissibility determination. *Id.*

⁴¹ While the Court enumerated factors for judges to consider, it emphasized that the list was not exhaustive, and that certain factors would not be relevant based on the evidence at issue. *Id.* at 594–95.

⁴² “Rule 702’s ‘helpfulness’ standard requires a valid scientific connection to the pertinent inquiry as a precondition to admissibility.” *Id.* at 591–92.

⁴³ *Id.* at 597.

⁴⁴ 522 U.S. 136 (1997).

⁴⁵ 526 U.S. 137 (1999).

⁴⁶ See generally *Kumho Tire*, 526 U.S. 137; *Joiner*, 522 U.S. 136.

⁴⁷ *Joiner*, 522 U.S. at 138–39, 142–43.

⁴⁸ See *id.* at 142–43.

generated by expert witnesses.⁴⁹ Trial judges are not required to rely on the opinions of the experts, and they can independently conclude that those opinions are unfounded given the underlying data.⁵⁰ The ability to assess conclusions added a new layer to the gatekeeping function that was not clearly articulated in *Daubert*.⁵¹

While *Joiner* highlighted the discretion trial judges have in their ultimate admissibility determinations, the decision in *Kumho Tire* extended that discretion, finding that trial judges should also have wide latitude to determine *how* they assess admissibility in a particular case.⁵² The Court reaffirmed that trial judges must have considerable leeway in determining expert reliability in each individual case.⁵³ The trial judge's decision regarding how to determine reliability must be treated with as much deference as her ultimate conclusion on the issue.⁵⁴ Therefore, like the ultimate admissibility decisions, appellate courts may only review judges' methods of assessing expert evidence for abuse of discretion.⁵⁵ Although *Daubert* includes a list of factors for the trial judge to consider, those factors may not be helpful in a particular case.⁵⁶ The trial judge has the discretion to determine what *Daubert* factors to consider, and what other assessments are necessary.⁵⁷ The trial judge

⁴⁹ See *id.* at 146–47.

⁵⁰ See *id.* at 146.

⁵¹ In *Daubert*, the Court noted that “[t]he focus, of course, must be solely on principles and methodology, not on the conclusions that they generate.” *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 595 (1993). However, “conclusions and methodology are not entirely distinct from one another.” *Joiner*, 522 U.S. at 146. Therefore, studying the relationship between the data the expert relies on and the conclusions he generates is within the discretion of the trial court. *Id.* From this analysis, “[a] court may conclude that there is simply too great an analytical gap between the data and the opinion proffered,” and choose to exclude the testimony based on the faulty conclusions. *Id.*

⁵² *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999).

⁵³ *Id.*

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ *Id.* at 151. “[*Daubert*] made clear that its list of factors was meant to be helpful, not definitive. Indeed, those factors do not all necessarily apply even in every instance in which the reliability of scientific testimony is challenged.”

⁵⁷ *Id.* at 152. Note that *Kumho Tire* also explicitly expanded trial judge's gatekeeping function to cases involving experts with technical and other specialized knowledge, not just scientific experts. *Id.* at 141.

also has the discretion to determine whether the court's reliability determination requires special pre-trial proceedings.⁵⁸

Congress amended Rule 702 in response to *Daubert* and its progeny.⁵⁹ The Advisory Committee Notes on this Rule reiterate that the *Daubert* factors are neither fixed nor exhaustive.⁶⁰ Cases since *Daubert* highlight the inapplicability of some factors to certain types of cases and the utility of other factors not considered by the *Daubert* Court.⁶¹ The Committee Notes also emphasize that the amended Rule is broad enough to permit testimony relying on competing principles or methods,⁶² and a review of post-*Daubert* case law shows that the rejection of expert testimony is the exception rather than the rule.⁶³

The 2000 amendment to Rule 702 makes no attempt to establish procedural requirements for judges to apply while exercising their gatekeeping role.⁶⁴ Although there is no fixed approach for applying the *Daubert* standard, the procedural outcome of *Daubert* is often a pre-trial hearing, triggered when a party challenges the admissibility of the other party's expert.⁶⁵ During this hearing, federal judges must determine whether the proposed expert testimony meets the relevance and reliability standards set out in *Daubert*.⁶⁶

⁵⁸ *Id.* at 152.

⁵⁹ FED. R. EVID. 702 advisory committee's note to 2000 amendment.

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² *Id.*

⁶³ *Id.*

⁶⁴ *Id.*

⁶⁵ See *Daubert Motion*, US LEGAL, <https://civilprocedure.uslegal.com/discovery/daubert-motion> [<https://perma.cc/9Y2K-HH5D>] (last visited Feb. 10, 2019).

⁶⁶ A "Daubert Hearing" is defined as "[a] hearing conducted by federal district courts, [usually] before trial, to determine whether proposed expert testimony meets the federal requirements for relevance and reliability, as clarified by the Supreme Court in [*Daubert*]." *Daubert Hearing*, BLACK'S LAW DICTIONARY (10th ed. 2014).

B. *National Science Panel*

The silicone breast implant litigation in the mid-1990s presented an early test of the new *Daubert* standard.⁶⁷ After decades of safe use, some scientists developed a hypothesis that the silicone in implants stimulates the development of autoimmune diseases.⁶⁸ Women brought (and won) lawsuits against implant manufacturers in the 1980s, leading to large-scale toxic tort litigation across the country.⁶⁹ Experts in relevant areas of science and autoimmune diseases widely criticized these claims.⁷⁰ There were no long-term epidemiological studies assessing the safety of the implants, and the findings of disease were largely anecdotal and methodologically flawed.⁷¹ Despite these scientific shortcomings, throughout the early 1990s, plaintiffs continued to receive large awards.⁷² Some academics who have studied this litigation believe that the disconnect between the science and the jury verdicts was due to widespread media coverage spreading information—and misinformation—about the dangers of the implants.⁷³ Whatever the reason, the questionable science behind these lawsuits presented a problem for federal judges operating under the new *Daubert* standard.⁷⁴

The silicone implant litigation offered one of the first opportunities for judges to develop strategies for assessing complex novel science under the new *Daubert* standard, with many judges turning to neutral

⁶⁷ See generally Peter J. Goss et al., *Clearing Away the Junk: Court-Appointed Experts, Scientifically Marginal Evidence, and the Silicone Gel Breast Implant Litigation*, 56 FOOD & DRUG L.J. 227, 234–40 (2001).

⁶⁸ Debra L. Worthington et al., *Hindsight Bias, Daubert, and the Silicone Breast Implant Litigation*, 8 PSYCHOL. PUB. POL'Y & L. 154, 163–64 (2002).

⁶⁹ See *id.* at 167–68.

⁷⁰ The American College of Rheumatology, the College of American Pathologists, and the National Multiple Sclerosis Society all issued statements asserting that they found little to no association between silicone implants and the development of autoimmune diseases. See *Several Medical Associations Have Issued Public Statements After Considering All the Available Scientific Evidence on the Health Effects*, FRONTLINE: BREAST IMPLANTS ON TRIAL, <http://www.pbs.org/wgbh/pages/frontline/implants/medical/positionstate.html> [https://perma.cc/C3G2-26Z2] (last visited Feb. 10, 2019).

⁷¹ Goss et al., *supra* note 67, at 234–35.

⁷² See *id.* at 237.

⁷³ See *id.* at 235–37.

⁷⁴ See Worthington et al., *supra* note 68, at 164, 169–70.

advisors for guidance.⁷⁵ The National Science Panel was the most extensive neutral advisor panel employed in the silicone implant litigation.⁷⁶ Judge Pointer, the transferee judge presiding over more than 21,000 silicone implant cases transferred to Alabama District Court, appointed the Panel.⁷⁷ He first designated a selection panel to generate a list of potential neutral advisors, from which he appointed four members to the National Science Panel, each member representing an expertise relevant to the science underlying the plaintiff's claims.⁷⁸ The Science Panel was tasked with reviewing and evaluating existing scientific literature, consulting with experts in other relevant fields, and reviewing the opinions of experts offered by both plaintiff and defense attorneys.⁷⁹ From this assessment, Judge Pointer asked the Panel to address questions relevant to his *Daubert* analysis, including determining what, if any, of the materials they analyzed provided a reliable and reasonable scientific basis to support plaintiffs' causation arguments.⁸⁰ After two years of study, and at an expense of \$800,000 to the parties, the National Science Panel produced their report, finding an insufficient scientific basis to support plaintiffs' claims.⁸¹

Through an omnibus motion in limine,⁸² plaintiffs challenged both the admissibility of the report and the testimony of the panelists, and even defendants opposed the admissibility of unfavorable portions of

⁷⁵ See generally Laurens Walker & John Monahan, *Scientific Authority: The Breast Implant Litigation and Beyond*, 86 VA. L. REV. 801 (2000).

⁷⁶ *Id.* at 805.

⁷⁷ *Id.* In mid-1992, the Judicial Panel on Multidistrict Litigation determined that the large volume of breast implant cases pending in federal court necessitated consolidation for pretrial proceedings, resulting in the transfer to Judge Pointer's court. *Id.*

⁷⁸ *Id.* at 808–09. The members of the Panel were experts in toxicology, immunology, epidemiology, rheumatology, and internal medicine. *Id.*

⁷⁹ *Id.* at 809–10.

⁸⁰ Goss et al., *supra* note 67, at 238.

⁸¹ Walker & Monahan, *supra* note 75, at 801–02. See generally *National Science Panel Report: The Relation of Silicone Breast Implants to Connective Tissue Disease and Immunologic Dysfunction*, 7 NO. 20 ANDREWS BREAST IMPLANT LITIG. REP. 1 (1998).

⁸² Plaintiffs consolidated numerous motions into an omnibus motion, addressing various evidentiary issues. *ND AL Denies Motions from Both Sides over Breast Implant Science Panel Report*, 6 NO. 3 ANDREWS MASS TORT LITIG. REP. 5 (1999). The particular motions relevant to this Note are those concerning the admissibility of evidence related to the National Science Panel.

the report.⁸³ Judge Pointer denied both motions.⁸⁴ Judge Pointer anticipated that the findings of the Panel and testimony by the Panel members would be used not only as evidence in his proceedings, but also in subsequent implant litigations pending in other courts.⁸⁵ After submitting their report, the panel members were extensively deposed, and those depositions were videotaped and available as evidence in similar trials across the country.⁸⁶

Some other federal judges determined that they also needed assistance from court-appointed experts to fulfill their gatekeeping obligations in the silicone implant cases. For example, in 1996, Judge Robert Jones, an Oregon District Court judge presiding over a number of cases that Judge Pointer had remanded for trial, appointed independent advisors to the court.⁸⁷ He did so after defendants moved to exclude plaintiffs' expert testimony concerning causation, finding that he needed assistance from scientists to fully understand the complex issues involved in his admissibility determination.⁸⁸ Judge Jones used an advisor to help him appoint a panel of experts in applicable fields, such as epidemiology and toxicology.⁸⁹ The court then held a four-day hearing during which counsel, the advisors, and the court questioned the experts.⁹⁰ The court also submitted questions to the advisors to guide the report they produced, including proposed

⁸³ *See id.*

⁸⁴ *See id.*

⁸⁵ Goss et al., *supra* note 67, at 238.

⁸⁶ *Id.* at 239. As the transferee judge for the multidistrict litigation, Judge Pointer's primary purpose in commissioning the report and videotaped depositions was to create record evidence for when the cases were returned to the transferor federal courts for trial. LAURAL L. HOOPER, JOE S. CECIL & THOMAS E. WILLGING, NEUTRAL SCIENCE PANELS: TWO EXAMPLES OF PANELS OF COURT-APPOINTED EXPERTS IN THE BREAST IMPLANTS PRODUCT LIABILITY LITIGATION, FED. JUD. CTR. 1-3 (2001). Courts used this record inconsistently, undermining the effectiveness of the Panel's work. *See infra* text accompanying notes 214-17.

⁸⁷ *See* Hall v. Baxter Healthcare Corp., 947 F. Supp. 1387, 1392 (D. Or. 1996). Judge Jones appointed advisors through his "inherent authority" under FED. R. EVID. 104, rather than FED. R. EVID. 706, in order to insulate his advisors from potential requirements of being deposed and testifying. *Id.* at 1392 n.8.

⁸⁸ *Id.* at 1392.

⁸⁹ *Id.* at 1392-93.

⁹⁰ *Id.* at 1393.

questions from the parties.⁹¹ Based on the advisors' findings, Judge Jones granted defendants' motion to exclude plaintiffs' expert testimony concerning causation.⁹² In parallel proceedings, taking place in the Southern and Eastern Districts of New York, Judge Weinstein⁹³ praised Judge Jones' innovative procedures.⁹⁴ Judge Weinstein undertook a similar panel procedure for the cases before him.⁹⁵ Both Judges Jones and Weinstein noted that, in addition to their own panel findings, they were awaiting the findings of the National Science Panel, with Judge Jones even deferring the effective date of his own opinion until after the Panel's findings were released.⁹⁶

C. *Tutorials and Science Days*

Courts sometimes use pre-trial tutorials to learn about unfamiliar areas relevant to their cases, a practice endorsed by the American Bar Association (ABA).⁹⁷ The ABA supports the use of tutorials in cases involving complex subjects that may be particularly difficult for non-specialists to understand without assistance.⁹⁸ While the ABA offers a general guideline for the use of tutorials, it does not outline specific

⁹¹ *Id.* at 1393–94. Questions for the advisors included: “Is the expert’s opinion supported by scientific reasoning and methodology that is generally accepted in the expert’s particular scientific community?” and “Is the expert’s opinion based upon scientifically reliable data?” *Id.*

⁹² *Id.* at 1394. Although Judge Jones granted defendants' motion to exclude plaintiffs' expert testimony, he stayed a summary judgment order pending the outcome of Judge Pointer's National Science Panel. See HOOPER, CECIL & WILLGING, *supra* note 86, at 11.

⁹³ Judge Weinstein is often noted for his tremendous impact in mass tort litigation. See, e.g., *Legal Luminaries Honor Judge Jack Weinstein at Annual Survey Dedication*, N.Y.U. L. NEWS (Feb. 27, 2015), <http://www.law.nyu.edu/news/annual-survey-dedication-jack-weinstein> [<https://perma.cc/H5Y4-3NMN>]. He has been praised by many in the legal community, including Justice Breyer of the Supreme Court, for his contributions to the law of evidence. Stephen Breyer, *Tribute to the Honorable Jack Weinstein*, 97 COLUM. L. REV. 1947 (1997).

⁹⁴ Judge Weinstein called the procedures “imaginative” and “particularly helpful since they included evaluation by neutral experts.” *In re Breast Implant Cases*, 942 F. Supp. 958, 960 (E.D.N.Y. 1996).

⁹⁵ See Walker & Monahan, *supra* note 75, at 815 n.87.

⁹⁶ See *Hall*, 947 F. Supp. at 1394–95; *In re Breast Implant Cases*, 942 F. Supp. at 960. Because the cases before Judge Jones settled, he did not ultimately analyze the impact of the National Science Panel on his cases. See HOOPER, CECIL & WILLGING, *supra* note 86, at 87.

⁹⁷ See CIVIL TRIAL PRACTICE STANDARDS 12–14 (AM. BAR ASS'N 2007).

⁹⁸ *Id.*

procedures.⁹⁹ Instead, the ABA recommends a negotiation between the parties and the court regarding the subject matter and format for each particular tutorial.¹⁰⁰

Rather than employing court-appointed neutral experts like those used in the silicone implant litigation, the majority of judges have chosen an approach for educating the court that embraces pre-trial tutorials.¹⁰¹ Federal judges presiding over multi-district litigation proceedings and state judges hearing consolidated state cases increasingly set aside time for “science days” in mass tort litigations.¹⁰² “Science days”¹⁰³ are pre-trial tutorials in which the court receives a primer on the science relevant to the case at hand.¹⁰⁴ Typically, these hearings are scheduled before *Daubert* motion practice and the exchange of expert reports.¹⁰⁵ Science days can take on a variety of forms, from both sides presenting the court with key scientific literature, to an attorney-directed examination of each expert before the court.¹⁰⁶ Many science days prohibit cross-examination, as they are designed to inform, rather than to persuade.¹⁰⁷ These tutorials are useful in *Frye* jurisdictions as well, since judges in all jurisdictions must be equipped to respond to challenges to expert testimony.¹⁰⁸ Science days have become

⁹⁹ *Id.*

¹⁰⁰ *See id.* at 12–13.

¹⁰¹ *See* Stephen A. Wood, *Educating the Court: From Scientific Tutorials to Court-Appointed Experts*, 51. NO. 7 DRI FOR DEF. 62 (2009).

¹⁰² David Schwartz & Nathan Schachtman, *How Science Days Are Changing Talc Litigation*, LAW360 (June 16, 2017, 11:19 AM), <https://www.law360.com/articles/935225/how-science-days-are-changing-talc-litigation>.

¹⁰³ Different sources refer to these hearings as tutorial days or education days, but this Note uses “science days” throughout for consistency.

¹⁰⁴ Sean Wajert, “*Science Day*” *In Mass Torts*, MASS TORT DEF. (Oct. 20, 2008), <http://www.masstortdefense.com/2008/10/articles/science-day-in-mass-torts> [<https://perma.cc/6TT5-MMT6>].

¹⁰⁵ Joseph B. Evans, *Attorneys and Experts Come Together for “Science Day” in Taxotere Hair Loss MDL*, EXPERT INST. (Mar. 28, 2017), <https://www.theexpertinstitute.com/attorneys-and-experts-come-together-for-science-day-in-taxotere-hair-loss-mdl> [<https://perma.cc/5Q69-VCVT>].

¹⁰⁶ *See* Wood, *supra* note 101.

¹⁰⁷ *See* Evans, *supra* note 105.

¹⁰⁸ *See* Wajert, *supra* note 104.

increasingly common in multidistrict litigation, where the tutorials impact a large number of similar cases.¹⁰⁹

II. ANALYSIS: THE GATEKEEPERS' CHALLENGES AND CRITIQUES OF ATTEMPTED SOLUTIONS

A. *The Talc Example*

A recent example of mass tort litigation involving novel science is the controversy surrounding the potential health risks associated with talcum powder in Johnson & Johnson baby powder.¹¹⁰ Plaintiffs across the country, including those in Missouri, allege that use of this baby powder as a feminine hygiene product causes ovarian cancer.¹¹¹ In February 2016, Jacqueline Fox won the first judgment against Johnson & Johnson on this issue, with a Missouri jury awarding Ms. Fox \$10 million in compensatory damages and \$62 million in punitive damages.¹¹² In three subsequent test cases, Missouri juries found Johnson & Johnson liable.¹¹³ These large damages awards catalyzed the state's decision to abandon its old expert evidence standard.¹¹⁴ However, under Missouri's new standard, a jury again found Johnson & Johnson

¹⁰⁹ See Evans, *supra* note 105.

¹¹⁰ See generally Ashley Simpson et al., *Recent Developments in Toxic Tort & Environmental Law*, 52 TORT TRIAL & INS. PRAC. L.J. 683, 691–96 (2017).

¹¹¹ See *id.* at 691–92.

¹¹² *Id.* at 692–93. A Missouri appeals court (the Missouri Eastern District Court) reversed this jury award on jurisdictional grounds. Margaret Stafford, *Appeals Court Tosses \$72 Million Award in Johnson & Johnson Talcum Powder Case*, CHI. TRIBUNE (Oct. 17, 2017, 1:24 PM), <http://www.chicagotribune.com/business/ct-biz-talcum-powder-lawsuit-20171017-story.html> [<https://perma.cc/Y6JB-M68R>]. The Supreme Court's decision in *Bristol-Myers Squibb Co. v. Superior Court* complicated the question of whether Missouri is a proper forum for many of these suits, since few of the plaintiffs are Missouri residents. *Id.*

¹¹³ See Raymond, *supra* note 9. In one of the five Missouri test cases, the jury returned a verdict for Johnson & Johnson. This plaintiff was picked by defense counsel and had a number of unrelated risk factors for developing ovarian cancer. See Amy M. Rubenstein & Malerie Ma Roddy, *Talc Talk: 1 Of These Verdicts is Not Like the Others*, LAW360 (June 1, 2017, 1:12 PM), <https://www.law360.com/articles/930160/talc-talk-1-of-these-verdicts-is-not-like-the-others>.

¹¹⁴ See *supra* text accompanying notes 8–11.

liable, awarding \$4.69 billion to a class of twenty-two plaintiffs.¹¹⁵ There are still thousands of claims pending against Johnson & Johnson for similar claims across the country, including consolidated dockets in California, Missouri, and New Jersey.¹¹⁶ Despite these large plaintiff awards, Johnson & Johnson maintains that its products, and talc in general, are safe.¹¹⁷ Many courts and juries have agreed with Johnson & Johnson's position, including a New Jersey jury that needed only thirty minutes to decide that the baby powder did not cause the plaintiff to develop mesothelioma.¹¹⁸

Given the uncertainty surrounding talc-cancer science, this class of litigation provides a useful basis for assessing the judge's role in evaluating expert testimony under *Daubert* and other standards. Johnson & Johnson is not alone in its assertion that talc powder is safe, as the link between talc powder and ovarian cancer does not appear to be conclusive.¹¹⁹ The American Cancer Society notes that evidence linking asbestos-free talc to cancer is unclear.¹²⁰ Focusing on ovarian cancer specifically, the American Cancer Society found that while some studies reported a slight increase in risk of developing ovarian cancer after talc use, other studies found no increased risk.¹²¹ Studies that might shed more light on this issue are still ongoing.¹²² However, judges

¹¹⁵ Tina Bellon, *Missouri Judge Affirms \$4.69 Billion Talc Verdict, J&J Vows to Appeal*, REUTERS (Aug. 22, 2018, 3:00 PM), <https://www.reuters.com/article/us-johnson-johnson-cancer-lawsuit/missouri-judge-affirms-4-69-billion-talc-verdict-jj-vows-to-appeal-idUSKCN1L721E> [<https://perma.cc/N62X-62EU>].

¹¹⁶ Laurie McGinley, *Does Talcum Powder Cause Ovarian Cancer?*, WASH. POST (Aug. 25, 2017), https://www.washingtonpost.com/news/to-your-health/wp/2017/08/23/does-talcum-powder-cause-ovarian-cancer-experts-are-divided/?utm_term=.dc9f89d94af6 [<https://perma.cc/4HZ8-24X9>].

¹¹⁷ See *The Facts on Talcum Powder Safety*, FACTS ABOUT TALC, <http://www.factsabouttalc.com/#about> [<https://perma.cc/9359-7FMT>] (last visited Feb. 10, 2019) (Johnson & Johnson website highlighting the uses of talc and the studies that support its safety).

¹¹⁸ Amanda Bronstad, *Johnson & Johnson Wins Verdict in New Jersey Talcum Powder Trial*, N.J. L.J. (Oct. 11, 2018, 2:36 PM), <https://www.law.com/njlawjournal/2018/10/11/johnson-johnson-wins-verdict-in-new-jersey-talcum-powder-trial> [<https://perma.cc/XKX7-KEHY>].

¹¹⁹ See, e.g., Simpson et al., *supra* note 110, at 693–94.

¹²⁰ *Talcum Powder and Cancer*, AM. CANCER SOC'Y, <https://www.cancer.org/cancer/cancer-causes/talcum-powder-and-cancer.html> [<https://perma.cc/7ATG-V3DH>] (last updated Dec. 4, 2018) (medical review taking place Aug. 24, 2017).

¹²¹ *Id.*

¹²² *Id.*

cannot simply put cases on hold and wait for science to develop before making admissibility decisions.¹²³ This uncertainty presents a problem for judges executing their gatekeeping role under *Daubert*, along with judges considering expert testimony under *Frye* or other standards.

The judges hearing talc powder cases struggle to find the best approach for handling the evaluation of the science involved. In a significant victory for Johnson & Johnson, on September 2, 2016, in New Jersey state court, Judge Nelson Johnson granted Johnson & Johnson's motion to bar expert testimony in two consolidated talc powder cases, securing summary judgment for Johnson & Johnson in both cases.¹²⁴ Without the testimony from these experts, plaintiffs lacked evidence proving causation, which was necessary to maintain their claims.¹²⁵ The New Jersey court found this causation testimony inadmissible after reviewing scientific literature submitted by the parties and hearing the experts' testimony during a *Kemp* hearing.¹²⁶ Although New Jersey generally follows *Frye*, the state has adopted a more relaxed standard of admissibility for toxic tort cases by not requiring general acceptance in the scientific community, since such a requirement would effectively block all novel science evidence.¹²⁷ Despite this more lenient standard for toxic tort cases, Judge Johnson found that the plaintiffs

¹²³ *Daubert* acknowledges this reality. "[T]here are important differences between the quest for truth in the courtroom and the quest for truth in the laboratory. Scientific conclusions are subject to perpetual revision. Law, on the other hand, must resolve disputes finally and quickly." *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 596–97 (1993).

¹²⁴ See *In re Talc-Based Powder Prods. Litig.*, Civil Action No.: 300 (MCL) (N.J. Super. Ct. Sept. 2, 2016), https://www.faegrebd.com/files/123299_Carl_Opinion_-_NJ_State_Court.pdf.

¹²⁵ Shayna Posses, *J&J Beats Pair of Talcum Powder Ovarian Cancer Suits in NJ*, LAW360 (Sept. 2, 2016, 2:20 PM), <https://www.law360.com/articles/836114>.

¹²⁶ See *In re Talc-Based Powder Prods. Litig.*, *supra* note 124. A *Kemp* hearing is the New Jersey version of a *Daubert* hearing. See Michelle Yeary, *New Jersey Appellate Court Very "Relaxed" About Expert Testimony in Accutane Litigation*, DRUG & DEVICE L. (Aug. 2, 2017), <https://www.druganddevicelawblog.com/2017/08/new-jersey-appellate-court-very-relaxed-about-expert-testimony-in-accutane-litigation.html> [<https://perma.cc/3TP7-M8P9>]. In *Kemp v. State*, the Supreme Court of New Jersey held that "in cases in which the scientific reliability of an expert's opinion is challenged and the court's ruling on admissibility may be dispositive of the merits, the sounder practice is to afford the proponent of the expert's opinion an opportunity to prove its admissibility at a Rule 104 hearing." *Kemp ex rel. Wright v. State*, 174 N.J. 412, 432–33 (2002).

¹²⁷ *Kemp*, 174 N.J. at 425.

could not produce sufficient medical evidence showing a causal link between Johnson & Johnson baby powder and ovarian cancer.¹²⁸

Some judges presiding over consolidated talc cases have opted to hold more extensive science days to help them assess the proposed evidence. For example, Judge Freda L. Wolfson, overseeing the consolidated federal talc litigation,¹²⁹ held a science day on January 26, 2017.¹³⁰ While the federal science day could have informed similar state court proceedings, lead plaintiffs' counsel in the California cases made it clear that he did not want to wait for the federal court to make its findings before proceeding with the state cases.¹³¹ Therefore, Judge Maren E. Nelson, overseeing the consolidated California state talc cases, held a separate science day on March 7, 2017.¹³² Interestingly, it was the plaintiffs in the California cases and the defendants in the federal cases who requested the science days.¹³³ California adheres to the *Frye* standard,¹³⁴ with the court's role as gatekeeper limited to excluding "clearly invalid and unreliable" expert testimony.¹³⁵ The use of science days by both *Daubert* and *Frye* courts demonstrates how this tool can be

¹²⁸ See Jef Feeley, *J&J Wins Dismissal of Two New Jersey Talc Cancer Lawsuits*, BLOOMBERG NEWS ENTER. (Sept. 2, 2016, 5:44 PM), <https://www.bloomberg.com/news/articles/2016-09-02/j-j-wins-dismissal-of-new-jersey-talc-cancer-lawsuits>.

¹²⁹ In October 2016, the Judicial Panel on Multidistrict Litigation (MDL) centralized federal cases involving Johnson & Johnson talc powder allegations in New Jersey federal court, where Johnson & Johnson is headquartered. Dani Kass, *J&J Baby Powder Cancer MDL Centralized in NJ*, LAW360 (Oct. 5, 2016, 4:19 PM), <https://www.law360.com/articles/848415/j-j-baby-powder-cancer-mdl-centralized-in-nj>. U.S. District Judge Freda L. Wolfson was chosen to handle the MDL because she was already presiding over the most advanced case included in the new MDL. *Id.*

¹³⁰ Schwartz & Schachtman, *supra* note 102. As of November 2018, the federal cases are still proceeding, so it is not yet clear what effect the science day had in Judge Wolfson's admissibility decisions.

¹³¹ Amanda Bronstad, *Calif. Lawyer Isn't Waiting for MDL to Press Talc Cases in State Court*, RECORDER (Jan. 20, 2017, 2:07 PM), <http://www.corpcounsel.com/id=1202777304329/Calif-Lawyer-Isnt-Waiting-for-MDL-to-Press-Talc-Cases-in-State-Court?mcode=1202617072607&curindex=1&slreturn=20170211132303> [<https://perma.cc/E5LU-S9EN>].

¹³² Schwartz & Schachtman, *supra* note 102.

¹³³ *Id.* The call for science days from both sides of talc litigation suggests that the procedure does not always favor the defense.

¹³⁴ See *People v. Kelly*, 549 P.2d 1240, 1245 (1976).

¹³⁵ See *Sargon Enters., Inc. v. Univ. of S. Cal.*, 288 P.3d 1237, 1252 (2012).

useful for judges tasked with determining admissibility of expert testimony under any evidentiary standard.¹³⁶

Some attorneys and academics who reviewed the California science day critiqued Judge Nelson's approach.¹³⁷ Judge Nelson remained largely silent during the presentation, listening to nearly six hours of arguments in which plaintiffs' counsel and experts focused on older studies linking talc to cancer, while defense counsel and experts focused on more recent materials from regulatory agencies and watchdog groups that did not classify talc as a carcinogen.¹³⁸ After holding this science day, followed by a *Sargon* hearing,¹³⁹ Judge Nelson chose to exclude certain expert testimony from trial.¹⁴⁰ The jury went on to award the plaintiff what was by far the largest damages award in this class of cases at that time.¹⁴¹ However, Judge Nelson ultimately reversed the jury's ruling and granted Johnson & Johnson's motion for a new trial, in part due to the insufficiency of the plaintiff's causation evidence.¹⁴² It is possible that the tutorial Judge Nelson received

¹³⁶ The Missouri courts did not hold science days for these cases, but that may be because the old Missouri standard did not require the court to undertake virtually any independent analysis of the reliability of the evidence. *See Baker et al., supra* note 5.

¹³⁷ *See, e.g.,* Schwartz & Schachtman, *supra* note 102; *see also* David Siegel, *Judge Holds Talcum Powder 'Science Day' Hearing in Preparation for First California Trial*, COURTROOM VIEW NETWORK (Mar. 8, 2017, 6:34 PM), <http://blog.cvn.com/judge-holds-talcum-powder-science-day-hearing-in-preparation-for-first-california-trial> [<https://perma.cc/WA4N-2BP3>].

¹³⁸ *See* Schwartz & Schachtman, *supra* note 102; Siegel, *supra* note 137.

¹³⁹ *Sargon* hearings in California are similar to *Daubert* hearings in federal court. Daniela Siegal, *J&J Battles Talc Cancer Expert Before First Calif. Trial*, LAW360 (June 26, 2017, 11:26 PM), <https://www.law360.com/articles/938615/j-j-battles-talc-cancer-expert-before-first-calif-trial> [<https://perma.cc/LLU4-2VEX>]. However, *Sargon* hearings apply the "clearly invalid and unreliable" exclusion standard. *Sargon Enters., Inc. v. Univ. of S. California* 288 P.3d 1237, 1252 (Cal. 2012).

¹⁴⁰ For example, Judge Nelson determined that one of plaintiff's specific causation experts could not testify that talc caused plaintiff's cancer, although she allowed general causation testimony that talc can cause ovarian cancer. Daniel Siegal, *Crucial Expert's Opinion in Doubt for J&J Talc Cancer Trial*, LAW360 (July 11, 2017, 8:31 PM), <https://www.law360.com/articles/943239?scroll=1&related=1> [<https://perma.cc/YYB9-MGZ3>].

¹⁴¹ Jen Christensen, *Judge Overturns Record Verdict in Johnson & Johnson Talcum Powder Trial*, CNN (Oct. 23, 2017, 2:09 PM), <https://www.cnn.com/2017/10/23/health/johnson-and-johnson-talcum-powder-trial-verdict-overturned/index.html> [<https://perma.cc/FV6Y-ZR6B>].

¹⁴² *Id.* The reasons Judge Nelson cited for granting the defendants' motions for a new trial included insufficiency of the evidence regarding causation, error in law occurring at trial, jury misconduct, and excessive punitive and compensatory damages. *Id.*

informed this decision, but the reversal also highlights the problems associated with allowing the jury to hear confusing and unsupported scientific testimony, especially in emotionally charged cases.¹⁴³

B. *Junk Science*

As the rhetoric underlying the new Missouri evidence rule demonstrates, many believe that judges' role as gatekeepers forces junk science out of the courtroom and leads to more accurate outcomes.¹⁴⁴ Junk science has no single definition, but it is essentially "scientific testimony based on idiosyncratic, invalid, or unreliable science in which the methodologies used are not generally accepted in the relevant scientific community."¹⁴⁵

Missouri has embraced Rule 702 under the belief that the federal standard will help to keep junk science out of Missouri courtrooms.¹⁴⁶ Many other supporters of the *Daubert* standard echo this opinion on its relationship with junk science.¹⁴⁷ According to this view, *Daubert* focuses judges' attentions on the reality of junk science and the need to keep it out of the courtroom.¹⁴⁸ Gatekeeping, proponents of *Daubert* argue, is designed to shield juries from the misleading effects of junk science, and it is effective at doing so.¹⁴⁹ According to this view, *Frye* is a more dangerous standard for assessing junk science, since unfounded principles that have become generally accepted in the scientific community are admitted without question.¹⁵⁰ Under *Daubert*, experts

¹⁴³ This Note does not offer an opinion as to the validity of plaintiffs' claims regarding the talc-ovarian cancer link. However, the body of science questioning the claims, along with the inconsistency of outcomes across jurisdictions, emphasizes the challenges judges face in assessing the admissibility of novel scientific evidence.

¹⁴⁴ See *supra* text accompanying notes 1–15.

¹⁴⁵ Thomas G. Gutheil & Harold J. Bursztajn, *Attorney Abuses of Daubert Hearings: Junk Science, Junk Law, or Just Plain Obstruction?*, 33 J. AM. ACAD. PSYCHIATRY & L. 150 (2005).

¹⁴⁶ See Harms & Hall, *supra* note 4.

¹⁴⁷ See, e.g., *id.* at 150.

¹⁴⁸ See *id.* at 150–51.

¹⁴⁹ See Victor E. Schwartz & Cary Silverman, *The Draining of Daubert and the Recidivism of Junk Science in Federal and State Courts*, 35 HOFSTRA L. REV. 217, 223–24 (2006).

¹⁵⁰ See David L. Faigman et al., *How Good Is Good Enough?: Expert Evidence Under Daubert and Kumho*, 50 CASE W. RES. L. REV. 645, 656–57 (2000).

can no longer rely on the history of admissibility of certain types of scientific evidence, driving them to provide dependable evidence in order to avoid exclusion.¹⁵¹

While supporters of the *Daubert* standard believe that it restricts the use of junk science in court, critics of the standard argue that it is more liberal and forgiving than *Frye*, or at least more susceptible to judicial error.¹⁵² The flexible standard under *Daubert* gives judges significant leeway in determining scientific reliability, which some argue has led to an influx of unscientific rulings.¹⁵³ For example, while scientists look to the collective results of studies in epidemiology, judges sometimes isolate individual studies and exclude them based on minor flaws.¹⁵⁴ Judges also take a more cautious and restrictive approach to analyzing animal studies, even though such studies are widely accepted in the scientific community as relevant to the assessment of human disease risk.¹⁵⁵

Forensic evidence in criminal court is another area where concerned attorneys believe junk science still prevails under *Daubert*.¹⁵⁶ While this Note focuses on expert evidence in the civil context, similar issues in the criminal context are also relevant to an analysis of junk science in the courtroom, and highlight the critical role science can play in case outcomes. While junk science in civil cases can have financial ramifications, junk science in criminal cases, such as bite mark evidence,

¹⁵¹ See *id.*

¹⁵² See Kenneth R. Berman, *Daubert Turning 20: Junk Science Replaced by Junk Rulings?*, ABA SECTION LITIG. ANNUAL CONFERENCE 2 (2012). Some scholars have suggested that the contradictory views over whether *Daubert* is a liberal or restrictive standard is based on what type of expert evidence is at issue. See Faigman et al., *supra* note 150. Under this view, *Daubert* is more liberal for novel science that has a solid basis, while *Frye* is more liberal for generally accepted science with a weak basis. *Id.* In modern practice, the prevailing view is that restrictiveness is determined in large part by the individual court's approach to assessing admissibility, rather than by the standard in that jurisdiction. See Hoelle, DeMott & Shapiro, *supra* note 17.

¹⁵³ See Lisa Heinzerling, *Doubting Daubert*, 14 J.L. & POL'Y 65, 70–74 (2006).

¹⁵⁴ See *id.* at 70–71.

¹⁵⁵ *Id.* at 71–73.

¹⁵⁶ See Harry T. Edwards & Jennifer L. Mnookin, *A Wake-Up Call on the Junk Science Infesting Our Courtrooms*, WASH. POST (Sept. 20, 2016), https://www.washingtonpost.com/opinions/a-wake-up-call-on-the-junk-science-infesting-our-courtrooms/2016/09/19/85b6eb22-7e90-11e6-8d13-d7c704ef9fd9_story.html?utm_term=.f4ae28a239a0 [https://perma.cc/U5N6-Y4VC].

can lead to wrongful convictions and a loss of liberty.¹⁵⁷ Recent studies challenge the scientific validity of common forensic methods, such as fingerprint matching, bite-mark analysis, and firearms identification.¹⁵⁸ Critics argue that judges continue to allow such evidence, despite mounting scrutiny of its validity, simply because judges have consistently allowed such evidence in the past.¹⁵⁹ These critics believe that judges are not fulfilling their gatekeeping obligations in regard to traditionally accepted criminal court evidence.¹⁶⁰ They also challenge the *Daubert* Court's belief that the adversarial system can properly address shaky scientific evidence that is admitted.¹⁶¹

C. *The Critique of Gatekeepers*

The earliest critique of the concept of judges as gatekeepers came from the *Daubert* decision itself, in Chief Justice Rehnquist's separate opinion.¹⁶² The Chief Justice did not doubt the need for some gatekeeping role under Rule 702, but he challenged the idea that judges should take on the role of scientist to perform the gatekeeping function.¹⁶³ He noted that topics involving scientific knowledge, validity, and peer review are not areas within the expertise of most judges.¹⁶⁴ Justice Breyer echoed these concerns in his concurring opinion in *Joiner*, admitting that the gatekeeping role would sometimes require judges to make subtle and complex decisions regarding scientific methodology, even though judges do not possess the necessary scientific

¹⁵⁷ John F. Hollway, *Why Closing the Forensic Commission Hurts Crime Victims*, CRIME REP. (Apr. 19, 2017), <https://thecrimereport.org/2017/04/19/why-sessions-decision-to-close-forensic-commission-will-hurt-victims-of-crime> [https://perma.cc/9FGA-LYDF].

¹⁵⁸ See Edwards & Mnookin, *supra* note 156.

¹⁵⁹ See *id.*

¹⁶⁰ See *id.*

¹⁶¹ See *id.*

¹⁶² *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 600–01 (1993) (Rehnquist, C.J., concurring in part and dissenting in part).

¹⁶³ “I do not doubt that Rule 702 confides to the judge some gatekeeping responsibility in deciding questions of the admissibility of proffered expert testimony. But I do not think it imposes on them either the obligation or the authority to become amateur scientists in order to perform that role.” *Id.* at 600–01 (Rehnquist, C.J., concurring in part and dissenting in part).

¹⁶⁴ *Id.* at 599 (Rehnquist, C.J., concurring in part and dissenting in part).

qualifications to make such decisions.¹⁶⁵ However, Justice Breyer believed that judges' ability to hold pretrial hearings and appoint special masters and law clerks to assist the court in understanding the underlying science could offset some of this difficulty.¹⁶⁶

Many scholars and practitioners also take issue with judges, most of whom are truly laypersons in matters of science, undertaking such an analysis.¹⁶⁷ Some criticize *Daubert* and its progeny for failing to address the dilemma judges face in analyzing complex and competing methodologies and procedures, especially in cases where competing experts offer different evaluations of the same data.¹⁶⁸ The *Daubert* Court did not establish a uniform test for judges to use, opening the door for judges to apply arbitrary standards and reach unpredictable and inconsistent results.¹⁶⁹ Even judges have voiced concerns over their ability to review complex scientific methodology.¹⁷⁰ Some judges consider themselves ill-suited to analyze scientific evidence, and some studies show judges' limited ability to understand even basic principles of scientific methodology.¹⁷¹

D. *Examples of Inconsistency and Confusion Under Daubert*

In *Joiner* and *Kumho Tire*, the Supreme Court confirmed that appellate courts must defer to trial court judges in their gatekeeping

¹⁶⁵ "This requirement will sometimes ask judges to make subtle and sophisticated determinations about scientific methodology and its relation to the conclusions an expert witness seeks to offer . . . Yet, as *amici* have pointed out, judges are not scientists and do not have the scientific training that can facilitate the making of such decisions." General Elec. Co. v. *Joiner*, 522 U.S. 136, 147–48 (Breyer, J., concurring).

¹⁶⁶ *Id.* at 149–50 (Breyer, J., concurring).

¹⁶⁷ See generally Joelle Anne Moreno, *Einstein on the Bench?: Exposing What Judges Do Not Know About Science and Using Child Abuse Cases to Improve How Courts Evaluate Scientific Evidence*, 64 OHIO ST. L.J. 531, 533 (2003); Janine M. Kern & Scott R. Swier, *Daubert v. Merrell Dow Pharmaceuticals, Inc.: "Gatekeeping" or Industry "Safekeeping"?*, 43 S.D. L. REV. 566, 575–76 (1998); Frank R. Emmerich, Jr., Note, *The Supreme Court Strengthens the Discretionary Powers of the District Courts in Admitting Expert Scientific Testimony: Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 3 WIDENER J. PUB. L. 1051, 1088 (1994).

¹⁶⁸ See Kern & Swier, *supra* note 167, at 1087.

¹⁶⁹ *Id.* at 1088.

¹⁷⁰ See, e.g., Kern & Swier, *supra* note 167.

¹⁷¹ See Moreno, *supra* note 167, at 533.

role, both in their determination of whether expert testimony is reliable, as well as in their assessment of how to determine reliability in each particular case.¹⁷² The abuse of discretion standard, coupled with the lack of fixed procedures and methods proscribed for trial judges to use in their *Daubert* assessments, has generated significant criticism, based on the belief that a lack of meaningful oversight promotes inconsistency among the “amateur scientists” entrusted with evaluating complex science.¹⁷³ With no guarantee that individual judges will apply reliable methodology analyses, some attorneys and judges question whether the gatekeeping procedure is any more effective than traditional jury analysis in producing trustworthy outcomes.¹⁷⁴

Some of the confusion surrounding *Daubert* involves the substantive scientific assessments judges make in their gatekeeping role.¹⁷⁵ One area that has been particularly troubling under *Daubert* is the judicial assessment of epidemiology, a complex area of science that is highly relevant in the context of toxic torts.¹⁷⁶ Epidemiology is “the field of public health and medicine that studies the incidence, distribution, and etiology of disease in human populations.”¹⁷⁷ *Daubert* itself involved epidemiological evidence, so, on remand, the Ninth Circuit had to determine how to address that evidence in the context of the new rule.¹⁷⁸ The Ninth Circuit quickly realized that the new task federal judges faced in determining the admissibility of expert testimony would be far more complex and daunting than it was in the pre-*Daubert* world.¹⁷⁹ The *Daubert II* court applied a “twice as likely,” or “2.0” standard, for the epidemiological studies it reviewed, meaning that the studies must show that mothers who ingested the drug were twice as likely to have children with birth defects as mothers who did not use the

¹⁷² See *supra* text accompanying notes 47–55.

¹⁷³ See Rudolph F. Pierce & Jennifer M. DeTeso, *A Lawyer’s Lament: Unpredictability and Inconsistency in the Wake of the Daubert Trilogy*, 2 SEDONA CONF. J. 163 (2001).

¹⁷⁴ See Note, *Reliable Evaluation of Expert Testimony*, 116 HARV. L. REV. 2142 (2003).

¹⁷⁵ *Id.*

¹⁷⁶ See Andrew Jurs, *Judicial Analysis of Complex & Cutting-Edge Science in the Daubert Era: Epidemiologic Risk Assessment as a Test Case for Reform Strategies*, 42 CONN. L. REV. 49 (2009).

¹⁷⁷ *Reference Guide on Epidemiology*, in REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 549, 551 (3d ed. 2011).

¹⁷⁸ See Jurs, *supra* note 176, at 54–56.

¹⁷⁹ *Daubert v. Merrell Dow Pharms., Inc.*, 43 F.3d 1311, 1315 (9th Cir. 1995).

drug.¹⁸⁰ Other courts reviewing epidemiological studies in different areas began applying this standard as well.¹⁸¹ For example, Judge Jones cited *Daubert II* in *Hall v. Baxter Healthcare Corp.* to support his use of the same threshold for relevance in the silicone implant litigation.¹⁸²

Critics responded to these judges' assessments, challenging the doubling of the risk standard and the judges' understanding of the underlying science.¹⁸³ Overall, critics argued that the standard oversimplified the issues and failed to address particular circumstances for individual plaintiffs, such as other risk factors that might contribute to injury.¹⁸⁴ The majority of the scientific community considers the 2.0 standard an application of junk science principles, since scientists themselves would not rule out reliance on epidemiological studies based solely on a finding of a risk factor less than 2.0.¹⁸⁵ The *Daubert* Court stressed that finding legal truth and scientific truth are two distinct endeavors.¹⁸⁶ However, the application of the twice as likely standard highlights the danger of separating the two varieties of truth entirely, since granting judges the power to create legal standards for scientific admissibility might undermine the search for either form of truth.¹⁸⁷

The procedural aspect of *Daubert* has also generated confusion and inconsistent application across jurisdictions.¹⁸⁸ For example, under the flexible standard required by *Daubert*, some practitioners argue that the interpretation and application of Rule 702 and *Daubert* varies widely between circuits, generating confusing and inconsistent outcomes.¹⁸⁹ In 2014, the Supreme Court denied certiorari in *City of Pomona v. SQM North America Corp.*¹⁹⁰ This case highlights a circuit split over what

¹⁸⁰ *Id.* at 1321.

¹⁸¹ See Jurs, *supra* note 176, at 55–56.

¹⁸² *Hall v. Baxter Healthcare Corp.*, 947 F. Supp. 1387, 1404 (D. Or. 1996).

¹⁸³ See Jurs, *supra* note 176, at 57–60.

¹⁸⁴ See *id.* at 57–60.

¹⁸⁵ Heinzerling, *supra* note 153, at 73–74.

¹⁸⁶ *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 596–97 (1993).

¹⁸⁷ *Id.* at 595–96.

¹⁸⁸ See *Reliable Evaluation of Expert Testimony*, *supra* note 174.

¹⁸⁹ See Christopher D. Barraza, *SCOTUS Asked to Resolve Daubert Circuit Split*, LEXOLOGY: PROD. LIAB. MONITOR (Nov. 13, 2014), <https://www.lexology.com/library/detail.aspx?g=a7866051-d2ba-47be-bb6c-66ffd811bd77> [<https://perma.cc/K4WP-5LFG>].

¹⁹⁰ 750 F.3d 1036 (9th Cir. 2014), *cert. denied*, 135 S. Ct. 870 (2014).

approach Rule 702 and *Daubert* require courts to take when faced with expert testimony that is in some way methodologically flawed, but perhaps not entirely inaccurate or unreliable.¹⁹¹ The Ninth Circuit does not believe that a minor flaw in reasoning or method should undermine the admissibility of expert testimony.¹⁹² Under this view, such flaws should go to the weight of the evidence, not its admissibility.¹⁹³ In contrast, the Third Circuit established the “any step” test in *In re Paoli R.R. Yard PCB Litigation*.¹⁹⁴ Under the “any step” test, anything that renders the analysis unreliable, including a misapplication of a methodology, renders the testimony inadmissible.¹⁹⁵ This discrepancy means that the same expert testimony might be admitted in the Ninth Circuit, but excluded in the Third Circuit. Overall, the Seventh, Eighth, and Ninth Circuits tend to apply a more lenient standard for admissibility in these circumstances, while the Second, Third, Sixth, and Tenth Circuits are more restrictive.¹⁹⁶

E. *The Importance of Gatekeepers*

Expert testimony regarding causation is particularly important in toxic tort cases, since causation is almost always the central dispute.¹⁹⁷ The evidence that juries do or do not hear in toxic tort cases is critical. There is no general consensus as to whether juries are able to accurately process and evaluate complex scientific evidence.¹⁹⁸ The *Daubert* Court believed that juries and the adversarial process could be trusted to properly address shaky scientific evidence.¹⁹⁹ Some scholars and courts

¹⁹¹ Christopher Barraza, *High Court Ensures Split Over Gatekeeping Role Persists*, LAW360 (Feb. 10, 2015, 12:24 PM), <https://www.law360.com/articles/619839/high-court-ensures-split-over-gatekeeping-role-persists>.

¹⁹² *City of Pomona*, 750 F.3d at 1047–48.

¹⁹³ *Id.*

¹⁹⁴ *In re Paoli R.R. Yard PCB Litig.*, 35 F.3d 717, 745 (3d Cir. 1994).

¹⁹⁵ *Id.*

¹⁹⁶ See Barraza, *supra* note 191.

¹⁹⁷ See Neal C. Stout & Peter A. Valberg, *Bayes' Law, Sequential Uncertainties, and Evidence of Causation in Toxic Tort Cases*, 38 U. MICH. J.L. REFORM 781 (2005).

¹⁹⁸ See *infra* text accompanying notes 199–210.

¹⁹⁹ *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 595–96 (1993). Opponents of the *Daubert* standard feared that abandoning the general acceptance test would lead to chaos in the

support this view, noting that while there is some risk to admitting questionable scientific testimony, that risk is properly addressed through Federal Rules of Evidence 401²⁰⁰ and 403,²⁰¹ concerning relevance and unfair prejudice, respectively.²⁰²

Other scholars believe that lay jurors can be unduly influenced by the assumed expertise and authority of expert witnesses.²⁰³ Perhaps, according to this view, the influence of experts on juries is an uncontrollable byproduct of the “paradox” of expert testimony, calling experts to testify to issues beyond the understanding of lay people, and then asking lay people to assess that testimony.²⁰⁴ Numerous studies suggest that jurors, when confronted with complex expert evidence, often base their decisions on the perceived credibility of the experts, or simply disregard the confusing expert testimony and make their decisions based on other factors.²⁰⁵ Extraneous factors outside the courtroom might also influence jury decisions. For example, in the silicone implant litigation, some believe that growing media coverage unfairly influenced jurors by presenting shaky science as factual proof of the dangers of silicone.²⁰⁶

Questions regarding the ability of jurors to competently and neutrally assess scientific evidence have recently arisen in the Johnson & Johnson talc litigation. These cases are highly emotional, with juries

courtroom, where “befuddled juries are confounded by absurd and irrational pseudoscientific assertions.” *Id.* at 595. However, the Court considered this view “overly pessimistic about the capabilities of the jury and of the adversary system generally.” *Id.* at 596.

²⁰⁰ FED. R. EVID. 401.

²⁰¹ FED. R. EVID. 403.

²⁰² See Leslie A. Lunney, *Protecting Juries from Themselves: Restricting the Admission of Expert Testimony in Toxic Tort Cases*, 48 SMU L. REV. 103, 169–70 (1994). According to this view, it is not Rule 702, but Rules 401 and 403 that offer the best protection from juries hearing shaky science evidence. *Id.* Evidence that is entirely unreliable or unrelated to the issues involved would not meet the relevance standard under Rule 401, and evidence that is too shaky or uncertain could be excluded as confusing or unfairly prejudicial under Rule 403. *Id.*

²⁰³ See Goss et al., *supra* note 67, at 228–29.

²⁰⁴ Samuel R. Gross, *Expert Evidence*, 1991 WIS. L. REV. 1113, 1182 (1991) (“[T]he essential paradox in the use of expert evidence. We call expert witnesses to testify about matters that are beyond the ordinary understanding of lay people . . . and then we ask lay judges and jurors to judge their testimony.”).

²⁰⁵ See generally Sanja Kutnjak Ivkovic & Valerie P. Hans, *Jurors’ Evaluations of Expert Testimony: Judging the Messenger and the Message*, 28 LAW & SOC. INQUIRY 441 (2003).

²⁰⁶ See Worthington, *supra* note 68, at 165–67.

hearing the stories of plaintiffs who have suffered significant health consequences, including cancer and its treatments, the loss of reproductive organs, and death.²⁰⁷ This sort of devastating injury can “inflare” jurors, making them more susceptible to the influence of junk science.²⁰⁸ Johnson & Johnson also expressed concern over the media’s influence on jurors.²⁰⁹ The company claimed that plaintiffs’ attorneys tainted the St. Louis jury pool by spending nearly \$10 million on television commercials highlighting the dangers of talc, with a disproportionate focus on St. Louis markets.²¹⁰

F. *The National Science Panel “Solution”*

The National Science Panel, along with the smaller panels commissioned in the silicone breast implant litigation, was an early attempt to address judicial limitations in assessing scientific methodologies and data.²¹¹ After the Science Panel published its findings, some courts used the report, or the recorded depositions of the panelists, to exclude plaintiffs’ testimony in similar cases.²¹² This use in other courts reflected Judge Pointer’s hope that the Panel would produce helpful findings for cases beyond those consolidated in his court.²¹³

The Panel findings were not, however, universally accepted or utilized by other judges hearing similar cases.²¹⁴ For example, a federal judge in Washington D.C. refused to let a jury consider the Panel report, and that jury subsequently found for the plaintiff.²¹⁵ Also, the work done by Judge Jones in Oregon and Judge Weinstein in New York was largely

²⁰⁷ See Siegel, *supra* note 137.

²⁰⁸ *Id.*

²⁰⁹ See Erica Teichert, *J&J Loses Venue Fight for Talc Lawsuits in Missouri*, REUTERS (Jan. 27, 2017, 3:47 PM), <http://www.reuters.com/article/us-johnson-johnson-cancer/jj-loses-venue-fight-for-talc-lawsuits-in-missouri-idUSKBN15B2AF> [<https://perma.cc/Q67K-64XR>].

²¹⁰ *Id.*

²¹¹ See generally *supra* text accompanying notes 67–96.

²¹² Worthington, *supra* note 68, at 170.

²¹³ See Goss et al., *supra* note 67, at 238.

²¹⁴ Walker & Monahan, *supra* note 75, at 813.

²¹⁵ *Id.*

duplicative of the Science Panel's work.²¹⁶ State courts were even less likely to defer to the Panel findings, leading to inconsistent outcomes and redundant inquiries by judges in state and federal court.²¹⁷ Redundancy is particularly troubling given the time and expense involved in a comprehensive court-appointed expert assessment of complex scientific evidence.²¹⁸ The National Science Panel report, a two-year effort that cost \$800,000 to produce, emphasizes the financial and time commitments associated with such assessments.²¹⁹ If courts hearing similar cases do not rely on these reports, unnecessary time and financial costs of repeated efforts will accumulate.²²⁰

G. *The Science Day "Solution"*

While the use of science days in complex cases has risen in recent years, no common procedure has developed in state or federal courts for either the form of the tutorial or the use of the information received by the court through the tutorial.²²¹ For example, Judge Johnson's request for scientific literature from the parties, and his review of that literature before the *Kemp* hearing,²²² represents the most basic form of science tutorial.²²³ Across the country, Judge Nelson held a more extensive science day, hearing presentations from counsel and experts for both parties.²²⁴ However, Judge Nelson did not engage in an interactive dialogue with the party experts, leading some to question the usefulness of the session and how much of the evidence she was actually understanding.²²⁵ The two types of science days led to inconsistent

²¹⁶ See *supra* text accompanying notes 87–95.

²¹⁷ See Walker & Monahan, *supra* note 75, at 816–17.

²¹⁸ See Worthington, *supra* note 68, at 171–72.

²¹⁹ Walker & Monahan, *supra* note 75, at 801–02.

²²⁰ For example, Judge Jones' panel cost an additional \$76,000. See HOOPER, CECIL & WILLGING, *supra* note 86, at 82.

²²¹ See Wood, *supra* note 101.

²²² See *supra* text accompanying note 126.

²²³ See Wood, *supra* note 101.

²²⁴ See Schwartz & Schachtman, *supra* note 102. See also Siegel, *supra* note 137.

²²⁵ See Schwartz & Schachtman, *supra* note 102.

outcomes, with Judge Johnson dismissing cases,²²⁶ and Judge Nelson presiding over a \$417 million plaintiff verdict.²²⁷

III. PROPOSAL

While some critics suggest that the *Daubert* gatekeeping standard is inherently faulty due to the limited capacity of judges to undergo scientific analysis,²²⁸ this Note operates within the framework of *Daubert*, proposing a way to help judges fulfill their gatekeeping role. While the *Daubert* Court was undoubtedly correct that there are inevitable differences between legal and scientific truth,²²⁹ the legal system should strive towards expert evidence rules and procedures that promote the most scientifically valid outcomes, as well as the most consistent outcomes across jurisdictions. To further this goal, this Note proposes that the Court overturn the aspect of *Kumho Tire* that grants trial judges full discretion over *how* to make Rule 702 admissibility determinations in mass tort cases.²³⁰ Rule 702 and *Daubert* have the potential to insulate factfinders from junk science, but only if courts apply the standards in an effective and consistent manner.

This Part outlines a model procedure for judges to use in assessing the admissibility of expert testimony, specifically expert testimony involving novel and complex science issues in mass tort cases. Federal judges overseeing pre-trial practice in multi-district litigation should implement the procedure.²³¹ As discussed below, the focus on MDLs

²²⁶ See *supra* text accompanying note 124.

²²⁷ Christensen, *supra* note 141.

²²⁸ See *supra* Section II.C.

²²⁹ *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 596–97 (1993).

²³⁰ *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999).

²³¹ The Johnson & Johnson talc litigation is not the only modern example of MDL involving novel science issues and the question of junk science in relation to gatekeeping. See, e.g., Tina Bellon, *Monsanto Urges Federal Judge to Toss “Junk Science” Roundup Claims*, REUTERS (Nov. 13, 2017, 5:03 PM), <https://www.reuters.com/article/products-roundup/monsanto-urges-federal-judge-to-toss-junk-science-roundup-claims-idUSL1N1NJ20P> [<https://perma.cc/TV48-HN83>]. For example, plaintiffs in consolidated cases pending in the Northern District of California claim that roundup weed-killer caused them to develop non-Hodgkin lymphoma. *Id.* Defendant claims that plaintiffs are relying on unreliable junk science, and that the MDL judge should use his gatekeeping authority to bar their experts from testifying. *Id.* The science

creates a clear trigger for implementing the procedure and helps to address the redundancy and inconsistency issues that arise under existing methods. The goal is to create a procedure that promotes efficiency, accuracy, and consistency across jurisdictions in cases involving complex science issues. The model procedure combines the best practices of the National Science Panel and science days, along with responses to the lessons learned through the use of these processes in the past.

A. *Step 1: Familiarity With the Underlying Science*

This step should be required for all judges considering the admissibility of scientific expert testimony, whether the case be discrete or part of mass national litigation. Before considering the admissibility of particular testimony, judges should be required to familiarize themselves with the areas of science relevant to the case at hand. The judge should ask plaintiffs and defendants to provide a list of the general areas of science applicable to the expert testimony they want to offer, such as epidemiology, toxicology, or neuroscience. The judge should then read the relevant sections of the Reference Manual on Scientific Evidence.²³² While this requirement will not fully address the criticism that judges lack the scientific knowledge necessary to assess the reliability of complex science,²³³ it will help to ensure that all judges assessing scientific evidence have a baseline understanding of the relevant methodologies.

This requirement might seem onerous, as it is an additional burden for judges managing large caseloads. However, gatekeepers must understand methodologies before they can determine whether proposed scientific evidence is reliable. This requirement also serves as a response to critics who fear that judges will defer too much to the neutral advisors

underlying the claim is unclear, and scientific authorities are divided, so these cases could also benefit from the procedure proposed in this Note. *Id.*

²³² See generally FED. JUDICIAL CTR., REFERENCE MANUAL ON SCIENTIFIC EVIDENCE (3d ed. 2011). The Reference Manual was designed to assist judges in managing cases involving complex scientific and technical evidence. *Id.* at ix. The first edition of the Reference Manual was published shortly after the *Daubert* decision. *Id.* The current edition is the result of collaboration between the Federal Judicial Center and the National Research Council. *Id.*

²³³ See *supra* text accompanying notes 162–71.

in the steps outlined below. If judges have a basic independent understanding of the science involved, they can better engage with the procedure and more confidently make the final admissibility determination.²³⁴

B. *Step 2: Science Panel*

This step of the procedure models some of the benefits of the National Science Panel utilized in the silicone implant litigation, and does not deviate significantly from the general process employed by Judge Pointer.²³⁵ This process should be triggered when a new wave of novel science litigation develops in federal court and the Judicial Panel on MDL determines that the common question of scientific causation warrants pre-trial centralization.²³⁶ For example, in the Johnson & Johnson talc cases, the MDL consolidation in New Jersey would have triggered this procedure.²³⁷ The MDL judge should appoint a panel of neutral experts to conduct an analysis of the scientific claims offered by both parties' experts.²³⁸ The panelists should be experts in the fields relevant to the issues at hand. In choosing these experts, the court should turn to a neutral service, such as the Court Appointed Scientific Experts (CASE) service offered by the American Association for the Advancement of Science.²³⁹

²³⁴ Take, for example, the criticism regarding Judge Nelson's science day in the California talc cases. See *supra* text accompanying note 225. Many observers took Judge Nelson's lack of engagement as a sign that she did not understand the science the parties presented. *Id.* If that was the case, the baseline understanding that this step of the procedure helps judges develop may have enhanced Judge Nelson's science day.

²³⁵ See *supra* Section I.B.

²³⁶ See *Overview of Panel*, U.S. JUDICIAL PANEL ON MULTIDISTRICT LITIG., <http://www.jpml.uscourts.gov/overview-panel-0> [https://perma.cc/V3GX-3ZLM] (last visited Apr. 21, 2019).

²³⁷ See *supra* note 129.

²³⁸ Like Judge Jones in the silicone implant cases, the trial judge should appoint the experts through his inherent authority under FRE 104. See *Hall v. Baxter Healthcare Corp.*, 947 F. Supp. 1387, 1392 (D. Or. 1996). A new federal rule of evidence might be appropriate to specifically address this authority as applied to neutral expert panels but based on the use of Rule 104 in the past, it does not appear that such a rule would be necessary before implementing the procedure.

²³⁹ The CASE service locates and recommends scientists, engineers, and healthcare providers to serve as court-appointed experts. *CASE: Experience*, AM. ASS'N FOR THE

The panel process should be similar to that employed by the National Science Panel.²⁴⁰ The court provides the panel with a list of questions relevant to the determination of the reliability of the offered expert opinions.²⁴¹ The court then invites the parties to submit the studies and research upon which their experts are relying to the panel for review. The panel will also conduct an independent review of scientific literature and will consult with other experts as needed. From this study, the panel will produce a report outlining answers to the judge's questions and an overall opinion on the reliability of the parties' evidence.

One important feature that the consistent use of science panels would provide is peer review of expert opinions. Some scientists and attorneys believe that the solution to the confusion facing judges and juries in complex battle-of-the-experts cases is input from the broader scientific community.²⁴² The argument is that peer review of expert testimony would reduce the amount of junk science in the courtroom and would make judges' admissibility decisions more just and accurate.²⁴³ The *Daubert* Court also realized the value of peer review, highlighting it as the second factor for judges to consider in admissibility determinations.²⁴⁴

Under this model, the theories and techniques utilized by party-experts would be reviewed by neutral peers in their fields. These neutral experts would be tasked with reviewing the methodologies employed by the party experts, and assessing the relationship between methodologies, findings, and conclusions. This review process could have a two-

ADVANCEMENT SCI., <https://www.aaas.org/page/case-experience> [<https://perma.cc/83HM-M4RC>] (last visited Apr. 21, 2019). The service also assists judges in evaluating qualifications and conflicts of interest of party-appointed experts and in refining issues to be addressed by experts. *Id.*

²⁴⁰ See *supra* text accompanying notes 79–80.

²⁴¹ While this Note does not offer a set of potential questions, it is possible that model questions could be established that are applicable within particular areas of scientific study.

²⁴² See David L. Faigman & Amit Lakhani, *Science or Advocacy? Expert Challenges and Peer Review*, LAW360 (Feb. 23, 2016, 12:34 PM), <https://www.law360.com/articles/761812/science-or-advocacy-expert-challenges-and-peer-review>.

²⁴³ *Id.*

²⁴⁴ See *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 593 (1993) (“Another pertinent consideration is whether the theory or technique has been subjected to peer review and publication.”).

pronged effect. First, the review would help to highlight issues and flaws in methodology and reasoning. Second, and perhaps more importantly, if experts are aware that their opinions will be regularly subjected to neutral peer review, they will likely apply a more rigorous standard in their own assessments.

C. Step 3: Science Day

This step is where the model procedure most significantly deviates from what occurred in the silicone implant litigation. The goal of these deviations is to address some of the limitations and criticisms of the National Science Panel and its outcomes, specifically the inconsistent application of the Panel's results and the unnecessary repetition of the Panel's work.²⁴⁵

After the report is released, the MDL court should hold a science day in which parties can challenge and respond to the report's findings. Unlike the current unstandardized procedure for science days,²⁴⁶ this model procedure should be consistently applied in all courts. The MDL judge should first appoint a neutral advisor to help guide the science day process. Although the judge has the benefit of the neutral report to guide his understanding of the science involved, he will now face complex arguments and comparative analyses of that science from competing experts. Because the adversarial process can confuse judges trying to make accurate admissibility decisions,²⁴⁷ a neutral advisor would be beneficial at this stage of the process. The presence of a neutral advisor would also provide an incentive for party-experts to present their responses to the report in a balanced manner that relies on principles generally supported within their scientific community.²⁴⁸

Upon release of the panel report, individual parties should have an opportunity to address and challenge the report through testimony by their own experts. This testimony should focus on the expert's view of sections of the report relevant to his expertise. During this testimony, the judge should ask the experts to explain inconsistencies between their

²⁴⁵ See *supra* text accompanying notes 214–18.

²⁴⁶ See *supra* text accompanying notes 221–27.

²⁴⁷ See Faigman & Lakhani, *supra* note 242.

²⁴⁸ FED. JUDICIAL CTR., *supra* note 232, at 329.

opinions and the findings of the neutral report. The neutral advisor should offer suggestions to the judge regarding the important questions to ask. Input from a neutral advisor would help judges avoid criticism like that faced by Judge Nelson in the California talc cases, since she did not ask many questions during her science day, and some critics believed she was therefore not engaged with learning more about the science involved in her cases.²⁴⁹ The experts can also highlight why their analysis differed from that of the neutral experts. The judge, in coordination with the neutral advisor, would then consider the report and the parties' responses in making ultimate admissibility determinations. Therefore, under this procedure, the judge still performs the ultimate gatekeeping function.

D. *Criticisms of Science Panels and Science Days*

The first main critique of this model procedure involves the practicality of the process, namely the time and cost associated with commissioning and developing a neutral report and holding related science days. Judge Pointer's National Science Panel report came at a cost of \$800,000 to the parties and took two years to produce.²⁵⁰ It is undeniable that producing a similar report in every large-scale novel science litigation would be costly in terms of both money and time. However, the costs would be divided among the potentially large number of parties involved in the MDL. Also, one of the purposes of this procedure is to limit unnecessary redundancies between courts. While some judges repeated Judge Pointer's work and others ignored the findings,²⁵¹ this procedure would streamline the use of the report, reducing the judicial costs of answering admissibility questions overall.

Another critique of this procedure involves the reliance on neutral experts in both the report and science day phases. Opponents of the use of neutral experts and advisors argue that there is no such thing as a neutral expert.²⁵² The science day aspect of this procedure offers a

²⁴⁹ See Schwartz & Schachtman, *supra* note 102; Siegel, *supra* note 137.

²⁵⁰ Walker & Monahan, *supra* note 75, at 801-02.

²⁵¹ See *supra* text accompanying notes 214-18.

²⁵² Many believe that it is impossible for an expert hired by a party to be truly isolated from the influence of compensation. See, e.g., FED. JUDICIAL CTR., *supra* note 232, at 329.

solution to this problem. If a party believes that aspects of the report are inaccurate or biased, it can raise that concern during the science day. Of course, the science day also involves neutral advisors, but their role at this stage is limited to helping judges determine what questions to ask the party experts.

Some opponents of this procedure might also argue that it, and the gatekeeping process in general, undermine the adversarial process.²⁵³ Under this view, the gatekeeping role of judges should be strictly limited to excluding clearly unreliable evidence, while the majority of evidence should be presented to the jury.²⁵⁴ The *Daubert* Court itself noted that the traditional mechanisms of the adversarial system provide the appropriate method for combating shaky evidence.²⁵⁵ While there is always the risk that judges will exclude evidence because they misunderstand it or disagree with the expert without true cause, that risk is a result of the gatekeeping function itself, rather than this procedure. This procedure does not focus on the ultimate opinions the experts reach. It is merely designed to give judges the tools they need to determine what evidence is reliable, a question that neither they nor the average juror is equipped to answer absent some level of understanding of scientific methodologies.

Finally, critics might disagree with the decision to overturn an aspect of *Kumho Tire* by restricting trial court discretion regarding how to make admissibility determinations.²⁵⁶ This critique is in some ways the most difficult to address, since adherence to the model procedure clearly restricts discretion. However, restrictions on how courts make admissibility determinations do not limit judges' discretion in the ultimate admissibility decisions, which are the critical component of the gatekeeping role. Neutral reports and advisors will enhance the ability of judges to make these determinations. Trial judges are not scientists, but they are entrusted with these evidentiary decisions as they are with any other. This procedure enhances their ability to make informed

²⁵³ See generally Hyongsoon Kim, *Adversarialism Defended: Daubert and the Judge's Role in Evaluating Expert Evidence*, 34 COLUM. J.L. & SOC. PROBS. 223 (2001).

²⁵⁴ See *id.* at 245–51.

²⁵⁵ “Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.” *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 596 (1993).

²⁵⁶ See *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999).

decisions, thereby strengthening the basis for allowing judges to execute gatekeeping functions.

E. *Consistency Between Federal and State Courts*

The procedure outlined above is executed by federal judges. However, state court judges often face similar cases at the same time as the federal cases.²⁵⁷ Cooperation between federal and state courts would be useful for boosting efficiency and consistency,²⁵⁸ so federal and state procedural guidelines should formalize this cooperative system.

While Judge Pointer widely disseminated the National Science Panel's findings, the report had minimal or inconsistent influence on state courts hearing silicone implant cases.²⁵⁹ The federal procedure should follow Judge Pointer's lead, releasing both the report and the transcript of the science day hearing for use in other courts. State courts should employ procedures that require consideration of the panel's work in cases involving the same issue. For example, if the MDL Johnson & Johnson talc court followed the procedure outlined above, Missouri courts hearing similar cases should incorporate the findings into their own admissibility considerations. State courts, such as the courts hearing talc cases in Missouri, could engage in a procedure that mirrors the federal science day, giving the state court experts an opportunity to respond to the report before the state judges rule on admissibility.

This Note focuses primarily on *Daubert* jurisdictions, but states should adopt this procedure regardless of whether the state courts follow *Daubert* or *Frye*.²⁶⁰ The report could help judges determine

²⁵⁷ See Andrew K. Solow, Alan E. Rothman & Ari B. Fontecchio, *Mastery in the MDL: Maximizing the MDL Daubert Process*, LAW360 (Jan. 29, 2016, 11:07 AM), <https://www.law360.com/articles/751439/mastery-in-the-mdl-maximizing-the-mdl-daubert-process>.

²⁵⁸ See *id.*

²⁵⁹ See *supra* text accompanying notes 213, 217.

²⁶⁰ Research suggests that the primary difference in admissibility decisions across jurisdictions may not be based on whether the jurisdiction adheres to *Daubert* or *Frye*. See, e.g., Pamela J. Jensen, Note, *Frye Versus Daubert: Practically the Same?*, 87 MINN. L. REV. 1579, 1616–19 (2003). Instead, the different ways judges approach admissibility decisions dictate the inconsistent outcomes. *Id.* If this is the case, a unified procedure across jurisdiction types would

whether science that is novel might still be considered “generally accepted” in the relevant scientific community, and it supports the *Frye* premise that the scientific community must play the central role in gauging the reliability of scientific evidence.²⁶¹

CONCLUSION

This Note explores an increasingly important issue in civil litigation: the intersection between toxic torts, novel and complex science, and judicial discretion. While the legal system is designed to focus on facts, cases centered on scientific causation issues require courts to address hypotheses, probabilities, and other areas totally foreign to the traditional judicial role. What some scientists support, others might call junk science. What is commonly accepted in the scientific community today might be disproven tomorrow. It is within this constantly evolving and uncertain framework that judges must decide what expert testimony is admissible.

The gatekeeping role is a daunting task for judges, but they have responded to it with innovative solutions, such as appointing science panels and holding science days. However, the response of each judge still varies, leading to inconsistent outcomes in similar cases, redundancy, and confusion. The model procedure presented in this Note has its shortcomings, but it represents an effort to create a system where the search for the truth is as effective and consistent as possible. The time for discretion in expert admissibility determinations should come to an end, replaced by an embodiment of the best practices judges have developed over the past twenty-six years.

further enhance consistency, even if the ultimate questions the judges consider are somewhat different.

²⁶¹ See Hoelle, DeMott & Shapiro, *supra* note 17.