WHY FLORIDA NEEDS A BETTER SYSTEM OF KEEPING UNRELIABLE EXPERT TESTIMONY OUT OF ITS COURTROOMS:

The Need for Florida Judges to Act as Gatekeepers

Today, a complex civil case rarely goes by in which each party does not try to offer the jury multiple "experts" upon whose opinion to base its verdict. In this battle of the experts, how is a jury to separate fact from fiction, reliable evidence from junk science? In 1993, the Supreme Court of the United States provided an answer for the federal courts. In a highly influential decision, it deputized trial court judges as "gatekeepers," giving them the responsibility to ensure expert testimony is based on reliable methodologies and fits the facts of the case. Since that time, federal courts have much more closely scrutinized expert testimony.

While many states embraced this gatekeeping role through judicial or legislative action, Florida courts moved backward. In fact, since a 2008 Florida Supreme Court ruling, purported experts can offer their "pure opinion" without the need to back it up with science. As a result, Florida courts have permitted juries to consider flawed expert testimony from the very same witnesses and involving the same product that is repeatedly ruled inadmissible in federal and other state courts. This situation leads plaintiffs' lawyers to forum shop—bringing weak cases in Florida state courts that would likely be dismissed elsewhere.

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Unreliable expert testimony presents one of the most difficult and dangerous challenges to the fair administration of justice. The admission of such unreliable evidence, also called "junk science," has led juries to impose liability on civil defendants for injuries that they did not cause. This in turn has led to the removal of beneficial products from the market and discouraged innovation.[1] Imposing liability on a defendant who did not cause a harm not only violates a fundamental tenet of our system of justice, it also adversely impacts our daily lives.

U.S. Supreme Court Justice Stephen G. Breyer has recognized that "[s]cientific issues permeate the law," arising in situations as diverse as the validity of DNA sampling or predictions of a person's future dangerousness in criminal cases, the reasonableness of government administrative agency conclusions on environmental issues, technical issues in patent law, and difficult determinations present in tort law cases about the degree of risk of death or injury associated with chemicals or products.[2] For that reason, "the law must seek decisions that fall within the boundaries of scientifically sound knowledge and approximately reflect the scientific state of the art."[3]

Why Expert Testimony Requires Close Judicial Scrutiny

Expert testimony, whether presented by plaintiffs or defendants, can strongly influence juries. One reason for this is that an expert witness has extraordinary powers and privileges in court. Unlike ordinary witnesses, "an expert is permitted wide latitude to offer opinions, including those that are not based on firsthand knowledge or observation."[4] Experts are unique in that their testimony may be based on evidence that otherwise would not be admissible.[5] For example, experts can base their testimony on hearsay to justify their opinions, even if such underlying evidence is inadmissible.[6] Expert witnesses can testify on the "ultimate" legal issue in a case, such as whether a product or substance caused the plaintiff's injury, even though an ordinary witness would not be permitted to do so.[7]

The content of expert testimony is, by definition, outside the realm of an ordinary juror's scope of knowledge. Otherwise, an expert would not be permitted to testify. For example, an "expert" could not testify about whether a car was speeding or not. A lay juror could make that decision. But an expert could testify (and has) as to whether a drug such as Vioxx™ caused a heart attack.

As the U.S. Supreme Court has recognized, "Expert evidence can be both powerful and quite misleading because of the difficulty in evaluating it."[8] It often addresses an area that is unfamiliar and may be cryptic or obscure. As one state high court noted: "Evidence that purports to be based on science beyond the common knowledge of the average person that does not meet the judicial standard for scientific validity can mislead, confuse, and mystify the jury."[9] In addition to overwhelming or misleading the jury, legal scholars have found that "[t]here are a score of other concerns associated with experts who lack a reliable basis for their opinion, ranging from their introducing evidence that is otherwise inadmissible to prolonging litigation and wasting time and resources."[10]

The Detrimental Impact of Junk Science

The burgeoning use of experts in civil litigation over the past three to four decades has raised the importance of sound standards for admission of scientific and technical evidence in court. For example, the number of experts testifying in Cook County, Illinois rose 1500% between 1974 and 1989.[11] In a sample of California cases, experts testified in 86% of all civil cases, 95% of personal injury cases, and 100% of product liability cases.[12]

Given the growing prevalence of expert testimony, whether courts exclude unreliable expert testimony impacts society as a whole.[13] For instance, in early cases alleging that the morning sickness drug Bendectin™ caused birth defects, courts generally allowed both sides to present their evidence and let the jury decide the issue.[14] Despite overwhelming scientific evidence finding no link between the drug and birth defects, several juries in the mid-1980s, adrift in a sea of conflicting "expert" testimony, rendered multimillion-dollar awards against the manufacturer.[15] Many of these verdicts were ultimately reversed on appeal,[16] but the cost of the litigation and appeals, in case after case, led the manufacturer to remove Bendectin™ from the American market in 1983. Thus, unreliable evidence admitted in court deprived U.S. women of the only Food and Drug Administration-approved medication that blunted the unpleasant and sometimes dangerous symptoms of morning sickness.[17] It is still readily available in other countries, including Canada.

The Bendectin™ situation is not unique.[18] Silicone breast implant litigation forced Dow Corning to file Chapter 11 bankruptcy in 1995.[19] In those cases, lower courts once again did not act as gatekeepers. Yet, when scientists carefully examined the issue, no link was found between implants and autoimmune disorders, cancer, or any other serious disease.[20]

Today, federal courts apply *Daubert* to hold the line against unreliable expert testimony. For instance, plaintiffs' lawyers employing unreliable experts have attempted to attribute autism in children to thimerosal, a preservative used in life-saving vaccines, when all available peer-reviewed and generally accepted epidemiological studies contradict such a link.[21] Judges acting as gatekeepers have rejected such testimony, preserving the availability of vaccines.

As these cases demonstrate, judges who permit bad science to be presented as fact to well-meaning juries can drive a product off the market and companies out of business. On the other hand, gatekeeping judges who exclude unreliable testimony can ensure that innocent defendants are not unjustly harmed.

Expert Evidence Legalese: *Frye* & *Daubert*

Unless you are a lawyer, "*Frye*" may bring to mind those shoestring potatoes that come alongside a hamburger. And "*Daubert*" may sound like a comic strip in the Sunday paper. But to a lawyer, these terms represent cases that provide fundamentally different philosophies as to the judge's role in evaluating the admissibility of expert testimony in the courtroom.

From about 1923 until 1993, federal courts permitted parties to present expert testimony involving novel scientific theories if the underlying theory or basis of opinion was "generally accepted" as reliable within the expert's particular field.[22] The "general acceptance" test, known as the "*Frye* standard," while on its face seemingly restrictive, actually favored broad

admissibility of expert testimony.

This nearly eighty-five-year-old test gives rise to two somewhat contradictory problems. First, it may exclude testimony about theories that are reliable and based on sound science, but have not yet gained general acceptance in the field. At the same time, the test allows the admission of theories that have arguably gained general acceptance in some self-proclaimed community of hired experts, yet that have not been subject to peer review or vigorous testing by the wider scientific community and may not fit the facts of the case.

As we know from life experience, general acceptance can be absolutely wrong. For example, when the *Frye* test was crafted, many believed that the Milky Way was the entire universe. In the 1970s, it was generally accepted that the earth was cooling. Until the 1990s it was not widely accepted that ulcers are caused by bacteria. Today, ill founded science can still pass the general acceptance test if it is not administered carefully or is accepted by a self-interested constituency. For example, just because all alchemists may generally accept that it is possible to turn lead into gold does not mean that the testimony of alchemists ought to be admitted in court.

Under *Frye*, courts generally take a "let the jury decide" approach, treating any reliability concerns as going to the weight of the evidence rather than its admissibility and depending on cross-examination to expose any flaws to the jury. Trials often became a battle of purported experts without regard to the relative soundness of the evidence and the fact that jurors were totally untutored on the issues.

In 1993, the Supreme Court of the United States repudiated the *Frye* approach when it addressed the importance of reliability in expert testimony in *Daubert v. Merrell Dow Pharmaceuticals, Inc*.[23] In that case, involving the reliability of using animal studies to link Bendectin to harm in humans,[24] the Supreme Court provided several factors for judges to consider in separating sound science from fiction. Most significantly, the Supreme Court deputized federal trial court judges as "gatekeepers," providing them with a key role in protecting lay juries against speculative and unreliable theories presented as scientific fact.

Empirical evidence suggests that *Daubert* has had a significant impact in federal courts, making it much more likely that judges will closely review expert testimony, exclude unreliable evidence, and dismiss unfounded civil lawsuits. For example, after *Daubert*, Bendectin cases were thoroughly discredited.[25]

Development of the Gatekeeping Role

The Supreme Court recognized in *Daubert* that expert testimony must be subject to a strong and careful judicial gatekeeper function in order to ensure fair trials. The Court instructed that when "[f]aced with a proffer of expert scientific testimony . . . the trial judge must determine at the outset . . . whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue."[26]

First, the Supreme Court found that the federal rules of evidence require trial courts to evaluate the qualifications of the witness to testify as an expert on the issue at hand.[27] Then, the Court tasked trial court judges with screening proffered expert testimony to ensure that what is

admitted "is not only relevant, but reliable."[28] In determining reliability, the Court provided a nonexclusive list of key factors for courts to consider before admitting expert testimony, including:

- whether the theory or technique can be and has been tested;
- whether it has been subjected to peer review and publication;
- whether, in respect to a particular technique, there is a high "known or potential rate of error" and whether there are "standards controlling the technique's operation"; and
- whether the theory or technique enjoys general acceptance within the relevant scientific community.[29]

In subsequent cases, the Supreme Court further clarified that an expert's reasoning and conclusions must fit the facts of the case. In *General Electric Co. v. Joiner*, the Court ruled that there may not be "an analytical gap" between the expert's data and methodology and the conclusion he or she is to offer to the jury.[30] The Court held in *Kumho Tire Co. v. Carmichael* that close scrutiny of expert testimony applies not only in the traditional sciences, but to all technical or other specialized testimony offered by experts.[31] Together, this trio of cases stands for the fundamental principle that trial court judges must act as gatekeepers and carefully screen expert testimony to ensure its reliability. The United States Court of Appeals for the Third Circuit summarized the federal standard as "embod[ying] three distinct substantive restrictions on the admission of expert testimony: qualification, reliability, and fit."[32]

The Supreme Court has provided trial court judges with flexibility to acknowledge new developments in science and technology that may not be universally accepted, but have an objective, proven, and sound foundation. But the most significant aspect of the Court's decision in *Daubert* was its establishment of a judge's new gatekeeping role. The Court was absolutely clear that federal district court judges must conduct a preliminary assessment "to consider whether the testimony has been subjected to the scientific method, ruling out any subjective belief or unsupported speculation."[33] In sum, while *Daubert* does not require courts to apply a test of "scientific certainty" to the admission of expert evidence, it does require that such testimony rest upon "good grounds, based on what is known."[34] As Justice Breyer has observed, "These techniques are neutral, in principle favoring neither plaintiffs nor defendants."[35]

The Significant and Positive Impact of *Daubert* in the Courts

Daubert "changed [the] deference-to-the-field approach . . . [and] brought [a] scientific culture to the courtroom."[36] For example, a Federal Judicial Center survey of federal judges taken just prior to *Daubert* and again five years after *Daubert* found that "[j]udges were more likely to scrutinize expert testimony before trial and less likely to admit expert testimony" after *Daubert*.[37] Judges became less willing to invariably admit all proffered expert testimony.[38] According to the survey, 59% of federal judges admitted all proffered expert testimony in their most recent civil trial. This amount was down from 75% in response to the pre-*Daubert* survey question.[39] Generally, the testimony was excluded because it was not relevant.[40] Post-*Daubert*, judges became less likely to admit some types of expert testimony (65%) and more likely to hold

pretrial hearings regarding admissibility of expert testimony (60%).[41]

A RAND Institute for Civil Justice study of federal district court decisions between 1980 (thirteen years prior to *Daubert*) and 1999 (six years after *Daubert*) produced similar results.[42] It found that "[s]tandards for reliability tightened in the years after the *Daubert* decision" and "the success rate for challenges rose."[43] The proportion of evidence found unreliable after *Daubert* increased first in the physical or "hard" sciences, but there were later rises for health care and medicine, engineering and technology, social and behavioral sciences, and business, law, and public administration.[44] The RAND study observed, "Once judges began acting as more watchful gatekeepers, they examined all dimensions of the evidence more closely." In one federal circuit, the exclusion rate for evidence based on physical science in product liability cases jumped from 53% during the two years before *Daubert* to 70% two years following *Daubert*.[45] Motions to dismiss on summary judgment were granted in 21% of challenges during the four years preceding *Daubert* compared to 48% in the two-year period beginning two years after *Daubert*.[46] The study concluded: "[F]ollowing *Daubert*, judges scrutinized reliability more carefully and applied stricter standards in deciding whether to admit expert evidence. After *Daubert*, the proportion of challenged evidence in which reliability was discussed and the proportion of expert evidence found unreliable rose."[47]

Distinguished law professor David Owen at the University of South Carolina School of Law has recognized that *Daubert* has successfully kept junk science out of federal product liability cases, where expert testimony is particularly important: "Post-*Daubert*, federal district courts, exercising their newly appointed 'gatekeeper' function, have scrutinized expert testimony more closely, often holding rigorous pre-trial '*Daubert* hearings'—that are often outcome determinative—to determine the admissibility of proffered expert testimony."[48]

Daubert has affected the admissibility of expert testimony in a wide range of areas, such as speculative testimony regarding lost future profits in business disputes, and lost earnings in tort cases.[49] Courts applying *Daubert* are less likely to allow an expert to testify simply because he or she has testified before many other courts.[50] Judges have recognized that occasionally such witnesses serve as full-time "experts," hired guns, rather than as practicing professionals. The strengthening of expert testimony admissibility standards has also led courts to more frequently exclude expert testimony that promotes the fallacy that a substance caused an injury simply because the plaintiff was exposed to the substance prior to the injury.[51] Such a theory can be used to prove that washing one's car caused it to rain. Courts applying *Daubert* have required physicians to have expertise on the subject in the case; they no longer permit doctors to testify on all medical issues.[52] They have also more rigorously reviewed "differential diagnoses," a process of elimination (by which experts rule out other likely causes of an injury to arrive at the source of injury) that unscrupulous experts can easily manipulate to support a predetermined conclusion.

The effect of adopting *Daubert*, however, should not be overstated. Its adoption does not mean that numerous cases will suddenly be dismissed for lack of admissible evidence supporting the plaintiff's case. Several empirical studies have been unable to find that *Daubert* has a systemic effect on admissibility rates.[53] *Daubert*'s primary benefits are that it encourages, if not requires, that judges take a more active role in reviewing not only the qualification of a proposed expert and his general theory, but also the reliability of his or her methods, conclusions, and fit to

the case. It also encourages both parties to present sound scientific evidence. They know that if they do not do so, a sound gatekeeping judge will not let such misleading, irrelevant, or unreliable evidence reach the minds of fair jurors.

Adoption of *Daubert* in the States

Many state courts have followed the core teaching of *Daubert*, and their judges serve as gatekeepers against unsound expert testimony. Approximately three out of five states have adopted the essential principles of *Daubert*, either expressly or by implication Since some states apply *Daubert* only in civil cases, have adopted variations of the *Daubert* test, or apply their own standard, tallies vary from survey to survey. A 2008 Florida Senate issue brief developed for the Committee on Judiciary found that 22 states had adopted *Daubert*, 17 states used a hybrid standard of *Daubert*, and 10 states applied *Frye*.[54] That year, the Georgia Supreme Court became the latest state to adopt *Daubert* for purposes of civil litigation.[55] Since that time, Arizona has adopted *Daubert* through legislation.[56] Florida remains part of a dwindling minority of states that continue to apply a variation of the *Frye* "general acceptance test." Under Florida's unique, troubling approach, judges do not evaluate the reliability of expert testimony *at all* in the vast majority of cases, allowing an expert to offer his or her "pure opinion" without regard to whether the theory is supported by sound science.

Florida's Problematic Admission of Unreliable Evidence: The *Marsh* "Pure Opinion" Loophole

In 2008, the Florida Supreme Court instructed trial courts that "*Frye is inapplicable in the vast majority of cases*."[57] Thus, in many circumstances, the difference in evaluating the admissibility of expert testimony between courts in other states and those in Florida is not between *Daubert* and *Frye*, but between close judicial scrutiny and nothing at all.[58]

The Florida Supreme Court adopted this let-it-all-in approach, known as the "pure opinion" loophole, in its 2008 ruling in *Marsh v. Valyou.*[59] Under the *Marsh* approach, a court is not obligated to review the reliability of the expert testimony unless is involves a "new or novel scientific technique."[60] Florida courts may now admit a hired expert's testimony on causation when the opinion is based solely on his or her training and experience, basically, paper credentials and intuition. Florida courts may admit such testimony even if the expert's theory is not "generally accepted" in the scientific community, tested, or otherwise subject to scientific evaluation.

The *Marsh* case involved an expert who sought to testify that a plaintiff's fibromyalgia was caused by several car accidents. Fibromyalgia is a syndrome of widespread pain, decreased pain threshold and characteristic symptoms including non-restorative sleep, fatigue, stiffness, mood swings and headaches among other symptoms. The defendants argued the testimony was not admissible because the premise that trauma can trigger fibromyalgia is not generally accepted by the scientific community and therefore did not meet the *Frye* "general acceptance standards." The Court explained that expert testimony admissible to show causation when the opinion is based solely on the expert's training and experience. Thus, although there is no scientific consensus of the cause of fibromyalgia, the Court permitted the expert to misuse a differential diagnosis methodology to rule out other potential causes to find that car accidents

caused the plaintiff's condition.

Justice Cantero, joined by two dissenting members of the Court, characterized the majority opinion in *Marsh* as a "sea change in Florida law" because it exempted testimony on causation from judicial scrutiny.[61] The dissent reviewed extensive studies on fibromyalgia, finding no scientific consensus on whether trauma triggers the condition, and noted numerous court opinions, many of which applied *Daubert*, to exclude similar testimony.[62] "Permitting an expert to testify that X caused Y in a specific case without requiring the general acceptance of the theory that X can *ever* cause Y expands the 'pure opinion' exception to the point where it swallows the rule."[63] In a special concurrence with the majority opinion, Justices Pariente and Anstead raised concern with the inconsistency between the federal approach and Florida standard for assessing the admissibility of expert testimony.[64]

In an earlier case, the Florida Supreme Court instructed trial court judges not to evaluate the conclusions of expert witnesses.[65] Experts in Florida courts can take data gathered by valid scientific methods and then interpret the underlying science in a manner that is not generally accepted by the scientific community to reach unsupportable conclusions. By way of contrast, federal courts require not only an expert's methodology to be based on reliable scientific principles, but also that the expert apply the method in a sound manner to the facts of the case in reaching his or her conclusion.

Today, Florida judges are largely powerless to consider the reliability of an expert's reasoning or the connection between an expert's conclusions and the supporting scientific principles. Expert witnesses in Florida's courts are therefore rarely challenged or subjected to rigorous scrutiny. As a result, "junk science" may enter Florida courtrooms.

Different Outcomes Under *Frye* and *Daubert*

As the National Center for State Courts found when evaluating the effects of switching from *Frye* to *Daubert* in Delaware, the difference between the two is the method of *evaluating* expert testimony. When judges take an active gatekeeping role, they can reach different results regarding the admissibility of expert testimony than in similar cases where the judge relies on the proposed witness's credentials and only take a cursory review of his or her theory. Here are three examples.

The first is the very situation that led the U.S. Supreme Court to adopt *Daubert*. As discussed earlier, in the mid-1980s, courts applying *Frye* permitted experts to testify that the morning sickness drug Bendectin caused birth defects, despite overwhelming scientific evidence finding no such link. These cases were thoroughly discredited. Unfortunately, this occurred after the manufacturer removed the drug from the market and the Court charged federal judges with a gatekeeping function.

More recently, litigants have sought to introduce expert testimony to suggest to juries that exposure to Benlate™, an agricultural fungicide, can cause birth defects. Such proposed expert testimony has been challenged based on the lack of supporting epidemiological studies, improper use of differential diagnosis, inappropriate consideration of in-vitro testing and animal studies to determine the dosage at which benomyl becomes a human teratogen, among other reasons. The

Florida Supreme Court reversed an intermediate appellate court's exclusion of such expert testimony because it found that the court had "went beyond the requirements of *Frye"* and "essentially [conducted] a *Daubert* analysis" by examining whether the expert's data supported his conclusion.[66] Courts applying *Daubert*, such as a federal district court in West Virginia and the Delaware Supreme Court, have found such testimony unreliable.[67]

A current example of the effect of *Daubert* is pharmaceutical product liability rulings involving whether Accutane®, a prescription acne medication, can cause Inflammatory Bowel Disease ("IBD"). A *federal* court in Florida excluded the opinion of a gastroenterologist, finding that she relied upon animal studies, causality assessments from internal company documents, and case reports to reach a predetermined conclusion that did not support her conclusion.[68] On the other hand, a New Jersey state court, applying its own "more flexible" admissibility standard, permitted the introduction of similar evidence in an *Accutane* case.[69] Although the defense relied heavily on the federal ruling, New Jersey courts declined to follow the federal precedent given the different admissibility standards and purported distinctions between the experts. Both the federal and New Jersey expert testimony rulings were affirmed on appeal.

The difference in applying a *Daubert* gatekeeping review and the more lax *Marsh* standard in Florida is particularly evident in litigation involving a cold remedy, Zicam, which is administered as a nasal spray. In December 2010, a Florida appellate court allowed expert testimony attempting to draw a connection between Zicam and a loss of smell,[70] a ruling that is in stark contrast to a dozen federal courts applying *Daubert*.[71] Despite "several hundred causes of loss of smell described in the literature," the expert, Dr. Bruce Jafek, used "differential diagnosis" to rule out other causes and pin the blame on the cold medicine. In reversing the trial court's exclusion of Dr. Jafek's testimony on general causation (i.e. whether the medicine has been scientifically shown to be capable of causing loss of smell) as unreliable, the state appellate court found that *Marsh* requires judges to screen only "new" or "novel" scientific techniques and not "pure opinion" based on an expert's purported training and experience.[72]

Elsewhere, applying *Daubert*, courts have rejected testimony offered by Dr. Jafek and others in similar cases as unreliable. For instance, Judge William M. Acker, Jr. of the United States District Court for the Middle District of Alabama, summed up the application of *Daubert* to one problematic aspect of Dr. Jafek's proposed testimony as follows:

> Dr. Jafek has offered no scientific proof for any of his conclusions. He engages in repeated inferential leaps, he has conducted no tests, and he relies on no scholarship, or credible sources of information dealing with the relationship between dose and effect, all typical elements of a toxicological analysis. . . .
>
> If an expert offers no evidence related to the dose-response relationship, there is an insurmountable methodology problem. Where there is a methodology problem, there is a reliability problem. And where there is a reliability problem, there is a *Daubert* problem. . . . Even if Dr. Jafek could show with sufficient scientific basis that Zicam reaches the neuroepithelium (something he has not done), he had made no attempt to show that it does so in a dose sufficient to cause permanent [lack of ability to smell].[73]

In another case, the chief federal judge for that court concluded:

> While Dr. Jafek has impressive credentials in the fields of otolaryngology and rhinology, his opinion in this case is not sufficiently relevant or reliable. He attempts to use animal studies without support for extrapolation to humans, cites "epidemiologic studies" that fail to follow the fundamentals of epidemiology, makes unsupported analogies between different chemical substances, performs unsound experiments, draws impermissible conclusions from other scientists' articles and experiments, and relies on irrelevant and unreliable data.[74]

A federal court in Florida properly applied *Daubert* in a Zicam case when it precluded a plaintiff from calling his treating physicians due to their lack of expertise in epidemiology or toxicology, lack of special knowledge of Zicam or zinc gluconate's effect on the sense of smell, failure to consider the dose-response relationship, and lack of knowledge as to whether the plaintiff was exposed in a way that could produce the injury.[75] The absence of reliable scientific evidence linking the use of the cold remedy as directed to the loss of smell has led these federal courts to dismiss Zicam cases at an early stage in the litigation.[76] Yet, as the recent Florida Fourth District Court of Appeal case shows, under *Marsh*, Florida courts allow these cases proceed to trial with juries deciding liability based on junk science.[77]

Florida's Standard Encourages Forum Shopping

Plaintiffs' lawyers recognize that *Daubert* sets a higher standard for admissibility of expert testimony over *Frye*, and is significantly more rigorous than Florida's allowance of "pure opinion" testimony. For example, Ned Miltenberg, a Senior Counsel to the Association of Trial Lawyers of America (now the "American Association for Justice"), has recognized, "[b]efore *Daubert*, federal courts rarely scrutinized the scientific validity of expert opinion testimony in any kind of case and were particularly reluctant to do so in civil cases."[78] Mr. Miltenberg describes his strategy to avoid *Daubert*:

> In a nutshell, because it's difficult to see light at the end of the *Daubert* tunnel, plaintiffs must take another tunnel. In fact, there are 51 other tunnels, 51 other venues where lawsuits can be tried, and 51 other jurisdictions where the odds against plaintiffs' experts and plaintiffs' fortunes can hardly be worse than they are in federal court and . . . are often better.[79]

Mr. Miltenberg advises plaintiffs' lawyers to file cases in states that continue to apply the *Frye* test and suggests they name a local defendant to avoid the diversity jurisdiction of the federal courts.[80] Mr. Miltenberg, a very experienced plaintiffs' advocate, has issued a not-so-subtle directive to his plaintiff-lawyer comrades: Forum shop if you have a weak case on expert evidence. Mr. Miltenberg did not use those words, but that is his message, and it is an ongoing practice that state and federal courts should discourage. The bottom line in that Florida state courts are a magnet for both cases that come from other states and for case that might otherwise be heard in federal courts within the state.

Trial court judges have the ability and duty to guard against unreliable expert testimony.[81] Expert testimony requires a decision on admissibility that is very different from other evidentiary

issues, such as hearsay or privilege. General background and experience, in the case of expert testimony, are insufficient bases on which to make a determination of admissibility. Each proffered expert presents a unique question as to his or her qualifications, the reliability of the methodology employed, and the conclusions that are reached. State judges who believe in fair and equal justice under law should require that challenges to expert testimony be briefed and argued before trial. Decisions about the admissibility of expert evidence are often outcome determinative and can disrupt the jury if objections are presented in the midst of a trial. This is true for witnesses presented by both plaintiff and defense counsel.

Case Study on Reform - Delaware

A recent study conducted by the National Center for State Courts (NCSC) on how the Delaware Supreme Court's adoption of *Daubert* in 1999 impacted litigation that provides some insight as to how such a change might impact Florida.[82]

The NCSC study found that counsel in only 16% of product liability cases and 8% of felony murder and rape cases challenge an expert's testimony. The NCSC found that there was no difference in the percentage of cases in which a party filed a motion to exclude expert testimony pre- and post-*Daubert*. There also did not appear to be a vast difference on how Courts ruled on the motions.

The NCSC found, however, that "the *Daubert* criteria necessitate higher quality experts . . . and expert reports."[83] Following *Daubert,* motions to exclude expert testimony became more specific, examining the testability, error rate, peer review, and additional facts such as the general reliability of the methodology and relevance to the case at hand.[84] Interviews revealed that many attorneys carefully evaluate the credibility of potential expert witnesses based on the *Daubert* factors, which effectively keeps witnesses that would offer junk science out of Delaware courts.[85] The result is that a defendant is more likely to settle a case if a plaintiffs' expert survives a *Daubert* challenge and courts are more likely to dismiss cases where the plaintiffs' proffered expert testimony is found unreliable.[86] Thus, more complex cases are settled or dismissed, reducing the time spent by judges and jurors in lengthy trials.

NCSC concluded that while adoption of *Daubert* did not have the type of sea change impact anticipated by some, the judge's new gatekeeper role may help screen out weak cases with problematic expert witnesses before they reach trial.[87] Adoption of *Daubert* led judges to take a more active role in evaluating the reliability of expert testimony. Pre-*Daubert*, judges would let admissibility or credibility issues be sorted out through cross-examination during trial. A judge observed during the NCSC interviews, "Now, the Court has an independent duty to be gatekeeper, even if there is no opposition from the other side. The Court has the responsibility to make sure the expert does not get in, if not qualified."[88] Most judges in Delaware now active participated in the *voir dire* of expert witnesses and take their responsibility to render admissibility decisions quite seriously. As one judge stated, "I ask questions of the expert because I'm the gatekeeper and must be satisfied."[89]

Responses to Some Common Concerns

In considering whether to charge Florida courts with the responsibility of serving as

gatekeepers over the reliability of expert testimony, judges, legislators, and lawyers often raise several questions.

Are judges capable of evaluating reliability? The first common issue raised is whether judges are capable of evaluating the reliability of expert testimony or whether, in so doing, they turn in their judicial robe for a white lab coat. It is understandable that there is some resistance to change. In fact, the same concern was expressed by federal judges when they first grappled with the *Daubert* decision and the new "factors" they were tasked with considering when evaluating the reliability of expert testimony. The Supreme Court, however, was "confident that Federal judges possess the capacity to undertake this review."[90] By and large, judges have accepted their role with enthusiasm. Those who seek greater confidence in making admissibility determinations in cases involving complex scientific theories have a wealth of judicial education programs targeted to their needs available to them.[91] This latter point, in particular, means that judges will be better equipped than juries to determine reliability.

Does gatekeeping intrude upon the jury's function? Some, including the plaintiffs' lawyers who lost the *Daubert* case, have argued that the judicial gatekeeper role is at odds with the jury system. It is not.

Gatekeeping respects the role of judge and jury. It keeps our justice system functioning properly by shielding juries from misleading junk science. As the widely-respected United States Court of Appeals for the Second Circuit has recognized, the close evaluation of the fit between the scientific literature and the expert's testimony required of district court judges by *Daubert* and its progeny do not "impinge upon the jury's function. It is precisely such an undertaking that assures that an expert, when formulating an opinion for use in the courtroom, will employ the same level of intellectual rigor as would be expected in the scientific community."[92]

Cross-examination, the typical means of evaluating the credibility of witnesses, is not an adequate means of separating fact from fiction before a jury. By its very nature, expert testimony is beyond a juror's experience, leaving them with little basis to differentiate between competing "experts." Juries can most dependably fill their factfinder role after a judge has closely examined the expert opinions to be placed before them and found the testimony to be based on sound scientific or technical practices.

Judges recognize the wisdom of assuming a gatekeeping role. According to a 1998 survey, 91% of state court judges "supported the gatekeeper function."[93] Justice Breyer has succinctly put the matter to rest, noting that as a gatekeeper, "[t]he judge, without interfering with the jury's role as trier of fact, must determine whether purported scientific evidence is 'reliable' and will 'assist the trier of fact,' thereby keeping from juries testimony that . . . isn't even good enough to be wrong."[94] In other words, a jury should not be confused or their time wasted by evidence presented as coming from an "expert" that does not follow the scientific method.

As the U.S. Court of Appeals for the Eleventh Circuit has recognized, "While meticulous *Daubert* inquiries may bring judges under criticism for donning white coats and making determinations that are outside of their field of expertise, the Supreme Court has obviously

deemed this less objectionable than dumping a barrage of questionable scientific evidence on a jury, who would likely be even less equipped than the judge to make reliability and relevance determinations and more likely than the judge to be awestruck by the expert's mystique."[95]

Are pretrial hearings unduly costly? A wealth of literature is available detailing the Supreme Court's decision in *Daubert* on the judicial system, yet no evidence exists implying that *Daubert* increases the cost and burden on the court system. If cost increases were associated with *Daubert,* in the nearly twenty years since the Supreme Court's decision, scores of articles would be widely available denouncing the standard as an unnecessary drain on court resources. While arguments are made regarding a potential cost burden for the *parties* on both sides of the litigation, these costs are borne by the parties, not the court. Accordingly, arguments suggesting *Daubert* is associated with additional burdens on judicial resources are meritless and intended only to cloud the issues.

In 2000, Congress adopted the Judicial Conference's proposed amendments to Federal Rules of Evidence 701, 702, and 703 to reflect the Supreme Court's decision in *Daubert* and subsequent cases applying *Daubert*. Nowhere in the extensive committee reports or public comments concerning the amendments is there a discussion regarding a potential adverse impact on judicial resources. To the contrary, in supporting the proposed amendment to Rule 702, the Defense Research Institute stated that "proper exercise by the court of its expert witness gatekeeper function on an early and continuing basis will facilitate earlier reasonable resolution of the court action, thereby reducing cost and delay rather than increasing it."[96] Any arguments suggesting *Daubert* would further burden the judicial systems were presumably dismissed by the Advisory Committee, evidenced by the Committee's suggestion that the Federal Rules be amended to reflect *Daubert* and its progeny.

In addition, several legal scholars have commented on the success of *Daubert*, including Professor David Owen, who recognized in relation to products liability cases that *Daubert* has successfully kept junk science out of the courtroom.[97] Another commentator argues that *Daubert* "has given the judiciary a mandate to foster 'good science' in the courtroom" and believes the standards should be expanded to encompass judicial review of the science involved in the decision making of regulatory agencies.[98] Additionally, absent from a recent article criticizing *Daubert* is a discussion regarding any correlated increase in court costs.[99]

Instead, empirical research confirms the significant effect of *Daubert* on civil litigation. Some scholars suggest that *Daubert* increases judicial efficiency by addressing unreliable expert testimony during pre-trial stages, rather than expending the substantial time and resources during trial only to have the expert subsequently excluded. Further, more cases are being dismissed at the pre-trial stages of the litigation post-*Daubert* than were dismissed pre-*Daubert*, illustrating that judges are indeed performing the intended "gatekeeping" function. A Federal Judicial Center survey of federal judges found that judges, post-*Daubert,* were "more likely to scrutinize expert testimony before trial and less likely to admit expert testimony."[100]

Similarly, a study of federal district courts by the RAND Institute for Civil Justice found that motions to dismiss on summary judgments were granted in 21% of expert challenges preceding *Daubert*, but rose to 48% in the two years following *Daubert*.[101] The RAND research also suggested *Daubert* had a deterrent effect, with litigants withdrawing or opting not to proffer

certain expert testimony, further reducing the complexity and number of suits filed.[102] Importantly, while the RAND and Federal Judicial Center found a subsequent decline in admissible expert testimony and an increase in summary judgment based dismissals, neither study noted any adverse impact on judicial resources.

Daubert endowed judges with a vital gatekeeping function to exclude unreliable expert testimony, thereby attempting to eliminate the admissibility of "junk science" that previously permitted weak claims to proceed to trial and tying up precious court resources. Ultimately, successful *Daubert* challenges lead to a just outcome of dismissing a case with insufficient evidentiary support, and eliminating the expense and time inherent in an unnecessary trial. Accordingly, the argument that *Daubert* has increased the cost burden on the court system is contrary to what common sense, and legal scholars, suggest is a device of efficiency and ultimately of reduced costs from a smaller docket.

Will legitimate claims go uncompensated? Opponents of closer evaluation of expert testimony suggest that the courts should not demand reliability in expert testimony because some legitimate claims will be dismissed due to the lack of reliable science supporting them. The alternative, however, is a "let it all in approach" in which illegitimate claims are permitted to proceed. Failure to screen junk science, particularly in product liability and toxic tort cases, can result in substantial awards against innocent defendants to plaintiffs who were not injured *by the defendants' conduct*.[103] "The only way to protect society's overall interests in toxic tort and product liability cases," Professor David Bernstein explains, "is to enforce a standard that ensures the reliability of expert evidence."[104] The plaintiff always has the burden of proof, and proof requires reliable evidence not the unsubstantiated conjecture of a hired-gun expert.

Will a gatekeeping role mean more work for judges? Some judges may express concern that the need for a pre-trial evaluation of the reliability of expert testimony could increase their workload. In fact, addressing admissibility questions prior to trial, while requiring investment of judicial time at an early stage, can help avoid needless litigation and increase judicial efficiency. Evidentiary decisions on the reliability of expert testimony, particularly in complex civil cases, can determine whether a claim stands or falls. For example, if a court finds that the grounds for the opinion of a plaintiff's expert on causation in a toxic tort, product liability, or medical malpractice case is not based on sound science, it is likely to dismiss the case. A decision admitting or excluding the testimony may also lead the parties to settle rather than risk trial. From a court's perspective, both outcomes save a judge and a jury from spending time on a case that would later be dismissed by the court or settled by the parties.

How does Daubert impact criminal trials? The gatekeeping role envisioned by the Supreme Court was motivated by junk science in civil litigation and that is where it has had its most profound effect. The Court's interpretation of reliability standards under the Federal Rules of Evidence applies equally, however, to criminal cases. After all, it is just as important, if not more so, to ensure that expert testimony in criminal prosecutions, where a person's life and liberty are at stake, is reliable and fits the facts of the case.

Studies have found that adoption of *Daubert* has not altered the rate at which judges admit expert evidence in criminal cases that courts have routinely regarded as reliable for many years.[105] For example, as the United States Court of Appeals for the Fourth Circuit has

recognized, "virtually every circuit and district court, both before and after *Daubert*, have a longstanding tradition of allowing fingerprint examiners to state their opinion and conclusions, subject to rigorous cross examination."[106] Moreover, following *Daubert*, courts continue to reject testimony previously considered unreliable. For instance, despite an influx of defendants who were encouraged by the shift from *Frye* to *Daubert* to offer polygraph evidence, courts continued to reject lie detector tests as unreliable given their substantial error rates.[107]

Both before and after *Daubert*, trial courts rarely rejected the testimony of experts offered by the prosecution, while experts offered by the defense were more frequently rejected.[108] Similarly, there was no impact on reversal rates at the appellate level. The reason for this disparity may be that prosecution experts most frequently testify on police procedures or criminal practices, such as slang or code words used in drug transactions, rather than propose a novel theory. On the other hand, criminal defendants are more likely to rely on experts supporting a defense of insanity or diminished capacity based on controversial behavioral syndromes supported by experimental research that are frequently criticized as unreliable.[109]

Some types of evidence in criminal trials lend themselves easily to application of the reliability factors set forth in *Daubert*. For example, DNA evidence, an area among those most frequently challenged by defendants, is subject to well-developed scientific standards that can be competently evaluated by courts.[110] Any substantial controversy over the reliability of DNA science is now over.[111]

The NCSC study of Delaware's adoption of *Daubert* had similar findings with respect to its impact on criminal cases. It found that "*Daubert* was not as consequential in criminal cases as compared to civil cases" because criminal cases rarely involve novel scientific theories.[112] For that reason, the experts and the science put forth, which repeatedly involve the same practices became accepted, i.e. "Daubertized."[113]

Although the general admission rate in criminal cases has not changed, there is evidence suggesting that judges have more closely examined the reliability of expert testimony offered in criminal cases since adoption of *Daubert*. In particular, scientific evidence offered in criminal cases appears to be more closely scrutinized in some courts following *Daubert*, even as the gatekeeping function's impact on admissibility has proven far less significant than in civil litigation.[114] *Daubert* assures that a criminal defendant who is convicted based on unreliable expert evidence has a fair opportunity to contest the verdict.

Is it within the Florida Legislature's constitutional authority to adopt a standard for admissibility of expert testimony? Yes. In 1979, the Florida Supreme Court approved the Legislature's adoption of Fla. Stat. § 90.702, the current rule governing admission of expert testimony. When adopting the statute, the Florida Supreme Court recognized that "[r]ules of evidence may in some instances be substantive law, and, therefore the sole responsibility of the legislature."[115] In 2000, the Florida Supreme Court considered amendments to the Evidence Code enacted by the legislature. At that time it reaffirmed that "[i]n the past, recognizing that the Florida Evidence Code is both substantive and procedural in nature, this Court has adopted the Evidence Code as originally enacted as well as later amended by the Legislature."[116] It then adopted the amendments to the Evidence Code, incorporating them into the rules, with the exception of one section that was found unconstitutional on other grounds.

The evidentiary standard for expert testimony was initially adopted by the Legislature and includes substantive components. In addition, Florida courts have found various other Florida statutes governing admissibility of evidence to be matters of substantive law within the legislature's sphere of constitutional authority.[117] Thus, it is appropriate for the Legislature to further improve this standard to ensure fairness and consistency with federal law.[118]

Reform is Needed in Florida

Florida should enact legislation that incorporates the key elements of the Supreme Court's ruling in *Daubert* and subsequent cases on standards of reliability for the admission of expert testimony. In so doing, it would embrace a gatekeeping role for state trial court judges and keep junk science out of the courtroom.

Specifically, such legislation should:

- *Limit a person who is qualified as an expert by knowledge, skill, experience, training, or education to offering expert testimony in his or her area of expertise, as provided by current Florida law, Fla. Stat. § 90.702.*

- *Require expert testimony to be based upon sufficient facts or data, reliable principles and methods, and to fit the facts of the case.* In other words, there must be a logical relationship between the methodology and data employed, the actual events in the case, and the conclusion reached by the expert.

- *Promote consistency between the federal and state court standards and discourages forum shopping*. By providing that Florida courts are to construe their evidentiary standards for expert witnesses consistently with the interpretations of the U.S. Supreme Court, such legislation would avoid the potential for lawyers with cases based on weak evidence to seek out a court with relatively lax expert testimony standards. It would ensure that courts apply reliability standards to all forms of expert testimony, scientific, technical, or otherwise, and that both an expert's methodology and conclusions are subject to judicial scrutiny. Such legislation would also permit Florida courts to look to the opinions of federal courts for guidance when making determinations on the admissibility of expert testimony.

In adopting this legislation, Florida would follow closely in the footsteps of Arizona, which had applied expert testimony standards nearly identical to Florida[119] until its legislature adopted *Daubert* effective July 29, 2010.[120] For years, the Arizona Supreme Court resisted adopting the *Daubert* standard, despite calls for change from litigants.[121] Even the state's mid-level appellate court called for the Arizona Supreme Court to adopt the federal standard.[122] Ultimately, the Arizona Legislature acted. Florida should do the same.

Conclusion

The "battle of experts" continues in full force today. While the need for *Daubert* protections is as great, if not greater, than it was twenty years ago, Florida courts have relaxed expert testimony standards. As Justice Breyer observed, "[T]here is an increasingly important need for law to reflect sound science."[123] In order to prevent forum shopping and encourage consistency and predictability, the Florida Legislature should adopt a law that embraces a sound "gatekeeping" function for state court judges.

ABOUT THE AUTHORS

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1. Peter Huber, Galileo's Revenge: Junk Science in the Courtroom (1990). Huber described "junk science" as a "hodgepodge of biased data, spurious inferences, and logical legerdemain, patched together by researchers whose enthusiasm for discovery and diagnosis far outstrips their skill. It is a catalogue of every conceivable kind of error: data dredging, wishful thinking, truculent dogmatism, and now and again, outright fraud." *Id.* at 3.

2. Stephen G. Breyer, *The Interdependence of Science and Law*, 280 Sci. 537, 538 (1998).

3. *Id*.

4. *Daubert v. Merrell Dow Pharms., Inc*., 509 U.S. 579, 592 (1993).

5. *See* Fed. R. Evid. 703.

6. *See Daubert*, 509 U.S. at 593; *see also Engebretsen v. Fairchild Aircraft Corp*., 21 F.3d 721, 728-29 (6th Cir. 1994); *United States v. Sowards*, 339 F.2d 401, 402 (10th Cir. 1964).

7. *See* Fed. R. Evid. 704(a).

8. *Daubert*, 509 U.S. at 595 (quoting Jack B. Weinstein, *Rule 702 of the Federal Rules of Evidence Is Sound*; *It Should Not Be Amended*, 138 F.R.D. 631, 632 (1991)).

9. *State v. O'Key*, 899 P.2d 663, 678 n.20 (Or. 1995).

10. David L. Faigman et al., *How Good is Good Enough?: Expert Evidence Under* Daubert *and* Kumho, 50 Case W. Res. L. Rev. 645, 648 (2000).

11. *See id.*

12. *See, e.g*., Joseph Sanders, *From Science to Evidence: The Testimony on Causation in the Bendectin Cases*, 46 Stan. L. Rev. 1, 31 (1993).

13. *See* James T. Rosenbaum, *Lessons from Litigation over Silicone Breast Implants: A Call for Activism by Scientists*, 276 Sci. 1524, 1525 (1997) (discussing actions of some federal judges to exclude expert testimony that was not scientifically sound in the Bendectin and silicone breast implant litigation).

14. *See, e.g*., *Mekdeci v. Merrell Nat'l Labs*., 711 F.2d 1510, 1510 (11th Cir. 1983) (upholding jury verdict).

15. *See, e.g*., *Ealy v. Richardson-Merrell, Inc*., 897 F.2d 1159 (D.C. Cir. 1990) (reversing a $95 million verdict); *Richardson v. Richardson-Merrell, Inc*., 857 F.2d 823 (D.C. Cir. 1988) (affirming judgment for manufacturer notwithstanding a $1.16 million verdict). *See generally* Sanders, *supra*, at 4-12 (providing an overview of the Bendectin cases); Richard B. Stewart, *Regulatory Compliance Preclusion of Tort Liability: Limiting the Dual Track*

System, 88 Geo. L.J. 2167, 2171-72 (2000).

16. *See, e.g.*, *Ealy*, 897 F.2d at 1160; *see also* Stewart, *supra*, at 2171. Of the six cases examined by Joseph Sanders, five of the manufacturers eventually prevailed. *See Richardson*, 857 F.2d at 823; *In re* Bendectin Litig., 857 F.2d 290, 290 (6th Cir. 1988); *Mekdeci*, 711 F.2d at 1510; *Merrell Dow Pharms., Inc. v. Havner*, 953 S.W.2d 706, 706 (Tex. 1997); *Hill v. Merrell Dow Pharm*., No. C83-74TB (W.D. Wash. 1988) (decided without opinion). The verdict that remained intact and in favor of the plaintiffs was *Oxendine v. Merrell Dow Pharms. Inc*., 506 A.2d 1100, 1113-15 (D.C. Cir. 1986). *See* Sanders, *supra*, at 28-30 (recognizing that only one of six cases survived appellate review completely).

17. *See* Barbara J. Culliton, *Merrell Dow Stops Marketing Bendectin*, 221 Sci. 37, 37 (1983).

18. Peter W. Huber, Galileo's Revenge: Junk Science in the Courtroom 4 (1991) (stating that "junk science is not an altogether new phenomenon in the courtroom").

19. Rosenbaum, *supra*, at 1524.

20. *See* Marcia Angell, Science on Trial: The Clash of Medical Evidence and the Law in the Breast Implant Case 109-10 (1996) (authored by the executive editor of the *New England Journal of Medicine*).

21. *See, e.g.*, *Doe v. Ortho-Clinical Diagnostics, Inc*., 440 F. Supp.2d 465, 473-75 (M.D.N.C. 2006) (granting summary judgment for the manufacturer defendant in case seeking to link thimerisol to autism where the plaintiff's expert's literature review did not meet *Daubert* standard's requirements that expert testimony be derived by scientific method and relevant, that the expert doctor could not testify on general causation theory that autism could be caused by thimerosal, and that the proffered expert testimony on issue of specific causation, based on differential diagnosis, could not be admitted).

22. *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923).

23. *Daubert*, 509 at 593-94.

24. The trial court granted defendant's motion for summary judgment because plaintiff's expert theory was based on animal and test tube studies. *Daubert v. Merrell Dow Pharms., Inc*., 509 U.S. 579, 582-83 (1993). No study supported plaintiff's theory that Bendectin could cause malformations in human fetuses. *Id.* For these reasons, the trial court concluded that this theory did not meet the *Frye* general acceptance test. Plaintiffs appealed and the Ninth Circuit upheld the trial court's ruling. The Supreme Court then set forth the *Daubert* factors and remanded the case for proceedings consistent with them. *Id.* at 597.

25. *Havner*, 953 S.W.2d at 708, 729 (extensively considering scientific methodology in a Bendectin case to find that the offered epidemiological studies failed to show a sufficiently increased risk and were not published or subject to peer review, and that offered animal studies did not support causation in humans). Unfortunately, these decisions came too late to keep the drug on the market. Earlier "junk science decisions had already done and, as examined in the texts cited in note 15, litigation costs resulted in the removal of the drug from the marketplace.

26. *Daubert v. Merrell Dow Pharms*., Inc., 509 U.S. 579, 592 (1993).

27. Rule 702 requires a witness to establish his or her expertise by reference to "knowledge, skill, experience, training, or education." Fed. R. Evid. 702. Even "[a] supremely qualified expert cannot waltz into the courtroom and render opinions unless those opinions are based upon some recognized scientific method . . . ." *Clark v. Takata Corp*., 192 F.3d 750, 759 n.5 (7th Cir. 1999). *See also Wheeling Pittsburgh Steel Corp. v. Beelman River Terminals, Inc*., 254 F.3d 706, 715 (8th Cir. 2001) ("Though eminently qualified to testify as an expert hydrologist regarding matters of flood risk management, [the witness] sorely lacked the education, employment, or other practical personal experiences to testify as an expert specifically regarding safe warehousing practices."); *cf. Hangarter v. Provident Life & Accident Ins. Co.*, 373 F.3d 998, 1015 (9th Cir. 2004) ("Rule 702 'contemplates a broad conception of expert qualifications.'") (emphasis omitted) (quoting *Thomas v. Newton Int'l Enters*., 42 F.3d 1266, 1269 (9th Cir. 1994)).

28. *Daubert*, 509 U.S. at 589.

29. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 149-50 (citing *Daubert*, 509 U.S. at 592-94). The Rules Advisory Committee, in amending Rule 702 in 2000 to reflect *Daubert*, recognized several additional factors that courts might consider. Some courts, such as the Third Circuit, have taken this "*Daubert*-plus approach," in which courts are encouraged to consider the factors included in *Daubert* as well as additional factors, if applicable, in each case.

30. *Joiner*, 522 U.S. at 146.

31. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 154-55 (1999) (finding trial court did not err in excluding expert from testifying when his opinion was based on visual and tactile examination of supposedly faulty tires, others did not use this method in the industry, and the expert equivocated about the reliability of his own testing method); *General Electric Co. v. Joiner*, 522 U.S. 136, 144-45 (1997) (finding the trial court did not err in excluding

plaintiff's expert testimony when the expert concluded that plaintiff's cancer was caused by exposure to polychlorinated biphenyls because the expert relied on tests performed on infant lab mice that received massive, concentrated doses injected directly into their stomachs, and developed a different type of cancer than the plaintiff, while no adult mice developed cancer after similar injections).

32. *Elcock v. Kmart Corp*., 233 F.3d 734, 741 (3d Cir. 2000) (citing *In re* Paoli R.R. Yard PCB Litig., 35 F.3d 717, 741-43 (3d Cir. 1994)). Effective December 1, 2000, the Federal Rules of Evidence were amended to effectively codify this trilogy of U.S. Supreme Court cases. *See Dhillon v. Crown Controls Corp*., 269 F.3d 865, 869 (7th Cir. 2001) (stating that Rule 702 was amended in 2000 to "affirm[] the trial court's role as gatekeeper and provide[] some general standards that the trial court must use to assess the reliability and helpfulness of the proffered expert testimony") (alteration in original) (quoting Fed. R. Evid. 702, advisory committee's note (2000 amendments)).

33. *Chapman v. Maytag Corp*., 297 F.3d 682, 687 (7th Cir. 2002) (citing *Porter v. Whitehall Labs. Inc*., 9 F.3d 607, 614 (7th Cir. 1993)).

34. *Daubert v. Merrell Dow Pharms., Inc*., 509 U.S. 579, 590 (1993); *see also Bonner v. ISP Techs., Inc.*, 259 F.3d 924, 929 (8th Cir. 2001) ("[N]either Rule 702 nor *Daubert* requires than an expert opinion resolve an ultimate issue of fact to a scientific absolute in order to be admissible."); Jahn v. Equine Servs., PSC, 233 F.3d 382, 390 (6th Cir. 2000) (finding that the district court "held the experts up to entirely too strict a standard" when it excluded their testimony because they could not determine the cause of death with certainty, but could only offer the probable cause); *Ruiz-Troche v. Pepsi Cola of P.R. Bottling Co*., 161 F.3d 77, 85-86 (1st Cir. 1998) (finding that the district court "set the bar too high" when it found that an expert's technique, though it survived the rigors of testing, publication, peer review, and general acceptance within the scientific community, was unreliable due to a lack of precision). Some commentators have suggested that judges have occasionally "taken Daubert too far" by requiring a level of scientific certainty that is not attainable or requiring a "piece-by-piece" assessment of evidence rather than a holistic evaluation of the science. *See, e.g*., Mark Hansen, *Science Experiment*, ABA J., Nov. 2005, at 10, 14 (quoting Georgetown University Law School Professor Paul Rothstein).

35. Stephen G. Breyer, *The Interdependence of Science and Law*, 280 Sci. 537, 538 (1998).

36. Faigman et al., *supra*, at 655-56.

37. Molly Treadway Johnson *et al*., Fed. Judicial Ctr., Expert Testimony in Federal Civil Trials: A Preliminary Analysis 1 (2000).

38. *Id.* at 4.

39. *Id.*

40. Judges most frequently excluded expert testimony because it was not relevant (47%), the witness was not qualified (42%), the proffered expert testimony would not help the trier of fact (40%), the facts or data upon which the expert testimony was based were not reliable (22%), the prejudicial nature of the testimony outweighed its probative value (21%), or the principles and methods underlying the expert's testimony were not reliable (18%). *Id*. at 5.

41. *Id*. at 4.

42. Lloyd Dixon & Brian Gill, RAND Inst. for Civ. Just., Changes in the Standards for Admitting Expert Evidence in Federal Civil Cases Since the *Daubert* Decision 29 (2001), *available at* http://www.rand.org/publications/MR/MR1439/MR1439.pdf. [hereinafter "RAND Study"].

43. *Id.*

44. *See id*. at 33-35.

45. *Id*. at xvi.

46. *See id.* at 57, 62.

47. *Id*. at 61.

48. David G. Owen, *A Decade of* Daubert, 80 Denver Univ. L. Rev. 345, 362 (2002).

49. *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 (2006).

50. *Mistich v. Volkswagen of Germany, Inc*., 650 So. 2d. 385, 392 (La. Ct. App. 1995) (quoting an unreported decision).

51. David E. Bernstein, *The Admissibility of Scientific Evidence After* Daubert v. Merrell Dow Pharmaceuticals,

Inc., 15 Cardozo L. Rev. 2139, 2147 (1994).

52. *Id.* at 2159-63. For example, in the pre-*Daubert* case *Smith v. Ortho Pharm. Corp*., the court found that a medical doctor who did not specialize in genetics, epidemiology, or teratology was qualified to testify on whether spermicide caused a child's birth defects, though it ultimately found the proffered evidence inadmissible. 770 F. Supp. 1561, 1567-68, 1581 (N.D. Ga. 1991).

53. *See, e.g.,* Eric Helland & Jonathan Klick, *Does Anyone Get Stopped at the Gate? An Empirical Analysis of State Adoption of the Daubert Trilogy* (2009), *available at* http://lsr.nellco.org/cgi/viewcontent.cgi?article=1275&context=upenn_wps; Edward K. Cheng & Albert H. Yoon, *Does Frye or Daubert Matter? A Study of Scientific Admissibility Standards*, 91 Va. L. Rev. 471 (2005).

54. *See* Committee on Judiciary, Florida Senate, *Analysis of Law Relating to Admissibility of Expert Testimony and Scientific Evidence*, Issue Brief 2009-331 (Oct. 2008), *available at* http://www.flsenate.gov/data/Publications/2009/Senate/reports/interim_reports/pdf/2009-331ju.pdf.

55. *See Mason v. Home Depot U.S.A., Inc*., 658 S.E.2d 603 (Ga. 2008).

56. S.B. 1189 (Ariz. 2010) (to be codified at Ariz. Stat. § 12-2203).

57. *Marsh v. Valyou,* 977 So. 2d 543 (Fla. 2008) (internal quotations omitted, emphasis added).

58. Martin C. Calhoun, *Scientific Evidence in Court: Daubert or Frye, 15 Years Later*, Washington Legal Found., Legal Backgrounder, vol. 23, n. 37, at 2 (Aug. 22, 2008).

59. *Marsh v. Valyou,* 977 So. 2d 543 (Fla. 2008).

60. *Id*. at 547.

61. *Id*. at 562 (Cantero, J., dissenting).

62. *See id.* at 565-71 (discussing studies and cases).

63. *Id*. at 563 (emphasis in original).

64. *Id*. at 556 (quoting *Hawthorne v. State*, 470 So. 2d 770 (Fla. Ct. App. 1985) (Ervin, J., concurring)).

65. *See Castillo v. E.I. Dupont de Nemours & Co*., 854 So. 2d 1264, 1272-76 (Fla. 2003).

66. *See id.*

67. *See Bourne v. DuPont*, 189 F. Supp. 2d 482, 495-501 (W. Va. 2002), *aff'd*, 85 Fed. Appx. 964 (4th Cir. 2004); *Bowen v. E.I. duPont de Nemours & Co*., 906 A.2d 787, 796-97 (Del. 2006).

68. *In re Accutane Prods. Liab. Litig*., 511 F. Supp. 2d 1288, 1292-1300 (M.D. Fla. 2007), *aff'd, Rand v. Hoffman-LaRoche*, 291 Fed. Appx. 249 (11th Cir.2008).

69. *See McCarrell v. Hoffman-LaRoche, Inc*., ATL-L-1951-03-MT (N.J. Super. Ct. Law Div. Feb. 8, 2008), *reversed on other grounds*, 2009 WL 614484 (N.J. Super. App. Div. Mar. 1, 2009).

70. *Hood v. Matrixx Initiatives, Inc*., No. 4D09-1994 (Fla. Dist. Ct. App., 4th Dist., Dec. 15, 2010).

71. *Evans v. Matrixx Initiatives, Inc*., No. 3:07-cv-357-J-34JRK, 2009 U.S. Dist. LEXIS 88224, at *13-29 (M.D. Fla. Feb. 18, 2009); *Rose v. Matrixx Initiatives, Inc*., No. 07-2404-JPM, 2008 U.S. Dist. LEXIS 108270, at * 1-2 (W.D. Tenn. Mar. 31, 2008); *Lusch v. Matrixx Initiatives, Inc*., No. 05-292-HA, 2007 U.S. Dist. LEXIS 72068, at *7-14 (D. Or. Sept. 25, 2007); *Wyatt v. Matrixx Initiatives, Inc*., No. 2:04-cv-1230-UWC, 2007 U.S. Dist. LEXIS 67986, at *9-15 (N.D. Ala. Mar. 30, 2007); *Hilton v. Matrixx Initiatives, Inc*., No. 4:04-CV-519-Y, 2007 U.S. Dist. LEXIS 73264, at *5-7 (N.D. Tex. Feb. 20, 2007); *O'Hanlon v. Matrixx Initiatives, Inc*., No. 04-10391, 2007 U.S. Dist. LEXIS 65655, at *5-10 (C.D. Cal. Jan. 3, 2007); *Benkwith v. Matrixx Initiatives, Inc*., 467 F. Supp.2d 1316 (M.D. Ala. Dec. 27, 2006); *Sutherland v. Matrixx Initiatives, Inc*., No. 04-AR-0129-M, 2006 U.S. Dist. LEXIS 96652 (M.D. Ala. Nov. 7, 2006); *Hans v. Matrixx Initiatives, Inc*., No. 3:04CV-540-R, 2006 U.S. Dist. LEXIS 96779, at *20-22 (W.D. Ky. Sept. 29, 2006); *see also Polski v. Quigley Corp.,* 538 F.3d 836 (8th Cir. 2008) (applying *Daubert* gatekeeping role to preclude Dr. Jafek from offering unreliable expert testimony in case alleging that Cold-Eeze nasal spray caused the plaintiffs' loss of smell and taste); *Salden v. Matrixx Initiatives, Inc*., No. 06-10277, 2007 U.S. Dist. LEXIS 18552, at *6-12 (S.D. Mich. Mar. 16, 2007) (excluding similar testimony of Dr. Alan R. Hirsh with respect to Zicam).

72. Slip Op. at 8.

73. *Sutherland,* 2006 U.S. Dist. LEXIS 96652, at *33-34.

74. *Benkwith*, 467 F. Supp.2d at 1332.

75. *Evans*, 2009 U.S. Dist. LEXIS 88224, at *13-29.

76. *Evans*, 2009 U.S. Dist. LEXIS 88224, at *38; *Lusch,* 2007 U.S. Dist. LEXIS 72068, at *18 (" *Wyatt*, 2007 U.S. Dist. LEXIS 67986, at *15; *Hilton*, 2007 U.S. Dist. LEXIS 73264, at *10; *Hans v. Matrixx Initiatives, Inc*., 2007 U.S. Dist. LEXIS 66105 (W.D. Ky. Sept. 5, 2007); *O'Hanlon*, 2007 U.S. Dist. LEXIS 65655, at * 13; *Benkwith*, 467 F. Supp.2d at 1332; *Sutherland*, 2006 U.S. Dist. LEXIS 96652, at *41.

77. Two California state courts, which also apply a more lax *Frye* standard for evaluation of scientific evidence, have also permitted such testimony. *See Bruno v. Matrixx Initiatives, Inc*., No. GIC 868821 (Trial Transcript, 30-31; Cal. App. Dep't. Super. Ct. Mar. 25, 2008); *Nelson v. Matrixx Initiatives, Inc*., No. YC 048136 (Notice of Ruling, 3-4; Cal. Super. Ct. May 13, 2005). In these cases, the courts declined to screen the expert testimony for reliable foundation, as is required in federal and most state courts. In the one California case to go to trial, the jury unanimously found the smell loss was not caused by Zicam Cold Remedy, and the defense verdict was affirmed on appeal. *Bruno v. Matrixx Initiatives, Inc*., 2009 Cal. App. Unpub. LEXIS 3174 (Cal. App. 4th Dist. Apr. 21, 2009).

78. Ned Miltenberg, *Out of the Fire and Into the* Frye*ing Pan or Back to the Future*, Trial, Mar. 2001, at 18, 19.

79. *Id.* at 23.

80. *Id.* at 19, 25 n.35; *see also* Ned Miltenberg, *How to Prevail in* Daubert *Challenges*, 2 ATLA Annual Convention Reference Materials 2517, 2520-21 (2003).

81. *See* Michael Hoenig, *Products Liability: Speculative, Unfounded Expert Opinions*, N.Y.L.J., July 10, 2006, at 3, 7 (recounting cases decided under New York law that demonstrate how judges may exclude speculative expert testimony irrespective of *Frye* or *Daubert*).

[82] Nicole L. Waters & Jessica P. Hodge, The Effects of the *Daubert* Trilogy in Delaware Superior Court (Nat'l Center for State Courts 2005), *available at* http://www.ncsconline.org/WC/Publications/Res_Daubert_EffDaubDelawareSupCtFinal.pdf.

83. *Id*. at 22.

84. *See id.* at 16, 22.

85. *Id*. at 17.

86. *See id.* at 15, 18.

87. *Id*. at 23.

88. *Id*.

89. *Id*.

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

91. *See, e.g., Tresa Baldas, Judges Going to School for Training in Science*, Nat'l L.J., July 25, 2006 (discussing a new judicial scientific education program offered by the Advanced Science and Technology Adjudication Resource Center in Washington).

92. *Amorgianos v. Nat'l R.R. Passenger Corp*., 303 F.3d 256, 269 (2d Cir. 2002).

93. Rand Study, *supra*, at 6 (citing Sophia I. Gatowski et al., *Asking the Gatekeepers: A National Survey of Judges on Judging Expert Evidence in a Post-Daubert World*, 25 L. & Human Behavior 433 (2001)).

94. Breyer, *supra*, at 538.

95. *Allison v. McGhan Med. Corp*., 184 F.32d 1300, 1310 (11th Cir. 1999).

96. Judicial Conference of the United States, Report of the Advisory Committee on Evidence Rules, May 1, 1999, at 59-60.

97. David G. Owen, *A Decade of Daubert*, 80 Denver Univ. L. Rev. 345, 362 (2002).

98. *See* Alan C. Raul & Julie Z. Dwyer, *"Regulatory Daubert": A Proposal to Enhance Judicial Review of Agency Science by Incorporating* Daubert *Principles Into Administrative Law*, 66 Law & Contemp. Probs. 7 (2003).

99. *See* A. Leah Vickers*, Daubert, Critique and the Interpretation: What Empirical Studies Tell Us About the Application of Daubert*, 40 U.S.F. L. Rev. 109 (2005).

100. Molly Treadway Johnson, et al., Fed. Judicial Ctr., *Expert Testimony in Federal Civil Trials: A Preliminary Analysis* 1 (2000).

101. Lloyd Dixon & Brian Gill, RAND Inst. For Civ. Just., *Changes in the Standards for Admitting Expert*

Evidence in Federal Civil Cases Since the Daubert Decision 29 (2001).

102. *Id.; see also* Richard A Nagereda, *Mass Torts in a World of Settlement* 38-39 (2007).

103. David Bernstein, *Frye, Frye, Again: The Past, Present and Furture of the General Acceptance Test*, 41 Jurimetrics J. 385, 396 (2001) (noting that "[t]he risk of rejecting a valid plaintiff's claim is a problem, but certainly no more so than the risk of driving safe products and substances—the Bendectin example comes to mind—off the market.").

104. *Id*.

105. *See, e.g.,* Jennifer L. Groscup, *The Effects of Daubert on the Admissibility of Expert Testimony in State and Federal Criminal Cases*, 8 Psychol. Pub. Pol'y & L. 339, 345-46 (2002); D. Michael Risinger, *Navigating Expert Reliability, Are Criminal Standards of Certainty Being Left on the Dock*, 64 Alb. L. Rev. 99 (2000).

106. *United States v. Rogers*, No. 01-4455, 2001 WL 1635494 (4th Cir. Dec. 20, 2001) (4th Cir. 2001) (citing cases) (unpublished); *see also Legal Challenges to Fingerprints at* http://onin.com/fp/daubert_links.html (providing links to 42 reported and unreported decisions in which a state or federal court post-*Daubert* found fingerprint evidence reliable).

107. Risinger, *supra*, at 128-29.

108. *See* Groscup, *supra*, at 346 (finding that expert testimony offered by the prosecution was admitted about 95% of the time, while experts offered by the defense were admitted about 8% of the time); Risinger, *supra*, at 109 (finding post-*Daubert* that the government prevailed two-third of the time in seeking rejection of expert testimony offered by the defendant, while defendants less frequently challenged prosecution proffers of expert testimony, which courts admitted more than ninety percent of the time).

109. *See* Risinger, *supra*, at 113-20.

110. *See id*. at 125-28

111. *See id*. at 128.

112. NCSC, *supra*, at 19.

113. *See id.*

114. *See* Groscup*, supra,* at 366.

115. *In re Florida Evidence Code*, 372 So.2d 1369 (Fla. 1979).

116. *In re Amendments to the Florida Evidence* Code, 782 So. 2d 339, 342-43 (Fla. 2000).

117. *See, e.g., Looney v. State*, 803 So. 2d 656 (Fla. 2001) (upholding statute authorizing admission of victim impact statements); *Maxwell v. State*, 657 So. 2d 1157 (Fla. 1995); *Cartright v. State*, 870 So. 2d 152 (Fla. Ct. App. 2004) (upholding statute authorizing admission of hearsay evidence in sexually violent predator proceedings); *State v. Veilleux*, 859 So. 2d 1224 (Fla. Ct. App. 2003) (upholding statute barring admission of traffic citations as evidence in any trial).

118. The Court declined to adopt an amendment to the hearsay rule in 2000, finding that "it is not based on established law; nor is it modeled after the Federal Rules of Evidence." When the statute was later challenged, the Court found the law violated the Confrontation Clause of the Sixth Amendment without reaching the question of whether the rule was substantive or procedural. *State v. Abreu*, 837 So. 2d 400, 406 (Fla. 2003).

119. Like Florida, Arizona applied an anything-goes approach to experts who purportedly reached opinions "by inductive reasoning based on his or her own experience, observation, or research." *Logerquist v. McVey*, 1 P.3d 113, 133 (Ariz. 2000). In product liability cases, for example, Arizona courts found that an expert's testimony that a defective product caused a plaintiff's injuries was not subject to judicial scrutiny because *Frye* does not apply to the expert's hypothesis as to causation. *See, e.g., Baroldy v. Ortho Pharm. Corp*., 760 P.2d 574, 583 (Ariz. Ct. App. 1998). By way of contrast, federal courts in Arizona apply *Daubert* to find unreliable causation testimony inadmissible. *See, e.g., Cloud v. Pfizer, Inc*., 198 F. Supp.2d 1118 (D. Ariz. 2001).

120. S.B. 1189 (Ariz. 2010) (to be codified at Ariz. Stat. § 12-2203).

121. *See Logerquist v. McVey*, 1 P.3d 113, 125-32 (Ariz. 2000) (reaffirming applicability of *Frye*); *State v. Bible*, 858 P.2d 1152, 1183 (Ariz. 1993) (declining to adopt *Daubert*).

122. *See Lohmeier v. Hammer*, 148 P.3d 101, 115 (Ariz. Ct. App. 2006).

123. Breyer, *supra*, at 538.