

## Overview of Admissibility of Expert Testimony

Md. Rule 5-702:

Expert testimony may be admitted, in the form of an opinion or otherwise, if the court determines that the testimony will assist the trier of fact to understand the evidence or to determine a fact in issue. In making that determination, the court shall determine (1) whether the witness is qualified as an expert by knowledge, skill, experience, training, or education, (2) the appropriateness of the expert testimony on the particular subject, and (3) whether a sufficient factual basis exists to support the expert testimony.

Case Name	Frye-Reed Discussion
<i>Wood v. Toyota Motor Corp.</i> , 134 Md. App. 512, 524 n.13, cert. denied, 362 Md. 189 (2000).	Chief Judge Murphy observed: “our case law is consistent with the amendments to Rule 702 of the Federal Rules of Evidence . . . which take effect on December 1, 2000,” which require an inquiry into the reliability of the methodology used by the expert.
<i>Wilson v. State</i> , 370 Md. 191, 200 (2002).	Judge Raker noted that, with respect to expert testimony, “the trial judge has wide latitude in determining whether expert testimony is sufficiently reliable to be admissible,” concluding that “[t]estimony concerning an unreliable scientific process, technique or unreliable opinion is of little value to a jury.”
<i>Giant Food v. Booker</i> , 152 Md. App. 166, 183-84 (2003).	Judge Sharer wrote: Regarding the appropriateness of the testimony, we concluded that the expert's testimony did not qualify because it was not ‘the product of reliable principles and methods.’ This Court found that while Rule 5-702 does not specifically state that the expert testimony must be ‘the product of reliable principles and methods’ (i.e., phraseology taken from Fed.R.Evid. 702), Maryland case law interpreting Rule 5-702 requires such a foundation. Our finding in <i>Wood</i> in this regard is likewise consistent with the second factor of Md. Rule 5-702, which requires that the issue before the court be an appropriate subject of expert testimony.
<i>Bomas v. State</i> , 412 Md. 392, 416, 417 n.12 (2010).	<p>We agree with Bomar that jurisdictions have trended toward the admissibility of expert testimony on eyewitness reliability and we recognize that scientific advances since <i>Bloodsworth</i> may assist juries in evaluating eyewitness testimony. We appreciate that scientific advances have revealed (and may continue to reveal) a novel or greater understanding of the mechanics of memory that may not be intuitive to a layperson. Thus, it is time to make clear that trial courts should recognize these scientific advances in exercising their discretion whether to admit such expert testimony in a particular case.</p> <p style="text-align: center;">. . . .</p> <p>The applicability of Frye-Reed to expert testimony on eyewitness identification was not argued or decided by the court below. As noted earlier, <i>Bloodsworth</i> disallowed the application of Frye-Reed to this type of evidence because that test had only been applied in limited circumstances. 307 Md. at 184, 512 A.2d at 1066 (“Our own use of what we denominate as the Frye-Reed test has been confined to ‘voice prints’ in <i>Reed</i> and to hypnosis[.]”). Since <i>Bloodsworth</i>, we have applied the Frye-Reed test to other types of evidence. See <i>Blackwell v. Wyeth</i>, 408 Md. 575, 585-93, 971 A.2d 235, 242-45 (2009) (applying Frye-Reed to expert testimony concerning the causal connection between thimerosal-laden vaccines and autism and reviewing cases involving Frye-Reed's application to testimony concerning statistical methods, Comparative Bullet Lead Analysis, and biotoxic illness). Other jurisdictions have applied this test or the Daubert test to expert testimony on eyewitness identification and have found such evidence to be admissible. See, e.g.,</p>

	<p><i>LeGrand</i>, 867 N.E.2d at 380-81. We do not address the applicability of Frye-Reed to the testimony offered in this case.</p>
<p><i>Blackwell v. Wyeth</i>, 408 Md. 575, 596, 604-07 (2009).</p>	<p>The essence of the instant case is the application of the Frye-Reed test to the analysis undertaken by an expert where the underlying data and methods for gathering this data are generally accepted in the scientific community but applied to support a novel theory. In reaching his ultimate conclusion that “the plaintiffs ... failed in their burden of proving that the bases of the expert witnesses' testimony are generally accepted as reliable within the relevant scientific field,” Judge Berger discussed the importance of the threshold determination with which he was vested. He noted that “[u]nder Reed, the proponent of an expert witness bears the burden of proving the basis of the witness' opinion is generally accepted as reliable within the relevant scientific field.” He also observed that the Frye-Reed test “ ‘was deliberately intended to interpose a substantial obstacle to the unrestrained admission of evidence based upon new scientific principles,’ ” quoting <i>Chesson</i>, 399 Md. at 328, 923 A.2d at 946, in turn quoting <i>Reed</i>, 283 Md. at 386, 391 A.2d at 370, that the test posed a minimum threshold for the admissibility of scientific evidence in Maryland, and that trial courts continued to retain discretion to exclude such testimony on other grounds—such as lack of helpfulness or expert qualification.</p> <p>....</p> <p>Although we have not in the past had occasion to scrutinize the analytical phase of a scientific process underlying a novel scientific opinion, where the underlying data may otherwise be generally accepted in the scientific community, various federal courts have had occasion to scrutinize the reliability of the analytical framework utilized by an expert in formulating a novel theory of science, and to them we turn, recognizing that they utilized the Daubert standard rather than Frye. We explore what they have opined, nevertheless, when they are speaking about reliability.</p> <p>In <i>Daubert v. Merrell Dow Pharmaceuticals, Inc.</i>, 509 U.S. 579, 589, 113 S.Ct. 2786, 2794, 125 L.Ed.2d 469, 480 (1993), the Supreme Court held that Federal Rules of Evidence superseded the common law and that Frye is an “austere standard, absent from, and incompatible with, the Federal Rules of Evidence” that “should not be applied in federal trials.” Currently under Federal Rules of Evidence, Rule 702, expert opinion testimony is admissible if the subject matter is one where “scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, ... the witness qualified as an expert by knowledge, skill, experience, training, or education ... [and] (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.” Fed.R.Evid. 702. See generally <i>Kumho Tire Co. v. Carmichael</i>, 526 U.S. 137, 119 S.Ct. 1167, 143 L.Ed.2d 238 (1999); <i>Daubert</i>, 509 U.S. at 579, 113 S.Ct. at 2786, 125 L.Ed.2d at 469.</p> <p>The Supreme Court in <i>General Electric Company v. Joiner</i>, 522 U.S. 136, 118 S.Ct. 512, 139 L.Ed.2d 508 (1997), recognized that the analysis employed by an expert must be reliable. In <i>Joiner</i>, an electrician, alleging that his small cell lung cancer was caused by exposure to polychlorinated biphenyls (PCBs) and to furans and dioxins (PCB derivatives), sued the manufacturers of the products and attempted to introduce expert testimony linking his exposure to the chemicals to his small cell lung cancer. The trial judge excluded the testimony, reasoning that the expert's conclusions did not rise above “subjective belief or unsupported speculation,” <i>Joiner v. General Electric Co.</i>, 864 F.Supp. 1310, 1326 (N.D.Ga.1994), and then granted summary judgment in favor of the manufacturer.</p>

The Court of Appeals for the Eleventh Circuit reversed, *Joiner v. General Electric Co.*, 78 F.3d 524, 533 (11th Cir.1996), holding that the District Court should not have excluded expert testimony that merely “drew different conclusions from the research than did each of the experts,” and that the court should have permitted the “jury to decide the correctness of competing expert opinions.”

The Supreme Court reversed the Eleventh Circuit and excluded the expert's testimony. The Court recognized that the analysis of data or extrapolation requires more than mere conjecture to pass reliability scrutiny:

[Joiner] claims that because the District Court's disagreement was with the conclusion that the experts drew from the studies, the District Court committed legal error and was properly reversed by the Court of Appeals. But conclusions and methodology are not entirely distinct from one another. Trained experts commonly extrapolate from existing data. But nothing in either Daubert or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the ipse dixit of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.

*Joiner*, 522 U.S. at 146, 118 S.Ct. at 519, 139 L.Ed.2d at 518-19, citing *Turpin v. Merrell Dow Pharmaceuticals, Inc.*, 959 F.2d 1349, 1360-61 (6th Cir.1992) (When “[t]he analytical gap between the evidence presented and the inferences to be drawn on the ultimate issue of human birth defects is too wide .... a jury should not be asked to speculate on the issue of causation.”). In calling attention to the “analytical gap” between existing data and the opinion proffered by an expert, the Court admonished against reliance solely on an expert's word that his conclusion is appropriate to the underlying data and methods. *Id.* This concept of “analytical gap” had been employed by federal courts before *Joiner*, see *Lust v. Merrell Dow Pharmaceuticals, Inc.*, 89 F.3d 594, 598 (9th Cir.1996) (“When a scientist claims to rely on a method practiced by most scientists, yet presents conclusions that are shared by no other scientist, the [trial] court should be wary that the method has not been faithfully applied.”), and even before *Daubert*. See *Christophersen v. Allied-Signal Corp.*, 939 F.2d 1106, 1115 (5th Cir.1991) (en banc) (“When analyzing the validity of an expert's methodology, we seek to determine whether it connects the facts to the conclusion in a scientifically valid way. We answer this question by applying the Frye test: whether the methodology or reasoning that the expert uses to connect the facts to his conclusion is generally accepted within the relevant scientific community.”).

Since *Joiner*, the concept of the “analytical gap” also has been applied by numerous federal appellate courts. See, e.g., *Bland v. Verizon Wireless, L.L.C.*, 538 F.3d 893, 898 (8th Cir.2008) (affirming a trial judge's exclusion of expert testimony from plaintiff's treating physician, who linked plaintiff's exercised-induced asthma to her inhalation and ingestion of freon that was allegedly sprayed into her water bottle by a Verizon employee, and holding that there was “simply too great an analytical gap” between “the data identified and [the expert's] proffered opinion” because the expert “lacked knowledge regarding what level of exposure to freon constitutes an appreciable risk of causing asthma and the specific concentration and degree of [plaintiff's] exposure to the freon”); *Ruggiero v. Warner-Lambert Co.*, 424 F.3d 249, 254-255 (2d Cir.2005) (excluding expert testimony that medication was capable of causing or exacerbating cirrhosis because the expert's failure to consider other causes when employing differential diagnosis created “too great an analytical gap between the data and the opinion proffered”); *United States v. Mamah*, 332 F.3d 475, 478 (7th Cir.2003) (discussing the “analytical gap” when holding, “[t]he problem with the proposed testimony in this

	<p>case does not lie in the quality of [the experts'] research .... [but in] the absence of an empirical link between that research and the opinion that [defendant] likely gave a false confession”).</p>
<p><i>Montgomery Mut. Ins. Co. v. Chesson</i>, 399 Md. 314, 327-29 (2007).</p>	<p>Maryland adheres to the standard set forth in <i>Frye v. United States</i>, 293 F. 1013 (D.C.Cir.1923), for determining the admissibility of scientific evidence and expert scientific testimony. <i>Reed</i>, 283 Md. at 389, 391 A.2d at 372 (adopting the Frye standard). Under the Frye-Reed test, a party must establish first that any novel scientific method is reliable and accepted generally in the scientific community before the court will admit expert testimony based upon the application of the questioned scientific technique. <i>Wilson</i>, 370 Md. at 201, 803 A.2d at 1039. A trial court may take judicial notice of the reliability of scientific techniques and methodologies that are widely accepted within the scientific community. <i>Reed</i>, 283 Md. at 380, 391 A.2d at 367. A trial court also may take notice that certain scientific theories are viewed as unreliable, bogus, or experimental. <i>Id.</i> However, when it is unclear whether the scientific community accepts the validity of a novel scientific theory or methodology, we have noted that before testimony based on the questioned technique may be admitted into evidence, the reliability must be demonstrated. <i>Wilson</i>, 370 Md. at 201, 803 A.2d at 1039-40. While the most common practice will include witness testimony, a court may take judicial notice of journal articles from reliable sources and other publications which may shed light on the degree of acceptance vel non by recognized experts of a particular process or view. <i>Reed</i>, 283 Md. at 380, 391 A.2d at 367. The opinion of an “expert” witness should be admitted only if the court finds that “the basis of the opinion is generally accepted as reliable within the expert's particular scientific field.” <i>Wilson</i>, 370 Md. at 201, 803 A.2d at 1040.</p> <p>Where evidence is subject to challenge under Frye-Reed, it is the better practice for a court to address the issue pre-trial and out of the presence of the jury. <i>Clemons v. State</i>, 392 Md. 339, 347-48 n. 6, 896 A.2d 1059, 1064 n. 6 (2006). Frye-Reed hearings are best held before trial in order to preclude jury members from considering irrelevant evidence and to ensure that the verdict is derived from evidence which is before the jury properly. <i>Id.</i> at 348 n. 6, 896 A.2d at 1064 n. 6. As we noted in <i>Reed</i>, “Frye was deliberately intended to interpose a substantial obstacle to the unrestrained admission of evidence based upon new scientific principles.” <i>Reed</i>, 283 Md. at 386, 391 A.2d at 370 (quoting <i>People v. Kelly</i>, 17 Cal.3d 24, 130 Cal.Rptr. 144, 549 P.2d 1240, 1245 (1976)). In addition, Frye-Reed generally involves matters collateral to the substantive issues at trial, and for that reason alone is better resolved outside of the presence of the jury. <i>Clemons</i>, 392 Md. at 348 n.6, 896 A.2d at 1064 n.6.</p>
<p><i>Fleming v. State</i>, 194 Md. App. 76 (2010)</p>	<p>The admissibility of expert testimony concerning scientific or forensic evidence is governed in Maryland by the Frye-Reed standard, which provides that scientific techniques can be admissible if they are “generally accepted” in the scientific community. See <i>Frye v. United States</i>, 293 F. 1013, 1014 (D.C.Cir.1923) (holding that with respect to scientific evidence, “the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.”). The Frye standard was adopted in Maryland in <i>Reed v. State</i>, 283 Md. 374, 389, 391 A.2d 364, 372 (1978) (discussing the policy considerations behind the “general acceptance” requirement, and concluding that “[f]or the foregoing reasons, we agree with the ‘general acceptance’ rule which the Frye case sets forth.”). The Court of Appeals has encapsulated the standard as follows:</p>

“Where the validity and reliability is so broadly and generally accepted within the scientific community, as is the case of ballistics tests, blood tests, and the like, a trial court may take judicial notice of its reliability. Likewise, a court may take judicial notice that certain procedures, widely recognized as bogus or experimental, are unreliable.”

Clemons v. State, 392 Md. 339, 363-64, 896 A.2d 1059, 1073 (2006).

...

Having considered the attributes of traditional microscopy as described above, and having considered the comparative virtues of the CMS method, if the issue was material to the case, we would hold that the trial court did not err in admitting evidence derived through the traditional comparative microscopic pattern matching technique. The Court of \*107 Appeals has approved the admissibility of traditional firearms identification evidence under Frye-Reed; indeed, Reed v. State referred to “ballistics” as an example of a discipline for which “the validity and reliability is so broadly and generally accepted” that under the Frye-Reed standard, “a trial court may take judicial notice of its reliability.” Reed v. State, 283 Md. at 380, 391 A.2d at 367. Although Reed was decided over thirty years ago, notwithstanding the current debate on the issue, courts have consistently found the traditional method to be generally accepted within the scientific community, and to be reliable.

...

Appellant submits CMS as an alternative or supplement to the traditional comparative microscopy method, but the existence of an alternative, even one which aspires to improve upon the shortcomings of its forebear, does not undermine the generally accepted nature of the traditional method.<sup>6</sup> Accordingly, in rendering its decision in the case at bar, the trial court noted correctly that the alternative method proposed by appellant was not truly an alternative, but rather an emerging refinement of the same technique. The trial court stated as follows:

\*109 “It is enough to state that CMS is not a new technique, nor in conflict with the traditional pattern matching that has been characterized as the discipline from the earliest of times. It is simply an extension....”

Moreover, the court noted the testimony during the hearing which suggested that the advent of CMS had not undermined the “generally accepted” nature of traditional comparative microscopy.”