Admissibility of Scientific Evidence in Iowa's State and Federal Courts

By Thomas H. Makeig

This note examines the current Iowa and Federal standards regarding admissibility of scientific evidence.

Most often, complex or controversial scientific evidence is offered in the form of an expert opinion seeking to establish personal injury causation. Defendants want to raise the bar for admissibility, while plaintiffs want the court to apply more liberal standards so that their causation theories, and their case as a whole, can survive dispositive motions and reach the jury.[1] Both sides know that expert opinions can carry disproportionate weight with a jury. This plaintiff-defense conflict has largely shaped the decades of controversy over admissibility of scientific evidence.

History of federal practice. For seventy years the admissibility of scientific evidence in the federal courts was defined in relation to *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923). The *Frye* case decreed that (1) trial judges are incompetent to determine the reliability of proffered scientific evidence,[2] so that (2) the trial judge must determine, not whether in his or her judgment the proffered evidence constitutes good science, but whether it is based on scientific methods and principles that have gained "general acceptance" in the relevant scientific community.[3] Thus, in cases where textbook science would find no causal link, the *Frye* standard was regarded as defendant-friendly by excluding novel theories and techniques that could help establish causation.[4]

The Federal Rules of Evidence were promulgated in 1972. Fed. R. Evid. 702 established the principle that opinion evidence offered through an expert was admissible if it would "assist the trier of fact to understand the evidence or to determine a fact in issue." Subsequent litigation involving Rule 702 attempted to square this approach with *Frye* and its progeny but produced such varied and inconsistent results that persons attempting to master this field were referred to sardonically as "*Frye*-ologists."[5]

***Daubert* and prodigy.** In 1993 the U.S. Supreme Court broke over 70 years of silence on the admissibility of scientific evidence with the case of *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). *Daubert* firmly established the trial judge as the "gatekeeper"[6] assessing "whether the reasoning or methodology properly can be applied to the facts in issue."[7] The court held that Rule 702 had impliedly overruled *Frye* with regard to the role of the trial judge,[8] and it expressed confidence that judges can evaluate scientific evidence for themselves without having to defer to what is generally accepted in the scientific community.[9] *Daubert* offered the following "general observations" that trial courts can use in assessing whether proffered scientific opinion is helpful to the trier of fact:

(1) "whether a theory or technique. . . can be (and has been) tested. . .

(2) "whether the theory or technique has been subjected to peer review and publication. . .[and]

(3) "the known or potential rate of error. . .and the existence and maintenance of standards controlling the technique's operation.

(4) "[G]eneral acceptance can yet have a bearing on the inquiry. . . Widespread acceptance can be an important factor in ruling particular evidence admissible, and a 'known

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> technique which has been able to attract only minimal support within the community'. . . may properly be viewed with skepticism."[10]

The general acceptance test remains the acid test of admissibility, not required in many cases but helpful when evidence is complex or especially controversial.[11]

In *General Electric Co. v. Joiner*, 522 U.S. 136, 143 (1997) (per Rehnquist, C.J.), the court confirmed that a trial court's determination of the admissibility of scientific evidence, like other evidentiary rulings, is reviewed for abuse of discretion. Additionally, the *Joiner* court declared that "conclusions and methodology are not entirely distinct from one another,"[12] and that a trial court "may conclude that there is simply too great an analytical gap between the data and the opinion proffered."[13] The majority found that a toxicologist's meta-analysis of existing studies yielded results too far afield from the subjects studied,[14] even through the court of appeals had validated the basic methodology employed by the expert in analyzing the studies, and the defendant's experts had used the same methodology.[15] In dissent, Justice Stevens criticized the majority for moving the trial court inquiry in the direction of a result-oriented analysis[16] that may favor a defendant-friendly view of what constitutes reliable – therefore, admissible – science.[17]

Kumho Tire Co. v. Carmichael, 526 U.S. 137 (1999), extended the rationale of *Daubert* to cases where the proffered expert has engineering, technical or other training that cannot be described as scientific.[18] In rejecting proffered causation testimony of the plaintiff's tire failure expert, the court analyzed the expert's methodology, rather than his conclusion,[19] and agreed with the trial court that such methodology was unreliable and inconsistently applied.[20]

In response to *Daubert*, *Joiner*, and *Kumho*, Federal Rule 702 was amended, as follows:

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, *if (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.*[21]

(New matter italicized.) The Advisory Committee made it clear that the additional matter was intended to codify *Daubert* and *Kuhmo*, but it did not codify the *Daubert* considerations exclusively.[22] The Advisory Committee cited a series of additional considerations articulated in federal appellate cases since *Daubert* and opined that they, too, are valid but non-inclusive considerations.[23]

Iowa Practice. The Iowa Supreme Court rejected *Frye*'s "general acceptance" test in *State v. Hall*, 297 N.W. 2d 80, 84-85 (Iowa 1980). The Iowa court decreed that scientific evidence was admissible if the trial judge found it to be reliable in the exercise of sound discretion.[24] In *Hall* the court reaffirmed its historic commitment to a "liberal standard of admissibility."[25] The standard is so liberal that the Iowa court appears to grant broader discretion to the admission of contested opinion than to its exclusion.[26]

The Iowa Rules of Evidence were promulgated in 1983. The text of Iowa Rule 702 is identical to Federal Rule 702 as it was prior to the 2000 federal amendment. The Iowa rule has not been amended. The Iowa Supreme Court reviewed the admissibility of scientific opinion evidence in a series of post-

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Daubert cases. After several opinions avoiding the question whether *Daubert* analysis was required in the Iowa courts,[27] the court announced in *Leaf v. Goodyear Tire & Rubber Co.*, 590 N.W.2d 525 (Iowa 1999), that a trial judge may use the *Daubert* considerations when determining the admissibility of complex scientific evidence.[28] The court also reaffirmed its view that a greater foundational showing is required when the proffered opinion evidence is novel or has the potential to sway the jury on ultimate issues to an unusual degree.[29] The court did not review either the proposed amendment to Fed. R. Evid. 702 or its commentary that added new items to the list of *Daubert*-style considerations.[30]

The same analytical pressures that pushed the Iowa Supreme Court to this acceptance of the *Daubert* considerations may require it in the future to acknowledge the supplementary considerations set forth in the Federal Advisory Committee's summary of post-*Daubert* case law, as well as additional principles of analysis that will doubtless be articulated in future federal cases. In this way, despite the Iowa courts' long-standing intent to follow separate and more liberal paths regarding admissibility of scientific evidence, the arguments and analytical tools utilized under Iowa Rule 702 may continue to be federalized.

Technical, Engineering and Other Non-Scientist Experts in Iowa. The question whether the *Daubert* factors can be used in reviewing admissibility of non-scientific expert opinion in the Iowa courts is unresolved in light of the Iowa Supreme Court's rejection of the rationale that was adopted subsequently in *Kuhmo*. In *Mensink v. Am. Grain & Related Ind.*, 564 N.W. 2d 376, 380-81 (Iowa 1997), the Iowa Supreme Court declined to extend *Daubert* analysis to non-science opinion evidence, a position it reiterated in *Leaf*,[31] another case decided prior to *Kuhmo*. The Iowa court appeared concerned not to unduly complicate *any* case involving Rule 702 issues with an elaborate *Daubert* analysis, and it may not have intended to

draw a bright line precluding *Daubert* analysis in relation to unusually complex engineering or other technical evidence.[32]

Nevertheless, in *Kuhmo* the U.S. Supreme Court predicted that , "[I]t would prove difficult, if not impossible, for judges to administer evidentiary rules under which a gatekeeping obligation depended upon a distinction between 'scientific' knowledge and 'technical' or 'other specialized' knowledge."[33] It is possible that the same analytical forces that impelled the Iowa Supreme Court's eventual acceptance of the *Daubert* framework with respect to scientific evidence will cause the Iowa court to accept *Kuhmo*'s extension of *Daubert* analysis to non-scientific technical opinion, at least where the proffered evidence is sufficiently complex to overcome the court's concern that "*Daubert* analysis would only complicate the court's decision regarding liability."[34]

Conclusion. Due to recent federal case law developments, a new clarity has come to the standards for review of a trial court's determination of the admissibility of scientific evidence in both the Iowa and federal systems.[35] Unfortunately, practitioners are apt to find that trial judges, while enjoying deference when their Rule 702 decisions are reviewed,[36] face shifting standards and ever growing demands on their acumen as sophisticated consumers of scientific and technical opinions.

Whenever the admissibility of scientific evidence is litigated in either the Iowa or federal courts, it appears essential for counsel's preparation to include both an in-depth study of the relevant science and a thorough review of the post-*Daubert* federal case law to determine which of the *Daubert* and post- *Daubert* considerations may apply to the proffered evidence.[37] And, as always, litigators need to find ways to present complex evidence simply and persuasively, not only to the jury, but also to the gatekeeper.

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Endnotes

[1] *See Hutchison v. Am. Family Mut. Ins. Co.*, 514 N.W. 2d 882, 888 (Iowa 1994) ("[R]estrictions on the admissibility of expert testimony tend to tilt against the plaintiff in civil cases.").
[2] 293 F. at 1014.
[3] *Id.*
[4] However, novel science, or science specially developed for use in litigation, is also used by defendants. *See* Graham, *"The Death and Transfiguration of Frye,"* 22 Wright & Miller Fed. Prac. & Pro. Evid. §5168.1 at nn. 34-40 (2001 Supp.).
[5] *See Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 586 n.4 (1993).
[6] *Id.* at 589 n.7, *id.* at 92-93; *cf.id.* at 600 (Rehnquist, C.J., concurring in part and dissenting in part).
[7] *Id.* at 592-93.
[8] 509 U.S. at 88-89.
[9] *Daubert*, 509 U.S. at 593; Fed. R. Evid. 104 (preliminary questions of admissibility).
[10] 509 U.S. at 593-94 (numeration added, citations omitted).
[11] *See, e.g. State v. Hall*, 297 N.W. 2d 80, 85 (Iowa 1980); *Leaf v. Goodyear Tire & Rubber Co.*, 590 N.W. 2d 525, 534 (Iowa 1999) ("[E]vidence might be so novel or complex that the court, in it discretion, will require proof of acceptance of the theory or technique in the scientific community.").
[12] 522 U.S. at 146.
[13] *Id.*
[14] *Id.* at 146-47.
[15] *Id.* at 153-54 (Stevens, J., concurring in part and dissenting in part).
[16] *Id.* at 153-54 (Stevens, J., concurring in part and dissenting in part) ("[W]hen qualified experts have reached relevant conclusions on the basis of an acceptable methodology, why are their opinions inadmissible?").
[17] A possible example of result-oriented Rule 702 analysis is *Robertson v. Norton Co.*, 148 F.3d 905 (8th Cir. 1998). In *Robertson* the Eighth Circuit expressed its ongoing hostility to speculative warning-label challenges by finding abuse of discretion in the admission of a ceramics expert's testimony on the inadequacy of the defendant's labels. 148 F.3d at 907-08.
[18] 526 U.S. at 147-49.
[19] *Id.* at 153-54.
[20] *Id.* at 154-56.
[21] Fed. R. Evid. 702 (as amended, effective December 1, 2000).
[22] Fed. R. Evid. 702, *Advisory Committee Notes – 2000 Amendment.*
[23] *Id.*
[24] 297 N.W. 2d at 85.
[25] *Id.* at 84.
[26] "We will not reverse the trial court's *receipt* absent a manifest abuse of that discretion to the prejudice of the complaining party. We are committed to a liberal rule on the admission of opinion testimony, and only in clear cases of abuse would the *admission* of such evidence be found to be prejudicial." *Leaf v. Goodyear Tire & Rubber Co.*, 590 N.W. 2d 525, 531 (Iowa 1999), *quoting Iowa-Illinois Gas & Elec. Co. v. Black and Veatch*, 497 N.W.2d 821 (Iowa 1993) (emphasis added).

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[27] *Hutchison v. Am. Family Mut. Ins. Co.*, 514 N.W. 2d 882 (Iowa 1994) (*Daubert* reviewed favorably as an ally against the restrictive *Frye* test); *Carolan v. Hill*, 553, N.W.2d 882, 888 (Iowa 1996) (*Daubert* reaffirms the expansive scope of admissibility under Rule 702); *Williams v. Hedican*, 561 N.W. 2d 817, 827 (Iowa 1997) (*Daubert* analysis used only because neither the trial court nor the parties objected); *Mensink v. Am. Grain & Related Ind.*, 564 N. W.2d 376, 380-81 (Iowa 1997) (*Daubert* inapplicable to non-scientific technical opinion); and *Johnson v. Knoxville Community Sch. Dist.*, 570 N.W.2d 633, 639-40 (Iowa 1997) (Medical opinion not scientific but technical; reception upheld without *Daubert* analysis).

[28] 590 N.W.2d at 533: "[T]rial courts may, in their discretion, consider the following factors if deemed helpful in a particular case: (1) whether the theory or technique is scientific knowledge that can and has been tested, (2) whether the theory or technique has been subjected to peer review or publication, (3) the known or potential rate of error, or (4) whether it is generally accepted within the relevant scientific community."

[29] 590 N.W.2d at 533-34, *citing State v. Hall*, 297 N.W.2d at 85. The example given is polygraphy, which is regarded as potentially outcome determinative to a degree that other scientific evidence would not be.

[30] Fed. R. Evid. 702, *Advisory Committee Notes – 2000 Amendment.*

[31] 590 N.W.2d at 531-33.

[32] *See Mensink*, 564 N.W.2d at 381, *Leaf*, 590 N.W.2d at 531-33.

[33] *Kuhmo*, 526 U.S. at 148.

[34] *Mensink*, 564 N.W.2d 381.

[35] *But see* 22 Wright & Miller Fed. Prac. & Pro. Evid. §5168.1 at n. 41: "Multi-factored, 'flexible' tests of the sort announced in *Daubert* are more likely to produce arbitrary results than they are to produce nuanced treatment of complex questions of admissibility."

[36] *See, eg., Penney v. Praxair, Inc.*, 116 F.3d 330, 333-34 (8th Cir. 1997), in which the trial court's exclusion of a Positron Emission Tomography (PET) expert was upheld with very little analysis and despite an acknowledgement that PET scans had been found admissible in another case.

[37] Additionally, the apparent fondness of the Iowa Supreme Court for extensively citing sister-state holdings on scientific evidence commends the study of case law from other states. *See, e.g., Leaf*, 590 N.W.2d at 532-33. "Post-Daubert Standards for Admissibility of Scientific and Other Expert Evidence in State Courts," 90 A.L.R. 5th 453 (2001), provides a summary of the state case law.

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