§ 13.04 Cross-Examination of Expert Witnesses

Cross-examination of an expert witness should never be a spontaneous event and requires thorough preparation and a well thought out plan for each witness.

[1]—Purposes of Cross-Examination

The purposes of cross-examination of an expert witness are to develop a basis for excluding his testimony, and if his testimony is admitted, to impeach his direct testimony, to seek favorable testimony or both.

[2]—Methods of Cross-Examination

The cross-examiner will seek to impeach an expert witness by any of the methods summarized in sub-paragraphs [a] through [g] below and will seek favorable testimony by the methods described in sub-paragraphs [h] and [i].

[a]—Bias

Bias is a predisposition in favor of one of the parties that is either irrational or rationally based on improper considerations. Examples of bias are a mother's bias in favor of her son, the expert's bias in favor of the party that pays him, the employee's bias in favor of his employer, and the doctor's or lawyer's bias in favor of fellow members of his profession. Nonetheless, bias will not necessarily lead to disqualification of an otherwise qualified expert.[1]

[b]—Prejudice

Prejudice is a disposition against a party to the action that is either irrational or based on improper considerations. Prejudice can include the common variety racial prejudice to much more subtle and hidden prejudices. The decision to cross-examine a witness on the basis of prejudice or bias will in part be based on the cross-examiner's perceptions of the prejudices and biases of the jurors. For example, suggesting to a jury the bias of the mother who testifies in favor of her son may be good tactics when the jury consists of twelve middle-aged men but would be a much tougher decision if the jury consists of twelve mothers.

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[1] See, e.g., Quintana-Ruiz v. Hyundai Motor Corp., 303 F.3d 62 (1st Cir. 2002) (allowing expert testimony regarding design defect in automobile airbag in the face of a bias challenge that was based on the expert's work primarily for the defense in automobile lawsuits).

[c]—Interest and Motive

This usually refers to a financial interest in the outcome of the action, but could include an academic interest in a particular legal position taken in the litigation.

[d]—Bad Character

This characteristic of the witness can be established by, for example, proof of bribery of a witness in the case, prior convictions and bad acts. Bad acts are a recognized method of impeachment in the majority of jurisdictions. Whether the witness committed the bad acts generally is considered a collateral issue which means that if the witness denies the bad acts, the cross-examiner cannot prove them by calling other witnesses.

[e]—Capacity to Observe, Hear, Understand, Recall or Communicate

These are traditional areas of cross-examination of fact witness and rarely will be used on expert witnesses.

[f]—Prior Inconsistent Statement

If crisply presented, a prior inconsistent statement by a expert witness can have a dramatic effect on the outcome of the case. Some courts still require the common law foundation to be laid before counsel can impeach with such a statement: the witness must be shown the statement if it is in writing and given an opportunity to read it and must be directed to the time, place and circumstances of the making of the statement if it is oral. The Federal Rule of Evidence 613 permit a direct confrontation of the witness with the statement without laying the preliminary foundation.

[g]—Improbability of Direct Testimony

Demonstrating through cross-examination the improbability of the witness' direct testimony is a frequent stumbling ground for the inexperienced trial lawyer whose awkward attempts at ridicule, sarcasm, irony, and satire frequently are terminated by an admonition from the judge that counsel is arguing with the witness. A cross-examination which depends largely on counsel's ability to set a mood by the force of his personality and the tone of his questions requires skills beyond those of most trial attorneys and should not be undertaken unless counsel is secure in his belief that he can carry off such an exercise. If the direct testimony of a witness is truly improbable, counsel can develop this fact by a fact oriented rather than a mood oriented cross-examination and reserve his ridicule, sarcasm, irony and satire for closing argument.

[h]—Discrediting the Testimony of Other Witnesses

A witness called by the adverse party may know of facts that contradict those brought out by another adverse witness, or may know of reasons why the other's testimony is the result of bias, prejudice or other similar circumstances. Unless a local rule absolutely forbids the cross-examiner from straying beyond the scope of direct, the opportunity to contradict an opponent's case through one of his own witnesses should rarely be turned down. This is a technique that should not be used unless counsel is sure of the response of the witness and before under taking such a cross-examination counsel should make sure he has developed the facts through a deposition of the witness.

[i]—Eliciting Favorable Testimony

While not as dramatic as discrediting the unfavorable testimony of an adverse witness, this method of cross-examination can serve two purposes. The first is that corroboration testimony from an adverse witness will have a stronger impact than such testimony from one's own witnesses, and the second is that this method of cross-examination generally is low risk and can be used on a dangerous witness that counsel is reluctant to impeach.

[3]—Excluding the Expert's Opinion

Case law highlights the importance of a vigorous attack on the expert and his opinion for the purpose of excluding its admission or striking it from evidence. Although some courts follow the "let it all in" approach[1.1] and will permit the jury to hear the opinion upon a bare bones showing that the expert is qualified and that his opinion may be helpful to the jury, an increasing number of courts have placed limits on expert testimony to prevent unreliable evidence from reaching the jury. For example, a federal court in Pennsylvania excluded the testimony of four experts that emissions of chemicals

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[1.1] *First Circuit:* Correa v. Cruisers, No. 01-1240, No. 01-1241, 2002 U.S. App. LEXIS 14742 (1st Cir. July 23, 2002) (no abuse of discretion in admitting the marine engine expert's testimony derived from visual inspection without use of instruments to determine whether boat was properly functioning because his methodology was reliable and his testimony was relevant).

Second Circuit: Arnold v. Dow Chemical Co., 32 F. Supp.2d 584 (S.D.N.Y. 1999) (despite the fact that basis for expert's conclusions undermined the credibility of his opinion, the reasoning and methodology underlying his proposed testimony were scientifically valid and thus he could testify at trial—the *weight* of his testimony was a matter for jury to decide).

District of Columbia Circuit: Ferebee v. Chevron Chemical Co., 736 F.2d 1529 (D.C. Cir.), *cert. denied* 469 U.S. 1062 (1984).

from new carpeting caused plaintiff's respiratory illness. The court noted that the experts had failed to cite research in support of their theory, that there were large margins of error in estimates of chemical emission levels, that the experts had failed to rule out other theories of causation, and the experts' inability to render a definite opinion to a reasonable degree of medical certainty.[1.2] While the willingness of such courts to "take hold of expert testimony"[2] is welcome in all manner of product liability cases, it is particularly needed in toxic tort cases where the quality of expert opinions on the cause and effect relationship between exposure to a chemical or drug and the disease complained of by the plaintiff is becoming a matter of concern[3] if not embarrassment to both the legal and scientific community.

Traditionally, courts would not look beneath the conclusions of medical experts to question their reasoning. Beginning in the mid-1980's however, courts, and in particular, federal courts, have shown a willingness to challenge the conclusions of causation experts, particularly when they differed from generally accepted scientific conclusions. In 1989, for example, the Fifth Circuit[4] reversed a judgment in favor of the parents of a minor who suffered from birth defects allegedly caused by the anti-nausea drug Bendectin. The Fifth Circuit disagreed with the logic of the plaintiff's experts on the causation issue, relying on the facts that

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[1.2] Heller v. Shaw Industries, Inc., No. 95-7657, 1997 WL 786542, at *1 (E.D. Pa. Nov. 20, 1997).

[2] In re Air Crash Disaster at New Orleans, Louisiana, 795 F.2d 1230 (5th Cir. 1986). See generally: Berger, "Screening Expert Testimony: The Court's Role," 1 Prod. Liab. L.J. 253 (Oct. 1989); Austrian, "Expert Evidence in Toxic Tort Litigation," 31 FTD 17 (DRI Feb. 1989); Socha, "Excluding Plaintiff's Expert Testimony," 29 FTD 24 (DRI Sept. 1987); Gleeson, "Fight Fire with Fire: Innovation and Creativity in Toxic Tort Litigation," 30 FTD 19 (DRI Jan. 1988); Patterson, "Product Liability Trends——Expert Testimony," 31 FTD 4 (DRI Oct. 1989); Dore, "Defense of Cancer Promotion Claims," 30 FTD 17 (DRI Sept. 1988); Cohen, "Unreliable Expert Witness Testimony," 32 FTD 8 (DRI Apr. 1990); Bell, "Proving Causation," 24 Trial 50 (Oct. 1988); Sapp, "Pre-Trial Challenges to Expert Testimony in Toxic Tort Cases," 31 FTD 22 (DRI June 1989).

[3] See, e.g., *National Law Journal*, p. 1 (July 24, 1989), for a report on the National Invitational Conference on Unreliable Expert Witness Testimony held in June 1989 at Northwestern University Law School. See also: Callahan, "Establishment of Causation in Toxic Tort Litigation," 23 Ariz. St. L.J. 605 (1991); Schults, "Expert Witnesses in Environmental and Toxic Tort Cases," 32 S. Tex. L.J. 533 (1991); Bernstein, "Out of the Frying Pan and into the Fire: The Expert Witness Problem in Toxic Tort Litigation," 10 Rev. Litig. 117 (1990).

[4] Brock v. Merrell Dow Pharmaceuticals, Inc., 874 F.2d 307 (5th Cir. 1989), *petition for rehearing denied* 884 F.2d 166, *petition for rehearing en banc denied* 884 F.2d 167 (1989), *cert. denied* 494 U.S. 1046 (1990). See also, Note, "What is the Court's Role in Evaluating Expert Testimony?" 64 Tul. L. Rev. 1263 (1990).

there was a wealth of published epidemiological data none of which had concluded that the drug is teratogenic; that plaintiff's experts' re-evaluation of this data was statistically flawed; and that their conclusions were not published and therefore had escaped peer reviews.

If counsel believes that his opponent will rely on such an opinion, he should begin to develop his record for the exclusion of the opinion during the deposition stage, move to exclude the opinion on a motion *in limine* or a combination motion *in limine* and for summary judgment, renew the motion at the end of the *voir dire* of the expert and move to strike it at the conclusion of the cross-examination.

Successful challenges have been made to causation experts:

(1) Who are not qualified in the field of expertise covered by their testimony;[5]

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[5] *First Circuit:* Hochen v. Bobst Group, Inc., 290 F.3d 446 (1st Cir. 2002) (affirming exclusion of expert's testimony found unreliable and irrelevant because expert lacked requisite expertise in particular printing press and particular type of accident).

Second Circuit: Cacciola v. Selco Balers, Inc., 127 F. Supp.2d 175 (E.D.N.Y. 2001) (excluding expert testimony of engineer that baler's safety switch was too easily bypassed where testimony was not based on technical or specialized knowledge or experience); Rubinstein v. Marsh, 1987 WL 30608 (E.D.N.Y. 1987).

Third Circuit: Larsen v. International Business Machines, 87 F.R.D. 602 (E.D. Pa. 1980).

Sixth Circuit: Berry v. Crown Equipment Corp., 108 F. Supp.2d 743 (E.D. Mich. 2000) (granting defendant's motion for summary judgment in product liability action where plaintiff's safety consultant lacked the qualifications necessary to render an expert opinion regarding the allegedly defective design of a stand-up forklift, never tested his hypothesis against other possible safety risks, and never reviewed tests performed by manufacturer).

Seventh Circuit: Teerling v. Fleetwood Motor Homes of Indiana Inc., 2001 WL 641337 (N.D. Ill. Aug. 9, 2001) (excluding expert testimony because expert, who had expertise in automobile mechanics, lacked necessary scientific, technical or other specialized knowledge relating to motor homes); Nemmers v. United States, 681 F. Supp. 567 (C.D. Ill. 1988), *aff'd* 870 F.2d 426 (7th Cir. 1989) (actuary prohibited from testifying about future economic projections).

Ninth Circuit: Gebhardt v. Mentor Corp., 15 Fed. App. 540 (9th Cir. 2001) (no abuse of discretion in excluding expert testimony because expert lacked requisite education and training to offer opinion as to how warning label would have affected a surgeon's decision to use a medical device).

Tenth Circuit: Smith v. Pfizer, Inc., Civ. No. 98-4156-CM, 2001 U.S. Dist. LEXIS 12983 (D. Kan. Aug. 14, 2001) (expert allowed to testify that anti-depressant drug Zoloft was the specific cause of suicide, using differential diagnosis to eliminate other causes; however, expert was not qualified to give his opinions on either general causation or adequacy of the manufacturer's warnings).

Eleventh Circuit: Will v. Richardson-Merrell, Inc., 647 F. Supp. 544 (S.D. Ga. 1986) (plastic surgeon not qualified to testify as expert in Bendectin case).

(2) Who do not have a theory that is recognized by the scientific community;[6]

State Courts:

Alabama: Weaver v. Shoals Pest Control, No. 92-000287 (Ala. Civ. App. Aug. 25, 1999) (granting summary judgment and excluding expert medical opinions because experts were unqualified in the relevant fields of neuropsychology and neurology).

New Jersey: Thompson v. Merrell Dow Pharmaceuticals, Inc., 229 N.J. Supp. 230, 551 A.2d 177 (N.J. Sup. 1988) (pharmacologist not qualified to testify on cause of birth defects allegedly caused by Bendectin).

Texas: Praytor v. Ford Motor Co., No. 14-01-00734-CV, 2002 WL 3176280 (Tex. Ct. App. Dec. 12, 2002) (affirming summary judgment based on trial court's conclusion that plaintiff's causation experts were not qualified and their opinions were not reliable).

But see:

Second Circuit: King v. Brandtjen & Kluge, Inc., 2001 U.S. Dist. LEXIS 21102 (W.D.N.Y. 2001) (admitting expert testimony regarding platen press and stating that two experts who had had "decades of experience" in a relevant industry (i.e., printing) and had dealt extensively with the type of equipment at issue need not be experienced with the *precise* issue for which opinion was proffered; moreover, testimony of one of the experts was reliable even though he was not an academically trained engineer and had not published articles on machine guarding in peer-reviewed journals).

State Courts:

Missouri: Elam v. Alcolac, Inc., 765 S.W.2d 42 (Mo.), *cert. denied* 493 U.S. 817 (1989).

Pennsylvania: Ford v. Philadelphia Housing Authority, No. 1086 C.D. 2001, 2001 Pa. Commw. LEXIS 873 (Pa. Commw. Ct. 2001) (neuroscientists allowed to testify in action alleging exposure to lead paint although they were not licensed to practice psychology in Pennsylvania; by statute, Pennsylvania permits members of other recognized professions to do work of a psychological nature consistent with training and code of ethics of their profession, and neuroscience satisfies requirements of the statute).

6 *First Circuit:* Lynch v. Merrell-National Laboratories, 830 F.2d 1190 (1st Cir. 1987).

Second Circuit: Ewad v. Merck & Co., 95 Civ. 8779, 1999 U.S. Dist. LEXIS 13402 (S.D.N.Y. 1999) (rejecting expert's testimony that rubella vaccine causes chronic arthritis and arteralgia because it did not represent reliable science).

Third Circuit: Kent v. Howell Electric Motors, Civ. 96-7221, 1999 U.S. Dist. LEXIS 10940 (E.D. Pa. July 20, 1999) (expert testimony was based on unreliable methodology and, thus, inadmissible).

Fourth Circuit: Oglesby v. General Motors Corp., 190 F.3d 244 (4th Cir. 1999) (testimony of mechanical engineer was insufficiently reliable to be admissible); Ruffin v. Shaw Industries Inc., 149 F.3d 294 (4th Cir. 1998) (evaluation report inadmissible because technique used was not accepted by the general scientific community); Newman v. Motorola, Inc., 218 F. Supp.2d 769 (D. Md. 2002) (experts' opinions linking cellular telephones to consumer's brain cancer not reliable because opinion had not gained general acceptance in the scientific community); Shreve v. Sears, Roebuck & Co., 166 F. Supp.2d 378 (D. Md. 2001) (excluding mechanical engineer's opinion regarding defects in snow blower because methodology by which expert arrived at opinion lacked technological validity in the field of engineering—his hypothesis was not tested, there was no empirical data to support his conclusions and, moreover, the expert was not qualified to testify about snow blowers); Hartwell v. Danek Medical, Inc., 47 F. Supp.2d 703 (W.D. Va. 1999) (expert opinions

inadmissible because methodologies were not generally accepted by scientific community and opinions had not been subjected to peer review); Estate of Lam v. Upjohn Co., No. 94-0033-H, 1995 WL 441894 (W.D. Va. 1995) (relying on Daubert v. Merrill Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993), discussed at § 13.04[3][a] *infra*) (precluding introduction of testimony of plaintiff's expert witness because the court found that the expert stood alone in his theory that Halcion causes suicidal or homicidal behavior, that his causation theories had not been subject to peer review, that the data was anecdotal, and that the methodology was essentially an estimate incapable of producing a testable rate of error).

Fifth Circuit: Brock v. Merrell Dow Pharmaceuticals, Inc., 874 F.2d 307 (5th Cir. 1989), *petition for rehearing denied* 884 F.2d 166, *petition for rehearing en banc denied* 884 F.2d 167 (1989), *cert. denied* 494 U.S. 1046 (1990); Barrel of Fun, Inc. v. State Farm Fire and Casualty Co., 739 F.2d 1028 (5th Cir. 1984); Silharath v. Sandoz Pharmaceuticals Corp., 131 F. Supp.2d 1347 (N.D. Ga. 2001) (granting defendant's motion to exclude the testimony of five experts who opined that Parlodel, a bromocriptine drug used to suppress post-partum lactation, was the medical cause of two women's strokes; the opinions lacked scientific reliability because they had neither been validated by testing nor subjected to peer review except for some statements made in medical treatises and, moreover, the theory was not generally accepted in the scientific community); Pipitone v. Biomatrix, Inc., C.A. No. 00-1449, 2001 U.S. Dist. LEXIS 7030 (E.D. La. May 22, 2001) (finding expert testimony that plaintiff's infection was caused by injection of Syncvisc(r), a drug for the treatment of osteoarthritis of the knee, was without foundational support).

Sixth Circuit: Novak v. United States, 865 F.2d 718 (6th Cir. 1989); Sterling v. Velsicol Chemical Corp., 855 F.2d 1188 (6th Cir. 1989); Nemir v. Mitsubishi Motors Corp., 60 F. Supp.2d 660 (E.D. Mich. 1999) (expert's opinion that automobile seat was defectively designed inadmissible as lacking scientific reliability); Moisenko v. Volkswagen AG, 20 F. Supp.2d 1129 (W.D. Mich. 1998) (excluding expert testimony that automobile door latch mechanism was defective because testimony was not supported by any scientifically valid methodology: expert took no measurements, did not perform any calculations or tests, and did not disassemble latch, and relied on cursory visual inspection to form his opinion).

Seventh Circuit: Bradley v. Brown, 42 F.3d 434 (7th Cir. 1994) (applying *Daubert v. Merrill Dow Pharmaceuticals, Inc*., discussed at § 13.04[3][a] *infra,* the court rejected plaintiffs' experts' testimony on the subject of Multiple Chemical Sensitivity ("MCS") on the ground that it lacked sufficient scientific basis in a case where the plaintiffs suffered injuries allegedly caused by their exposure to insecticide residue in their workplace); Valente v. Sofamor, S.N.C., 48 F. Supp.2d 862 (E.D. Wis. 1999) (medical testimony inadmissible because expert's methodology was invalid in that he failed to use scientific method of reasoning and failed to specifically identify any design defects).

Eighth Circuit: Sorensen v. Shaklee Corp., 31 F.3d 638 (8th Cir. 1994) (affirming summary judgment in favor of defendants in products liability action brought by parents seeking recovery for mental retardation of children allegedly caused by parents' consumption of alfalfa tablets because, *inter alia,* proposed expert testimony lacked sufficient scientific value to show how chemical could have caused mental retardation).

District of Columbia Circuit: Ealy v. Richardson-Merrell, Inc., 897 F.2d 1159 (D.C. Cir. 1990), *cert. denied* 498 U.S. 950 (1991); Richardson v. Richardson-Merrell, Inc., 857 F.2d 823 (D.C. Cir. 1988), *cert. denied* 493 U.S. 882 (1989). The seminal decision is Frye v. United States, 293 F. 1013 (D.C. Cir. 1923).

State Courts:

Florida: E.I. Du Pont De Nemours & Co. v. Castillo, 748 So.2d 1108 (Fla. Ct. App. 2000) (expert's conclusion excluded because inconsistent with generally accepted means of conducting tetrology studies).

(3) Whose theory is inconsistent with the facts or whose facts amount to mere speculation;[7]

Massachusetts: Hughes v. Graham, No. 91-CV-00271 (Mass. Comm. Housing Dec. 20, 1994) (applying *Daubert v. Merrill Dow Pharmaceuticals, Inc.*, discussed at § 13.04[3][a] *infra,* the court rejected testimony of expert whose methodology in evaluating the harmful effects of children's exposure to lead was outdated and not scientifically valid by current standards).

Minnesota: Goebs v. Tharaldson, CX-98-2275, 1999 Minn. App. LEXIS 900 (Minn. App. Aug. 3, 1999) (medical expert's testimony excluded because expert's diagnostic method was unreliable).

Missouri: McReynolds v. Mindrup, No. WD 60747, 2002 WL 31162729 (Mo. Ct. App. Oct. 1, 2002) (exclusion of treating medical professionals' proffered scientific testimony proper because it failed the *Frye* test, but trial court abused its discretion by excluding non-scientific testimony of medical professionals since they could testify as fact witnesses).

New Jersey: Kemp v. New Jersey, 809 A.2d 77 (N.J. 2002) (holding that trial court is required to conduct hearing when faced with a not yet generally accepted theory of causation from proposed expert witness).

New York: Collins v. Welch, 678 N.Y.S.2d 444 (N.Y. Sup. 1998) (finding testimony in support of multiple chemical sensitivity (MCS) syndrome diagnosis inadmissible because it has not gained general acceptance in relevant scientific community); Stiner v. A.P. Green, No. 1988-1666 (N.Y. Sup. Nov. 20, 1998) (expert testimony linking polio vaccine to a particular disease inadmissible for failing to meet standard that proposed testimony be based on a generally accepted, sufficiently established scientific principle).

Pennsylvania: Checcio v. Frankford Hospital-Torresdale Div., 717 A.2d 1058 (Pa. 1997) (upholding lower court's exclusion of evidence on grounds that the experts failed to demonstrate that their opinions were based on scientific, rather than subjective, grounds); Blum v. Merrell Dow Pharmaceutical, Inc., No. 3711 (Pa. Super. Dec. 29, 1997) (finding expert's scientific evidence of causation that included epidemiological studies and animal testing inadmissible under the *Frye* test requiring that scientific evidence be generally accepted by the scientific community in the particular field of expertise); Wimberly v. Wyeth Laboratories, Inc., No. 94-C-1364 (Pa. C.P. June 11, 1998) (dismissing a claim against contraceptive manufacturer on the grounds that the plaintiff's expert testimony of a casual relationship between the contraceptive and her stroke did not have the medical community's general acceptance).

But see:

Oregon: Jennings v. Baxter Healthcare Corp., 954 P.2d 829, 831 (Ore. App. 1997) (holding expert testimony was erroneously excluded where expert used recognized scientific methods to conclude that silicone from breast implants caused woman's neurological symptoms; exclusion was erroneous even though expert's theory was novel, his scientific study was not published or peer-reviewed, and expert testified that he did not understand the mechanism of causation).

[7] *First Circuit:* Saia v. Sears, Roebuck & Co., 47 F. Supp.2d 141 (D. Mass. 1999) (expert testimony on calculation of hedonic damages based on willingness-to-pay economic model inadmissible because model was based on unvalidated assumptions).

Second Circuit: Shatkin v. McDonnell Douglas Corp., 727 F.2d 202 (2d Cir. 1984); Groome v. Matsushita Electric Corp., 92 CV 3073(NG), 2000 U.S. Dist. LEXIS 4082 (E.D.N.Y. Mar. 30, 2000) (expert testimony about alleged defects in microwave oven inadmissible because opinions assumed facts for which there was no evidentiary basis); Mancuso v. Consolidated Edison Co., 56 F. Supp.2d 391 (S.D.N.Y. 1999) (calling proposed expert testimony proposed "clearly unworthy of reliance").

(4) Whose data are unreliable, particularly if the data are derived from reliance on animal studies;[8]

Third Circuit: United States v. Downing, 753 F.2d 1224 (3d Cir. 1985), *on remand* 609 F. Supp. 784 (E.D. Pa. 1985), *aff'd* 780 F.2d 1017 (3d Cir. 1985); Pennsylvania Dental Association v. Medical Service Association of Pennsylvania, 745 F.2d 248 (3d Cir. 1984), *cert. denied* 471 U.S. 1016 (1985).

Fourth Circuit: Chase v. General Motors Corp., 856 F.2d 17 (4th Cir. 1988); Newman v. Hy-Way Heat Systems, Inc., 789 F.2d 269 (4th Cir. 1986); Marder v. G.D. Searle & Co., 630 F. Supp. 1087 (D. Md. 1986), *aff'd sub nom.* Wheelahan v. G.D. Searle & Co., 814 F.2d 655 (4th Cir. 1987).

Sixth Circuit: Brock v. Caterpillar Inc., 94 F.3d 220 (6th Cir. 1996) (overturning $950,000 award to plaintiff who suffered injuries after bulldozer's brake system failed, because trial court improperly admitted expert testimony which compared bulldozer's brake system to later model and the two models were too dissimilar to warrant comparison); Novak v. United States, 865 F.2d 718 (6th Cir. 1989); Stewart v. General Motors Corp., 222 F. Supp.2d 845 (W.D. Ky. 2002) (finding expert's testimony regarding automobile airbag insufficient to prove that safety device was unreasonably dangerous because expert's description of airbag failed to explain why he thought it was defective or unreasonably dangerous).

Seventh Circuit: Deimer v. Cincinnati Sub-Zero Products, Inc., CCH Prod. Liab. Rep. ¶ 14,262 (7th Cir. 1995) (expert testimony inadmissible based on court's finding that testimony consisted of unverified statements unsupported by any scientific method).

Eighth Circuit: Smith v. BMW North America Inc., No. 1:98-Cv-00123-WRW (E.D. Ark. July 5, 2001) (following *Daubert* challenge by defendant, excluding testimony of plaintiff's two experts and granting summary judgment dismissing action in airbag defect case because experts could not identify specific defect or articulate valid basis for their assertions).

Tenth Circuit: Turpin v. Merrill Dow Pharmaceuticals, Inc., 959 F.2d 1349 (10th Cir.), *cert. denied* 113 S.Ct. 84 (1992) (expert's opinion in Bendectin case rejected by court as based on personal opinion not science).

Eleventh Circuit: American Key Corp. v. Cole National Corp., 762 F.2d 1569 (11th Cir. 1985).

State Courts:

Massachusetts: Fidalgo v. Columbus McKinnon Corp., 775 N.E.2d 803 (Mass. App. Ct. 2002) (excluding testimony regarding experts' theory of causation as too speculative to support a reasonable inference regarding the accident's causes where experts were unable to replicate the theoretical phenomenon); Ducharme v. Hyundai Motor America, 698 N.E.2d 412 (Mass. App. Ct. 1998) (rejecting expert's opinion that automobile did not comply with federal safety standard requirements on grounds that it was speculative).

[8] *First Circuit:* Lynch v. Merrill National Laboratories, 646 F. Supp. 856 (D. Mass. 1986), *aff'd* 830 F.2d 130 (1st Cir. 1987).

Second Circuit: In re "Agent Orange" Product Liability Litigation, 611 F. Supp. 1267 (E.D.N.Y. 1985), *aff'd* 818 F.2d 187 (2d Cir. 1987), *cert. denied* 487 U.S. 1234 (1988).

Fifth Circuit: Allen v. Pennsylvania Engineering Corp., 102 F.3d 194 (5th Cir. 1996) (finding that animal studies are of limited use in issues of human toxicity); Brock v. Merrill Dow Pharmaceuticals, Inc., 874 F.2d 307 (5th Cir. 1989), *petition for rehearing denied* 884 F.2d 166, *petition for rehearing en banc denied* 884 F.2d 167 (1989).

Ninth Circuit: Oregon Environmental Council v. Kruzman, 636 F. Supp. 632 (D. Ore. 1986), *aff'd* 817 F.2d 484 (9th Cir. 1987). *But cf.*, Metabolife v. Wornick, 264 F.3d 832 (9th Cir. 2001) (finding abuse of discretion in district court's exclusion of research based on animal studies).

(5) Who attempt to offer on direct examination facts they relied on in forming their opinion that are prejudicial or otherwise inadmissible;[9]

(6) Who present in court opinions that they have not attempted to publish or to subject to peer review;[10] and

(7) Whose expert opinions contain legal opinions on the ultimate issue.[10.1]

Tenth Circuit: Mitchell v. Gencorp Inc., 165 F.3d 778 (10th Cir. 1999) (finding expert testimony unreliable and inadmissible for failure to establish through scientific data worker's level of exposure to toxic chemicals).

Eleventh Circuit: Rider v. Sandoz Pharmaceuticals Corp., 295 F.3d 1194 (11th Cir. 2002) (in action involving Parlodel, court found plaintiff's proffered scientific basis for theory of causation legally unreliable and inadmissible; studies on animals did not establish that the results would be the same for humans).

District of Columbia Circuit: Richardson v. Richardson-Merrell, Inc., 857 F.2d 823 (D.C. Cir. 1988), *cert. denied* 493 U.S. 882 (1989). *Cf.,* Ambrosini v. Labarraque, CCH Prod. Liab. Rep. ¶ 13,202 (D.C. Cir. 1992).

State Courts:

California: Anderson v. Dow Chemical Co., No. 808161 (Cal. Super. Apr. 4, 1989).

Pennsylvania: Blum v. Merrell Dow Pharmaceuticals, Inc., 764 A.2d 1 (Pa. 2000) (reversing denial of defendant's motion for judgment N.O.V. on ground that scientific expert's testimony presented on causation in a prescription drug liability case was unreliable and therefore inadmissible).

Texas: Neal v. Dow Agrosciences LLC, 74 S.W.3d 468 (Tex. Ct. App. 2002) (expert testimony that insecticide caused infant's fatal brain tumor inadmissible; expert based causation testimony on scientific articles, none of which concluded or showed a statistically significant association between insecticide and tumor).

But see, Eve v. Sandoz Pharmaceuticals Corp., No. IP 98-1429-C-Y/S (S.D. Ind. Mar. 7, 2001) (admitting expert testimony regarding harmful effects of the drug Parlodel, even though based on circumstantial evidence derived from case reports, adverse drug reaction reports, FDA regulatory findings, peer-reviewed articles, animal studies and a review of the plaintiff's medical records because one cannot practically conduct an epidemiological study of the association of Parlodel with postpartum stroke, and cannot ethically experiment on human beings just to satisfy an evidentiary standard).

[9] *Fifth Circuit:* In re Air Crash Disaster at New Orleans, Louisiana, 795 F.2d 1230 (5th Cir. 1986) (dictum).

Seventh Circuit: Nachtscheim v. Beech Aircraft Corp., 847 F.2d 1261 (7th Cir. 1988).

Tenth Circuit: Marsee v. U.S. Tobacco Co., 866 F.2d 319 (10th Cir. 1989).

Eleventh Circuit: Perry v. United States, 755 F.2d 888 (11th Cir. 1985).

[10] *Second Circuit:* Ewad v. Merck & Co., 95 Civ. 8779, 1999 U.S. Dist. LEXIS 13402 (S.D.N.Y. 1999) (excluding expert testimony).

Fifth Circuit: Brumley v. Pfizer Inc., 149 F. Supp.2d 305 (S.D. Tex. 2001) (expert testimony linking increased health risks in coronary artery disease patient to his use of Viagra excluded because conclusions had neither been tested nor subjected to peer review).

District of Columbia Circuit: Richardson v. Richardson-Merrill, Inc., 857 F.2d 823 (D.C. Cir. 1988), *cert. denied* 493 U.S. 882 (1989). *Cf.,* Ambrosini v. Labarraque, CCH Prod. Liab. Rep. ¶ 13,202 (D.C. Cir. 1992) (reversing district court's granting of summary judgment for manufacturer).

[10.1] *Second Circuit:* See Andrews v. Metro North Commuter Railroad Co., 882 F.2d 705 (2d Cir. 1989) (permitting an expert to testify that the defendant was negligent resulted in the submission to the jury of a legal standard of care promulgated not by the court or the legislature but by an inexperienced layman posing as a railroad expert).

[a]—The *Daubert* Standard

In 1993, the United States Supreme Court in *Daubert v. Merrill Dow Pharmaceuticals, Inc.*[11] clarified the grounds upon which an expert's opinion can be excluded or challenged in the federal courts. The narrow issue before the Court was whether the expert's opinion must be excluded if it is based on a scientific technique that is not "generally accepted" as reliable in the relevant scientific community. The Court ruled that the "general acceptance" standard was incompatible with the Federal Rules of Evidence and should not be applied in the federal courts.

The court went on to point out, however, that under those Rules the trial judge must ensure that any and all scientific testimony or evidence is not only relevant, but reliable.[11.1] The court noted that the trial court could consider the following factors: whether the theory or technique in question could be and had been tested; whether it was

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Fifth Circuit: Owen v. Kerr-McGee Corp., 698 F.2d 236 (5th Cir. 1983).

Ninth Circuit: Frosty v. Textron, Inc., CCH Prod. Liab. Rep. ¶ 14,266 (D. Ore. 1995) (granting summary judgment for helicopter manufacturer on grounds that plaintiff's expert testimony on the useful safe life of a helicopter was based solely on personal opinion regarding the issue of whether the statute of repose applied to a product liability action).

Tenth Circuit: Specht v. Jensen, 853 F.2d 805 (10th Cir. 1988), *cert. denied* 109 S.Ct. 792 (1992).

State Courts:

Massachusetts: Puopolo v. Honda Motor Co., 41 Mass. App. 96, 668 N.E.2d 855 (1996) (upholding ruling by trial court that expert testimony should be excluded because it addressed the ultimate issue in the case, whether or not vehicle was unreasonably dangerous as designed).

Vermont: Reiss v. A.O. Smith Corp., 150 Vt. 527, 556 A.2d 68 (1988).

[11] Daubert v. Merrill Dow Pharmaceuticals, Inc., 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993). See also:

Second Circuit: In re Joint Eastern & Southern District Asbestos Litigation, 52 F.3d 1124 (2d Cir. 1995) (reversing summary judgment for manufacturer where trial court improperly assessed strength and validity of scientific evidence and improperly conducted an independent assessment of the scientific evidence).

Fourth Circuit: Estate of Lam v. Upjohn Co., No. 94-0033-H, 1995 WL 441894 (W.D. Va. 1995) (relying on *Daubert,* precluding introduction of testimony of plaintiff's expert witness because the court found that the expert stood alone in his theory that Halcion causes suicidal or homicidal behavior, that his causation theories had not been subject to peer review, that the data was anecdotal, and that the methodology was essentially an estimate incapable of producing a testable rate of error).

[11.1] See Carmichael v. Samyang Tire, Inc., 131 F.3d 1433 (11th Cir. 1997) (holding that judicial analysis of scientific reliability was required only if the expert had based his testimony on the application of scientific principles or theories and not if he had based his testimony on his expert skill and experience in analyzing the product's failure).

subject to peer review and publication; its known or potential error rate and the existence and maintenance of standards controlling its operation; and whether it had attracted widespread acceptance within a relevant scientific community. The Court also noted that the Federal Rules of Evidence provide that an expert opinion based on otherwise inadmissible hearsay is to be admitted only if the facts or data are of a type reasonably relied upon by experts in the particular field in forming opinions or inference upon the subject, and that these opinions can be excluded if their probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues or of misleading the jury.

Finally, the Court pointed out that vigorous cross examination, presentation of contrary evidence and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but inadmissible evidence, and that the court remains free to direct a verdict and to enter summary judgment.

The lower federal courts have generally interpreted the *Daubert* decision as granting them license to reduce substantially the scope of expert testimony. For example, the Eighth Circuit has affirmed the exclusion of expert testimony concerning how ingestion of alfalfa tablets by plaintiffs' parents could have caused their mental retardation.[11.2] Similarly, the Seventh Circuit affirmed exclusion of expert testimony related to Multiple Chemical Sensitivity Disorder on the ground that the proposed testimony was overly speculative and subjective.[11.3] Review under the *Daubert* standard has resulted in exclusion of expert testimony in numerous additional cases.[11.4] While some states' highest

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[11.2] Sorensen v. Shaklee Corp., 31 F.3d 638 (8th Cir. 1994) (reasoning that (1) the theory upon which the opinion was based had not achieved general acceptance in the scientific community, (2) the opinion was not supported by any scientific tests or literature, and (3) the opinion had not been subjected to peer review).

[11.3] Bradley v. Brown, 42 F.3d 434 (7th Cir. 1994). See also, Pries v. Honda Motor Co., 31 F.3d 543 (7th Cir. 1994) (finding that expert's purported test of a seat belt buckle—by dropping it on a hard surface to determine whether it would open—was unscientific because the expert could not opine that the buckle was subject to similar forces during an accident).

[11.4] See, e.g.:

First Circuit: Sutera v. Perrier Group of America, Inc., 986 F. Supp. 655 (D. Mass. 1997) (expert testimony on causation issue held to be inadmissible for want of scientific reliability where expert's theory was merely hypothesis with no known or potential rate of error or peer review study to support it).

Second Circuit: Amorgianos v. National Railroad Passenger Corp., 303 F.3d 256 (2d Cir. 2002) (upholding district court's exclusion of expert testimony regarding causal relationship between plaintiff's neurological injuries and exposure to paint solvent).

Third Circuit: Oddi v. Ford Motor Co., 234 F.3d 136 (3d Cir. 2000) (affirming district court's decision to exclude expert testimony asserting that truck was not crashworthy due to defective design of front bumper and cab floor where expert failed (1) to test alternative designs consider possibility that accident was attributable to design of guard rail rather than truck, (2) to calculate force of impact in accident, (3) to measure strength of guard rail, (4) to calculate tensile strength or gauge of metal that should have been used in his alternative designs and (5) based his opinions on nothing more than his training and experience as engineer); Booth v. Black & Decker, Inc., C.A. No. 98-6352, 2001 U.S. Dist. LEXIS 4495 (E.D. Pa. Apr. 12, 2001) (granting summary judgment to defendant and rejecting plaintiff expert's testimony regarding whether toaster oven caused house fire because methodology was unreliable; holding that although *Daubert* does not require a paradigm of scientific inquiry as a condition precedent to admitting expert testimony, it does require more than the haphazard, intuitive inquiry that plaintiff's expert engaged in); Reiff v. Convergent Technologies, 957 F. Supp. 573, 583 (D.N.J. 1997) (finding experts' testimony on causation unreliable and unhelpful to trier of fact where experts failed to account for possible alternative causes of harm and neglected to provide insight as to the specific cause of plaintiff's injuries).

Fourth Circuit: Phelan v. Synthes U.S.A., No. 01-2045, 2002 WL 1058900 (4th Cir. May 28, 2002) (biomedical engineer's testimony that nail was defective was based on engineering principles that were too general to reliably support conclusion that nail could not withstand stress); Ballinger v. Atkins, 947 F. Supp. 925 (E.D. Va. 1996) (holding expert testimony of biochemist and internist concerning risks of consuming aspartame failed to meet reliability prong of *Daubert* because testimony was no more than "working hypothesis" and had not been tested or confirmed by controlled study); Estate of Lam v. Upjohn Co., 1995 WL 441894 (W.D. Va. 1995).

Fifth Circuit: IQ Products Co. v. Pennzoil Products Co., 305 F.3d 368 (5th Cir. 2002) (affirming trial court's exclusion of experts' testimony in false advertising case because experts failed to conduct reliable surveys or market research to support their conclusions that plaintiff was harmed by defendant's statements); Moore v. Ashland Chemical Inc., 151 F.3d 269 (5th Cir. 1998), *cert. denied* 119 S.Ct. 1454 (1999) (upholding district court's exclusion of expert's testimony regarding causal relationship between worker's exposure to industrial chemicals and his pulmonary illness because bases for expert's opinion were inadequate under *Daubert*); Guillory v. Domtar Industries Inc., 95 F.3d 1320 (5th Cir. 1996) (upholding district court's refusal to admit expert evidence as "unfounded and misleading" under *Daubert* standard; defendant attempted to introduce videotape of model forklift which was different from forklift which actually caused injuries to plaintiff); Allen v. Pennsylvania Engineering Corp., 102 F.3d 194 (5th Cir. 1996) (affirming summary judgment for manufacturer of chemical used to sterilize hospital equipment because plaintiff's expert testimony did not meet reliability prong of *Daubert* standard; expert did not show statistically significant link between exposure to chemical and human brain cancer and did not offer proof regarding specific causation); Wooley v. Smith & Nephew Richards, Inc., 67 F. Supp.2d 703 (S.D. Tex. 1999) (granting defendant's motion to exclude expert testimony regarding defectiveness of pedicle screw used in spinal surgery because testimony failed to satisfy *Daubert's* criteria for scientific reliability).

Sixth Circuit: Downs v. Perstorp Components, Inc., 2002 U.S. App. LEXIS 382, 26 Fed. Appx. 472 (6th Cir. 2002) (unpublished) (affirming exclusion of testimony of expert who failed to properly identify chemicals that allegedly caused neurological problems); Nelson v. Tennessee Gas Pipeline Co., 243 F.3d 244 (6th Cir. 2001) (in class action relating to injury arising from exposure to polychlorinated biphenyls (PCBs), court held that expert testimony was properly excluded because it was not grounded on valid scientific methodology and was not reliable); Kamp v. FMC Corp., No. Civ.A.99-70028, 2002 WL 1480798 (E.D. Mich. June 27, 2002) (rejecting testimony that pesticide sprayer was

defective and unreasonably dangerous because it was based on improper methodology); Kurncz v. Honda North America, Inc., 166 F.R.D. 386 (W.D. Mich. 1996) (rejecting expert testimony that calculated damages for head injuries incurred while driving all-terrain vehicle because expert's valuation did not meet *Daubert* standards; "willingness to pay" model used by expert was not considered relevant).

Seventh Circuit: Chapman v. Maytag Corp., 297 F.3d 682 (7th Cir. 2002) (mechanical engineer's testimony that alleged defects in electrically powered gas range caused consumer's death was scientifically unreliable because his theory had not been generally accepted by the scientific community and was unpublished); Burns Philp Food v. Cavalea Continental, 135 F.3d 526 (7th Cir. 1998) (upholding *Daubert* exclusion of testimony and holding approach taken by the expert as crude attempt to avoid unfavorable results); Cumins v. Lyle Industries, 93 F.3d 362 (7th Cir. 1996) (affirming trial court's exclusion of testimony regarding alternative design for trim press under *Daubert* because testimony lacked scientific basis—expert never tested his observations nor read any studies of similar tests); Caraker v. Sandoz Pharmaceuticals Corp., 188 F. Supp.2d 1026 (S.D. Ill. 2001) (excluding expert testimony in action arising from use of drug Parlodel because causation opinions presented by toxicologist and neurologist linking the drug to intracerebral hemorrhages were scientifically unreliable and thus inadmissible under *Daubert*); Masters v. Hesston Corp., 2001 WL 567736 (N.D. Ill. May 24, 2001) (excluding expert testimony under *Daubert* principles because expert failed to propose a practical alternative design for hay baler).

Eighth Circuit: Giles v. Miners, Inc., 242 F.3d 810 (8th Cir. 2001) (in case involving injury to child's hand when it became stuck to the inside of a grocery store freezer and became frostbitten, court held that expert testimony was properly excluded because the expert failed to analyze how his proposed alternative design of insertion of mesh guard would interact with the freezer's engineering and sanitary regulations); Glastetter v. Novartis Pharmaceuticals Corp., 252 F.3d 986 (8th Cir. 2001) (upholding exclusion of medical expert's testimony because it lacked proper basis for "ruling in" the drug Parlodel, a drug used to suppress postpartum lactation, as the possible cause of plaintiff's intracerebral hemorrhage); J. B. Hunt Transport, Inc. v. General Motors Corp., 243 F.3d 441 (8th Cir. 2001) (excluding opinions of foamology and accident reconstruction experts in automobile accident case because they were not "scientifically valid" and were based on insufficient evidence); Jaurequi v. Carter Manufacturing Co., 173 F.3d 1076 (8th Cir. 1999) (holding *Daubert* standard applicable to both technical and scientific data and excluding expert's testimony in design defect and failure to warn action because testimony was speculative and unreliable); Peitzmeier v. Hennessy Industries Inc., 97 F.3d 293 (8th Cir. 1996), *cert. denied* 520 U.S. 1196 (1997) (affirming that expert evidence did not meet *Daubert* standard because it was neither properly tested nor submitted for peer review); Nelson v. American Home Products, 92 F. Supp.2d 954 (W.D. Mo. 2000) (granting summary judgment for defendants because expert's opinions on effects of prescription heart medication, developed exclusively for litigation and which had neither been tested nor subjected to peer review, were not sufficiently reliable); Willert v. Ortho Pharmaceutical Corp., 995 F. Supp. 979 (D. Minn. 1998) (no causal connection between drug's use and diseases could be established by expert testimony because testimony lacked scientific reliability, was based on case reports and anecdotal evidence mentioned in medical literature and on the temporal proximity between drug's prescription and illness' onset, and expert was unable to identify any study, peer review or general acceptance by scientific community to support his theory); Mascarenas v. Miles Inc., 986 F. Supp. 582 (D. Mo. 1997) (striking expert testimony in action involving alleged cancer causing product because plaintiff's experts did not rule out or attempt to rule out any other possible causes, were not able to estimate plaintiff's exposure to the cancer causing agents, and did not conduct any independent study on product's effects or subject their opinion to peer review).

Ninth Circuit: Kennedy v. Collagen Co., 161 F.3d 1226 (9th Cir. 1998), *cert. denied* 119 S.Ct. 1577 (1999) (expert's testimony was improperly excluded — expert used traditional scientific methodology to determine that collagen injections resulted in plaintiff's lupus; the absence of additional scientific studies went to weight, not admissibility, of the evidence); Schudel v. General Electric Co., 120 F.3d 991 (9th Cir. 1997), *cert. denied sub nom.* Carlson v. General Electric Co., 118 S.Ct. 1560 (1998). (affirming exclusion of "differential diagnosis" or "whole person aggravation" testimony by causation expert because scientifically unreliable and irrelevant under *Daubert*); Diviero v. Uniroyal Goodrich Tire Co., 114 F.3d 851 (9th Cir. 1997) (ruling expert testimony inadmissible under the Fed. R. Civ. P. 702 reliability standard where plaintiff's expert witness was unable to dismiss other causes for accident at issue, lacked knowledge of alleged tire defect, and was unable to explain reasoning for his opinions); Smith v. Chrysler Corp., 97 CCH Prod. Liab. Rep. ¶ 15,197 (D. Ore. 1998) (excluding expert testimony about a seat belt's alleged defectiveness because his opinion was totally subjective, not supported by scientific methodology, knowledge or independent testing by the expert); Hall v. Baxter Healthcare Corp., 947 F. Supp 1387 (D. Ore. 1996) (ruling that plaintiff's expert evidence in breast implant case failed to meet reliability prong of *Daubert* and thus did not prove medical probability of causal connection); Casey v. Ohio Medical Products, 877 F. Supp. 1380 (N.D. Cal. 1995).

Tenth Circuit: Summers v. Missouri Pacific Railroad, 132 F.3d 599 (10th Cir. 1997) (upholding exclusion of expert testimony in exhaust exposure suit where expert applied scientifically valid label to scientifically invalid diagnosis based on patient history, and used physical examinations and tests criticized by the scientific community rather than reliable tests used to confirm such diagnosis); Duffee v. Murray Ohio Manufacturing Co., 91 F.3d 1410 (10th Cir. 1996) (affirming trial court's ruling that expert testimony concerning choice of bicycle braking system was inadmissible under *Daubert* because it lacked scientific validity and was too speculative).

Eleventh Circuit: Rider v. Sandoz Pharmaceuticals Corp., 295 F.3d 1194 (11th Cir. 2002) (in action involving Parlodel, court found plaintiffs' proffered scientific basis for their theory of causation legally unreliable and inadmissible; the epidemiological evidence was inconclusive with regard to causation; the case reports did not demonstrate a relationship between the drug and plaintiffs' strokes); Siharath v. Sandoz Pharmaceuticals Corp., 131 F. Supp.2d 1347 (11th Cir. 2001) (experts' causation reports failed to pass muster under *Daubert,* because in the absence of statistically significant epidemiological studies, they relied heavily on adverse case reports that were insufficient in quantity, nature and content); Haggerty v. Upjohn Co., 950 F. Supp. 1387 (S.D. Fla. 1996), *aff'd* 158 F.3d 588 (11th Cir. 1998) (holding expert testimony of pharmacologist concerning side effects of drug Halcion failed to meet reliability prong of *Daubert* because theory was based on general medical studies and had not been tested nor subject to peer review); Reynard v. NEC Corp., 887 F. Supp. 1500 (M.D. Fla. 1995).

District of Columbia Circuit: Meister v. Medical Engineering Corp., 267 F.3d 1123 (D.C. Cir. 2001) (in "a classic *Daubert* case," court affirmed judgment as a matter of law because of unreliable expert causation testimony in action alleging that plaintiff developed scleroderma as a result of exposure to silicone).

State Courts:

Kentucky: Goodyear Tire & Rubber Co. v. Thompson, 11 S.W.3d 575 (Ky. Sup. 2000) (an expert engineer's opinion concerning design and lack of warnings on a multi-piece tire rim assembly was inadmissible).

Massachusetts: Nercessian v. Volkswagen of America, 14 Mass. L. Rptr. 545 (Mass. Super. Ct. 2002) (excluding causation expert's testimony as unreliable).

Minnesota: Goeb v. Tharaldson, No. C3-92-602051, 1999 WL 561956 (Minn. Dist. Feb. 4, 1998) (concluding that the medical causation testimony proffered by two national experts was inadmissible where the experts' case study and literature relied upon was more anecdotal than scientific and from which it might be inferred that certain causal relationships could conceivably exist).

North Carolina: Howerton v. Arai Helmet Ltd., No. 99 CVS 1424 (N.C. Super. Ct. Feb. 12, 2002) (excluding plaintiff's four causation experts on *Daubert* grounds and granting summary judgment to helmet manufacturer in action arising from injuries sustained while using defendant's off-road helmet).

Pennsylvania: Blum v. Merrell Dow Pharmaceuticals, Inc., 764 A.2d 1 (Pa. 2000) (holding scientific expert's testimony presented on causation in a prescription drug liability case unreliable and therefore inadmissible under *Daubert*).

Cf.:

First Circuit: Correa v. Cruisers, 298 F.3d 13 (1st Cir. 2002) (upholding decision of lower court to allow marine expert's testimony based on visual inspection of marine engine to determine whether engine properly functioned).

Second Circuit: Travelers Property & Casualty Corp. v. General Electric Co., 150 F. Supp.2d 360 (D. Conn. 2001) (allowing expert testimony regarding design defect in clothes dryer because testimony met *Daubert* standards and although expert's theory was not tested, it was capable of being tested); Arnold v. Dow Chemical Co., 32 F. Supp.2d 584 (E.D.N.Y. 1999) (denying defendant's motion to exclude testimony of experts on grounds that experts' conclusions had never been tested in study); Graham v. Playtex Products Inc., 993 F. Supp. 127 (N.D.N.Y. 1998) (denying defendant's motion for summary judgment and ruling that jury should hear expert testimony where defendant had objected to the validity of the expert's conclusions rather than to methodology and had presented no evidence that the scientific community took issue with experts' methodology).

Third Circuit: Heller v. Shaw Industries, 167 F.3d 146 (3d Cir. 1999) (holding *Daubert* did not require expert witness to rely on published studies to prove that plaintiff's respiratory problems were linked to carpeting as long as expert used sufficient diagnostic techniques in reaching conclusion).

Fourth Circuit: Westberry v. Gislaved Gummi AB, 178 F.3d 257 (4th Cir. 1999) (testimony based on differential diagnosis, a standard technique of identifying the cause of a medical problem by eliminating the likely causes until the most probable one is isolated, was admissible and scientifically valid).

Fifth Circuit: Vice v. Northern Telecom, Inc., 1996 WL 200281 (E.D. La. Apr. 23, 1996) (finding expert testimony concerning relationship between computer keyboards and repetitive stress disorder satisfied reliability prong of *Daubert* standard because it was supported by "a substantial body of scientific literature"; specific epidemiological data establishing the relationship was unnecessary).

Sixth Circuit: Clark v. Chrysler, 310 F.3d 461 (6th Cir. 1999) (testimony of expert shown to have specialized knowledge regarding car door latches, extensive experience in bypass failure testing and familiarity with particular door latch involved in case satisfies reliability requirement under *Daubert*).

Seventh Circuit: Eve v. Sandoz Pharmaceuticals Corp., No. IP 98-1429-C-Y/S (S.D. Ind. Mar. 7, 2001) (admitting expert testimony regarding harmful effects of the drug Parlodel because testimony met applicable *Daubert* standard, even though based on circumstantial evidence derived from case reports, adverse drug reaction reports, FDA regulatory findings, peer-reviewed articles, animal studies and a review of the plaintiff's medical records, because one cannot practically conduct an epidemiological study of the association of Parlodel with postpartum stroke, and cannot ethically experiment on human beings just to satisfy an evidentiary standard).

Eighth Circuit: Mattis v. Carlton Electric Products, 295 F.3d 856 (8th Cir. 2002) (finding medical opinion based on proper differential diagnosis sufficiently reliable under *Daubert*); Lauzon v. Senco Products, Inc., 270 F.3d 681 (8th Cir. 2001) (admitting forensic engineer's testimony that design defect caused nail gun to double-fire because the testimony was relevant and reliable under *Daubert* and Federal Rules of Evidence).

courts have expressly adopted the *Daubert* standard,[11.5] at least two other states have rejected it.[11.6]

In 1997 the Supreme Court resolved a split among the circuits and held that abuse of discretion was proper standard to apply when reviewing a district court's ruling under *Daubert*.[11.7]

Eleventh Circuit: Joiner v. General Electric Co., 78 F.3d 524 (11th Cir. 1996) (admitting expert evidence on causation of lung cancer through exposure to polychlorinated biphenyls because evidence was reliable and relevant under *Daubert; Daubert* standards intended for conflicting expert views to be admitted, not excluded, as long as they are scientifically legitimate).

District of Columbia Circuit: Ambrosini v. Upjohn Co., 101 F.3d 129 (D.C. Cir. 1996) (ruling that teratologist's testimony that drug caused birth defects is reliable under *Daubert* even though he failed to explain his scientific methodology; expert ruled out other possible causes for defects based on family history and had significant experience in the field).

State Courts:

Florida: Berry v. CSX Transportation Inc., 709 So.2d 552 (Fla. Dist. Ct. App. 1998) (overturning rejection of expert testimony as going beyond the "general acceptance" inquiry of *Frye* test where expert's diagnosis was based on a scientifically acceptable method and his opinion was based upon sufficient epidemiological data, facts and personal observation).

Pennsylvania: Adams v. Lord Corp., 97 CCH Prod. Liab. Rep. ¶ 15,121 (Pa. Comm. Pleas 1998) (refusing to grant defense summary judgment and ruling plaintiff's experts could testify even if their theory was controversial because they were based on generally accepted principles from their fields of expertise).

[11.5] See:

New Hampshire: Baker Valley Lumber v. Ingersoll-Rand Co., 813 A.2d 409 (N.H. 2002).

Texas: E.I. Dupont de Nemours & Co. v. Robinson, 923 S.W.2d 549 (Tex. 1995).

[11.6] *Alabama:* Slay v. Keller Industries, Inc., No. 1001091, 2001 Ala. LEXIS 439 (declining to adopt *Daubert* standard and conducting analysis of admissibility of testimony regarding aluminum ladder under *Frye* test).

Washington: Washington v. Copeland, 130 Wash.3d 244, 922 P.2d 1304 (1996) (approving admission of DNA and statistical evidence under the *Frye* standard and rejecting use of the *Daubert* standard under Washington rules of evidence).

[11.7] General Electric Co. v. Joiner, 522 U.S. 136, 118 S.Ct. 512, 139 L.Ed.2d 508 (1997) (On certiorari to determine what standard a federal appellate court should apply in reviewing a federal trial court's decision to admit or exclude expert testimony, Court held that abuse of discretion is the appropriate standard and found the district court in instant action did not abuse its discretion by excluding certain proffered expert testimony that indicated a link between exposure to polychlorinated biphenyls and small cell lung cancer.).

See also:

Sixth Circuit: Hardyman v. Norfolk Southern Railway Co., 243 F.3d 255 (6th Cir. 2001) (abuse of discretion for district court to exclude expert testimony on causation, based on differential diagnosis, on grounds that it was conclusory and unsupported by an objective, reliable methodology; differential diagnosis is an accepted method of determining causation).

Seventh Circuit: Burns Philp Food, Inc. v. Cavalea Continental Freight Inc., 135 F.3d 526 (7th Cir. 1998) (applying abuse of discretion standard to uphold *Daubert* exclusion of scientific expert testimony elicited to support an environmental contamination claim).

In 1999, the Supreme Court held in *Kumho Tire Co. v. Carmichael*[11.8] that *Daubert* applied not only to scientific testimony but also to technical testimony.[11.9] *Kumho* was a diversity suit arising from a car crash which occurred when the tire of a vehicle driven by plaintiff blew out and the vehicle overturned, killing one passenger and injuring the others. Plaintiffs' expert, a tire failure analyst intended to testify that, in his expert opinion, a defect in the tire's manufacture or design caused the blow out. His opinion was based on a visual and tactile inspection of the tire. The expert's opinion was based on the theory that in absence of at least two of four specific, physical symptoms indicating tire abuse, the tire failure of the sort which occurred here was caused by a defect. Defendant moved to exclude the expert's testimony for failure to comply with Rule 702, and the district court, applying *Daubert*, excluded the testimony. On appeal, the Eleventh Circuit held that the district court had erred as a matter of law in applying *Daubert* because *Daubert* was limited to the scientific context and not skill or experience based testimony.[11.10] Reversing the Eleventh Circuit's decision, the Supreme Court reasoned that "Rule 702 does not distinguish between 'scientific' knowledge and 'technical' knowledge or 'other specialized' knowledge, but makes clear that any such knowledge might become the subject of expert testimony."[11.11] The Court further reasoned that "it 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, since there is no clear line dividing the one from the others and no convincing need to make such distinctions."[11.12] The Court conceding that "*Daubert* referred only to 'scientific' knowledge, clarified that it was because that was the nature of the expertise at

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Eighth Circuit: National Bank of Commerce v. Dow Chemical, 165 F.3d 602 (8th Cir. 1998) (applying abuse of discretion standard to uphold *Daubert* exclusions in case involving minor plaintiff alleging that birth defects were due to *in utero* exposure to pesticides and deodorant).

Ninth Circuit: Kennedy v. Collagen Corp., 161 F.3d 1226 (9th Cir. 1998), *cert. denied* 119 S.Ct. 1577 (1999) (applying abuse of discretion standard).

State Court:

Delaware: Price v. Blood Bank of Delaware, 790 A.2d 1203 (Del. 2002) (reversing jury verdict rendered for defendant blood bank and remanding for new trial because of trial judge's prejudicial treatment of plaintiff's expert).

[11.8] Kumho Tire Co. v. Carmichael, 526 U.S. 137, 119 S.Ct. 1167, 143 L.Ed.2d 238 (1999).

[11.9] *Id.,* 526 U.S. at 149.

[11.10] *Id.*, 526 U.S. at 137-138.

[11.11] *Id.*, 526 U.S. at 147.

[11.12] *Id.*

issue."[11.13] It further explained that a trial judge determining the admissibility of an expert's testimony may consider one or more of the specific *Daubert* factors[11.14] where they are reasonable measures of the reliability of expert testimony. The Court emphasized that *Daubert* makes it clear that its list of factors does not constitute a definite checklist or test. Rather, according to the Court, the gatekeeping inquiry must be tied to the facts of a particular case and the trial court must have wide latitude to determine which factors are pertinent to a particular expert as dictated by the facts of that case.[11.15]

A majority of the jurisdictions that have taken *Kumho* under consideration have approved it.[11.16] However, not all jurisdictions have been swayed by *Kumho*, as several courts have expressly declined to extend the *Daubert* standard to technical evidence.[11.17]

[11.13] *Id.*

[11.14] *Id.*, 526 U.S. at 150-152 ((1) whether a theory or technique can or has been tested, (2) whether it has been subject to peer review and publication, (3) whether, in respect to a particular technique, there is a high known or potential rate of error and whether there are standards controlling the techniques operation; and (4) whether the theory or technique enjoys general acceptance within the relevant scientific community).

[11.15] *Id.* (concluding that it could neither "rule in, nor rule out, for all cases and for all time the applicability of the Daubert factors, nor could [it] now do so for subsets of cases categorized by category of expert or by kind of evidence [and that] too much depends upon particular circumstances of the particular case at issue."). See Blevins v. New Holland North America, Inc., 2001 U.S. Dist. LEXIS 271 (W.D. Va. 2001) (expert witness's testimony was admissible even though it did not comply with all of *Daubert* factors; *Daubert* factors are neither exclusive nor dispositive).

[11.16] *Third Circuit:* Bowersfield v. Suzuki Motor Corp., C.A. No. 98-1040, 2001 U.S. Dist. LEXIS 10259 (E.D. Pa. July 23, 2001) (applying *Daubert's* gate-keeping standards to expert testimony concerning defective design of rear seats in action in which passenger sitting in rear of Suzuki Samurai was ejected, thereby sustaining severe injuries when the Samurai collided with another vehicle); Booth v. Black & Decker, Inc., 166 F. Supp.2d 215 (E.D. Pa. 2001) (following *Kumho* and *Daubert* standards to assess technical expert's opinion and rejecting plaintiff expert's testimony on whether toaster oven caused house fire because methodology was unreliable).

State Courts:

Delaware: M.G. Bancorporation, Inc. v. Le Beau, 737 A.2d 513 (Del. Super. Ct. 1999).

Kentucky: Goodyear Tire and Rubber Co. v. Thompson, 11 S.W.3d 575 (Ky. 2000).

Louisiana: Independent Fire Insurance Co. v. Sunbeam Corp., 755 So.2d 226 (La. 2000).

Massachusetts: In re Cananvan, 432 Mass. 304, 733 N.E.2d 1042 (2000).

Montana: State v. Southern, 294 Mont. 225, 980 P.2d 3 (1999).

Oklahoma: Gilson v. State, 2000 OK CR 14, 8 P.3d 883 (Okla. Crim. App. 2000).

Rhode Island: Dipetrillo v. Dow Chemical Co., 729 A.2d 677 (R.I. 1999).

South Dakota: First Western Bank Wall v. Olsen, 621 N.W.2d 611 (S.D. 2001).

Texas: Kroger Co. v. Betancourt, 996 S.W.2d 353 (Tex. App. 1999).

Vermont: State v. Kinney, 76 A.2d 833 (Vt. 2000).

Wyoming: Bunting v. Jamieson, 984 P.2d 467 (Wyo. 1999).

[11.17] *Arizona:* Logerquist v. McVey, 196 Ariz. 470, 1 P.3d 113 (2000) (rejecting both *Kumho* and *Daubert*).

[4]—Impeaching the Expert

(1) *Deposition of Expert.*[12] Probably more than any other witness, the preparation of the cross-examination of an expert witness requires painstaking advance planning, including a review of the expert's testimony in other cases. The key to proper preparation is the pre-trial deposition of the expert. Never fail to depose an expert. If he shows up as a surprise witness at the trial, ask for a brief continuance, depose him, and only then consent to his taking the stand.

(2) *Weakness in Background.* Some experts may lack the proper education credentials or degrees or the practical experience to be taken seriously as an expert in the area of their testimony; others may be sufficiently qualified but their testimony spilled over into areas in which they are not properly qualified; and a few may actually lie about their background.

(Text continued on page 13-25)

District of Columbia: Bahura v. S.E.W. Investors, 754 A.2d 928 (D.C. 2000).

Minnesota: Goeb v. Taraldson, 615 N.W.2d 800 (Minn. 2000).

Missouri: Long v. Missouri Delta Medical Center, 33 S.W.3d 629 (Mo. Ct. App. 2000).

West Virginia: Watson v. INCO Alloys International, Inc., 545 S.E.2d 294 (W. Va. 2001) (in case in which lift truck backed off the side of tractor trailer, thereby crushing and killing plaintiff, court held that *Daubert*'s standard for the reliability of expert testimony did not apply to a technical expert's proposed testimony because testimony could aid the jury in making determinations of fact); West Virginia Div. of Highways v. Butler, 205 W. Va. 146, 516 N.E.2d 769 (1999) ("we decline to adopt the *Kumho* analysis in this case").

[12] See generally: Shelton, "Deposing the Plaintiff's Expert in Chemical Exposure Cases," in *Defending Chemical Exposure Cases* at 39 (1985); Harrigan, "Deposing the Plaintiff's Expert Witness," 28 F.T.D. 12 (May 1986); Lindgren and Hirsch, "Discovery of Experts and Their Opinions," 29 F.T.D. 2 (Jan. 1987); Somers, "Deposing An Adverse Expert: Hammers and Nails," 31 F.T.D. 24 (July 1989).