# Judge and Attorney Experiences, Practices, and Concerns Regarding Expert Testimony in Federal Civil Trials

Carol Krafka, Meghan A. Dunn
Molly Treadway Johnson, Joe S. Cecil & Dean Miletich

FEDERAL JUDICIAL CENTER

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# JUDGE AND ATTORNEY EXPERIENCES, PRACTICES, AND CONCERNS REGARDING EXPERT TESTIMONY IN FEDERAL CIVIL TRIALS

Carol Krafka, Meghan A. Dunn, Molly Treadway Johnson,
Joe S. Cecil, and Dean Miletich*
Federal Judicial Center

The results of 3 surveys (1 each of federal judges in 1991 and 1998 and another of attorneys in 1999) indicate that practices and beliefs concerning expert testimony have changed in the wake of the 1993 Supreme Court decision on admissibility in *Daubert v. Merrell Dow Pharmaceuticals, Inc.* Reporting both on their general experience with expert testimony and on their most recent civil trial involving such testimony, judges and attorneys indicated that judges were more likely in 1998 than in 1991 to scrutinize expert testimony before trial and then limit or exclude proffered testimony. The results describe common problems with expert testimony, the characteristics of trials in which expert testimony is introduced, and the types of experts who testify.

The characteristics of expert testimony have become the focus of considerable interest in recent years. Three Supreme Court cases (*Daubert v. Merrell Dow Pharmaceuticals, Inc*., 1993; *General Electric v. Joiner*, 1997; *Kumho Tire Co., Ltd. v. Carmichael*, 1999) have raised awareness of problems with expert testimony and focused attention on proper standards of admissibility. The interpretation of these new standards has been the topic of extensive commentary by legal scholars (e.g., Berger, 1994, 2000; Capra, 1998; Faigman, et al., 1997; Gottesman, 1998; Saks, 2000; Shuman, 1997; Walker & Monahan, 1996). Discussion of the problems and characteristics of expert testimony has taken place largely in the absence of data on these issues, however, as even basic information, such as the relative frequency of various kinds of expert testimony and the nature of the experts testifying, has been difficult to obtain.

Data from the few systematic studies that have examined the characteristics of testifying experts were obtained before the Supreme Court issued its decisions. Gross and Syverud (1996) coded jury verdict report information on nearly 900 civil jury trials tried for money damages in California state courts from 1985-86 and 1990-91. Their data showed more than half of testifying experts to be physicians, with only 3% identified as scientists, an outcome consistent with their

* Carol Krafka, Meghan A. Dunn, Molly Treadway Johnson, Joe S. Cecil, and Dean Miletich, Federal Judicial Center, Washington, DC.

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Correspondence concerning the article should be addressed to Carol Krafka, Federal Judicial Center, One Columbus Circle, NE, Washington, DC 20002. E-mail: ckrafka@fjc.gov

finding that 70% of the trials involved personal injury claims. Champagne, Schuman, and Whitaker (1992) surveyed attorneys, judges, jurors, and experts in 40 civil cases in Texas and similarly found that about half of the 42 responding experts were physicians. The professions of the remaining experts ranged widely (e.g., veterinarian, psychologist, accountant, economist), and experts testified on varied subjects ranging from pilot performance to legal fees. The bulk of the expert testimony offered into evidence, however, involved personal injuries.

In a more recent study designed to examine general discovery in federal court, Willging, Shapard, Stienstra, and Miletich (1997) surveyed lead plaintiff and defense attorneys in 1,000 closed federal civil cases considered to have a high probability of discovery activity. Only a quarter of the attorneys taking part in discovery activity had activity relating to the disclosure of expert reports, and the majority of attorneys reported that expert disclosure requirements had no effect on case disposition time, fairness of case outcome, or pressure to settle. The reported incidence of problems with expert disclosure was quite low, with only 27% of attorneys indicating that they experienced any problem with expert disclosure. When problems did arise, they most frequently involved disclosures that were too brief or incomplete. Few attorneys reported experiencing expert disclosure that was too expensive or reported that a party failed to supplement or update its disclosures. Attorneys in tort cases were far more likely to have engaged in expert disclosure than were attorneys in other types of cases.

Several efforts have been made to assess the changes in patterns of expert testimony. Such studies typically analyze the content of published opinions that deal with matters of expert evidence (e.g., Dixon & Gill, 2001; Groscup, et al., 2000; Risinger, 2000). Relying on measures such as the frequency of key words mentioned or the number of words devoted to discussion of a particular issue, these studies draw inferences about the factors influencing judges' admissibility decisions, judges' comprehension of *Daubert* criteria, and the differential application of *Daubert* to scientific and technical evidence in various legal contexts. The task of finding suitable cases for comparison makes the assessment of pre- and post-*Daubert* change using case analysis methodology exceedingly difficult, and because the data are derived only from cases with published opinions, the conclusions may not generalize to all cases (Songer, 1988). These difficulties notwithstanding, studies of published opinions suggest that the legal system has responded to the new standards. Judges, for example, appear to be taking a more active role in scrutinizing expert evidence, although their decisions concerning admissibility still tend to rely more heavily on the traditional *Frye* general acceptance test (*Frye v. US, 1923*) than on *Daubert* criteria (see, e.g., Dixon & Gill, 2001; Groscup et al., in press).

Gatowski et al. (2001) supplemented findings from case law review by conducting interviews and surveys with a national sample of 400 state court judges to determine how judges respond to and operationalize the *Daubert* criteria. Over half of the judges were from states that followed *Daubert* and the Federal Rules of Evidence. Results supported the assertion that judges actively perform a gatekeeping role when reviewing expert testimony but also demonstrated that there is considerable confusion in judges' minds about how to operationalize the new standards established for the federal courts.

Questions that remain about expert evidence far outnumber those that research has begun to address. Some questions reflect the absence of descriptive data on post-*Daubert* litigation. What types of cases, for instance, are most likely to involve expert testimony? What types of experts testify, how frequently do they appear, and on whose behalf are they testifying? What issues do the experts address? How often do attorneys in cases with expert testimony retain non-testifying experts? How does the post-*Daubert* use of expert witnesses compare with the use of experts in the pre-*Daubert* era?

Other questions reflect how little is known about admissibility issues and how they are handled. How often do issues of admissibility arise, and in what context? How are they handled? What are the most frequent bases for excluding proffered testimony? What formal and informal judicial procedures are used to manage expert testimony, and for what kinds of cases are the different procedures invoked? Has judicial management of expert testimony changed since *Daubert* was issued, and if so, how? Has attorney management changed?

Still other questions focus on the problems of expert testimony. Empirical research has investigated difficulties that jurors experience with expert evidence (see Vidmar & Diamond, 2001, for a review). Data on the problems experienced by judges and attorneys, however, are more difficult to come by. Willging et al. (1997) reported incidence data on attorneys' problems with expert disclosure, but the focus of the study did not permit an in-depth examination of the problems with expert evidence, leaving a host of questions unresolved. What specific problems, for example, do judges and attorneys report as most prevalent? Do judges and attorneys tend to differ or agree on the most prevalent problems? Has the nature of the problems changed since *Daubert* was issued? Has the frequency of problems changed? To date, the discussion of such issues has relied more on the intuitions and perceptions of legal commentators than on information from trial participants (e.g., Elliott, 1989; Gross, 1991; Landsman, 1995; Langbein, 1985; Patterson, 1999; Posner, 1999).

The research we report here involved surveys of judges and attorneys and responds to many of the questions posed above. The findings provide an update on civil litigation using expert testimony and evidence about changing practices regarding expert evidence in the years since the Supreme Court decided *Daubert*.

## Method

### *Overview*

This research investigated multiple topics relating to expert testimony. Data sources included a 1998 survey of judges, a 1991 survey of judges, and a 1999 survey of attorneys. To assist with conceptual organization of the large amount of information presented here, and to relate information sources to content, we have summarized topics and data sources in Table 1. The topics listed in Table 1 appear in the order in which they are discussed in the text.

In November 1998, after the issuance of the *Daubert* and *Joiner* opinions but before the Court heard arguments in *Kumho Tire,* federal district court judges were surveyed in a single questionnaire about two topic their experience with expert evidence in the most recent civil trial they conducted involving expert witnesses and their general experience with such trials. Portions of the 1998 survey were identical in form to a 1991 survey of federal judges conducted before the Su-

preme Court issued *Daubert*. The two surveys differed somewhat in their focus, but identical methodology and significant overlap in the content of the survey instruments permit an assessment of some of the changes in litigation that have followed the Supreme Court s instructions on the standards of admissibility for expert testimony. Additional information about expert testimony was obtained from the attorneys in the trials that were referenced in the 1998 judge survey. Selected items in the attorney survey were identical to or patterned after items in the judge survey.

Table 1
*Summary of the Subject Matter Examined in the Judge and Attorney Surveys*

| | Survey | | |
|---|---|---|---|
| Subject Matter | 1998 Judge | 1991 Judge | 1999 Attorney |
| Types of cases involving expert testimony | x | | |
| Trial characteristics | x | x | |
| Testifying experts' areas of expertise | x | x | x |
| Nature and frequency of issues addressed by expert testimony | x | x | |
| Presence and handling of admissibility issues | x | x | |
| Limitation or exclusion of expert testimony | x | x | |
| Expert reports | x | | x |
| Retention of nontestifying experts | | | x |
| Use of different judicial procedures for managing complex evidence | x | x | |
| Frequently occurring problems with expert testimony | x | x | x |
| Post-*Daubert* changes in judicial management of expert testimony | x | | x |
| Post-*Daubert* changes in attorney management of expert testimony | | | x |

## *1998 Judge Survey*

*Participants and procedure*. Surveys were mailed to all active U.S. district court judges in November 1998 ($N$ = 619). Judges who had not responded within a few weeks received a postcard prompting them to complete the survey; judges who did not respond to the prompt were sent a second survey several weeks later.

*Instrument.* The questionnaire asked judges about their experiences in a specific case (the most recently completed civil trial the judge presided over that included expert testimony) and about their general experience with expert testimony. The questionnaire was divided into three sections. Section 1 contained questions on case identification and case characteristics. Case identifiers (case name, docket number, and district) permitted us later to locate administrative records showing the nature of the case and the names of the lead attorneys. In Section 2, judges provided detailed information about the characteristics of the expert testimony presented in those trials. In Section 3, judges reported on their experiences with expert testimony in civil cases, generally. Description of the questionnaire content follows, with the designations trial and general appearing next to the topics to signify whether the data that were requested derived from the referenced trial or the judges' general experience.

*Types of cases involving expert testimony (trial).* Judges (or their law clerks, as the survey permitted clerks to complete the first section under the judges' supervision) were asked to provide the case name, docket number, and district for the judge's most recently completed civil trial in

which expert testimony was presented. Respondents were advised to refer to the docket sheet and were cautioned to avoid the temptation of identifying an earlier, more interesting case because this would affect representativeness. From the provided information, we traced the cases through routine data forwarded to the Administrative Office of the U.S. Courts by clerks of federal courts to determine the nature of suit for the cases and thus to classify them by type.

*Trial characteristics (trial).* Respondents provided information on the nature of the trial (bench or jury), the amount of trial time taken by examination of the expert witnesses (hours), and the total time spent at trial in the case (hours).

*Testifying experts' areas of expertise (trial).* Respondents completed a table listing how many experts testified at trial, the types of experts testifying, and the issues they addressed. They were asked to distinguish between experts for plaintiffs, defendants, and other parties. To illustrate how to complete the table and what level of specificity was expected, we filled out a table entry based on an example of a tort case involving four plaintiff experts. In the example, we indicated that a family physician had testified about initial diagnosis of injury and treatment, two neurologists had testified about the presence of neurological injury, and an economist had given an estimate of lost future wages. We then coded the respondents' narrative descriptions of expert types into vocation categories, using the coding scheme of Gross (1991).

*Nature and frequency of issues addressed by expert testimony (trial).* Directions instructed judges to continue focusing exclusively on their most recent civil trial involving expert testimony and to indicate the issues addressed by experts by checking all applicable options from a list provided to them. The list included nine possibilities: existence, nature, or extent of injury or damage; cause of injury or damage; amount of recovery to which plaintiff was entitled; standard of care or attention owed by a professional; design or testing of a product, structure, or device; knowledge or intent of a party; industry standards/ state of the art; reasonableness of a party's actions; and other.

*Presence and handling of admissibility issues (trial).* Judges indicated whether any admissibility issue was present in the referenced case, and if so, how they handled the issue. Responses were made by checking all of the applicable options from a list provided to them. The list included raising the admissibility issue themselves (*sua sponte*), giving informal consideration or advice on admissibility at a Rule 16 conference, ruling on admissibility in response to a motion for summary judgment, ruling on admissibility in response to a motion *in limine*, ruling on admissibility in response to an objection made at trial, and other.

*Limitation or exclusion of expert testimony (trial).* To investigate the screening of expert testimony in the identified cases, judges were asked whether they limited or excluded any proffered testimony. Judges who answered affirmatively were asked to check all of the applicable reasons for limiting or excluding the testimony from a list containing fifteen potential rationales. The list was extensive; its 15 options were derived from past and present legal factors used to determine admissibility[1]

[1] The list of possible rationales for limiting or excluding proffered testimony included "The proffered evidence was not relevant," "The proffered witness was not qualified," "The proffered testimony would not assist the trier of fact," "The prejudicial nature of the proffered testimony outweighed its probative value," "The proffered testimony was repetitious and would constitute a waste of court time," "The facts or data on which the expert's testimony was based were not reliable," "The principles and methods underlying the expert's testimony were not reliable," "The expert's testimony was not applied reliably to the facts of the case," "The theory underlying the expert's testimony was not falsifiable," "The expert's methods or supporting principles were not generally accepted by others in the field," "The subject matter of the expert's testimony had not undergone peer review," "The error rate in the expert's work was unknown or too high," "The expert had not tested his/her theories sufficiently," "The expert's scientific research and opinion were developed solely for the purpose of the litigation," and "Other reasons."

*Expert reports (general).* In an item designed to assess the effects of a Federal Rule of Civil Procedure governing discovery and disclosure (Federal Rule of Civil Procedure 26(a)(2)), judges were asked to report the impact of exchanging experts' reports on the conduct of the litigation. In courts where this rule was implemented, parties were required to make available written reports of experts who were expected to testify at trial, unless the parties stipulated or were directed otherwise. Judges who had experience with these reports (i.e., those eligible to respond) reviewed a list of 10 potential effects on the course of litigation and checked off all applicable options.[2] Four of the effects were keyed to parties (e.g., "[The exchange of reports] prompts parties to reach stipulations on certain issues"), and 3 of the effects were keyed to judges (e.g., "[The exchange of reports] helps me to focus on the key issues to be addressed by the testimony"). One option from the list could be checked by judges concluding that the exchange of expert reports does not have much effect on the litigation. Another could be checked by judges who felt the effects to be unclear.

*Use of different judicial procedures for managing expert evidence (general).* The remaining items on the judge survey dealt with expert testimony in civil cases, generally. Judges were instructed to draw on their general experience and not to limit their responses to the case previously referenced.

To ascertain what procedures are most commonly used to manage expert testimony and to determine whether judges use different procedures according to the scientific or technical complexity of the testimony, we asked judges to review a 17-item list of management techniques and to indicate under what circumstances they would use each. The list included formal and informal techniques, such as defining the scope of expert testimony at a Rule 16 conference, requiring or encouraging early exchange of reports of prospective trial experts (F. R. Civ. P. 26(a)(2)), and suggesting that experts who testify need to specify their areas of agreement and disagreement.[3] The circumstances they specified were whether the technique would be used: (a) exclusively in cases with difficult, complicated, scientific, or technical evidence; (b) in cases with various types of expert evidence; or (c) not at all. Response options were forced-choice.

*Common problems with expert testimony (general).* To determine whether certain problems arise consistently, judges were asked to scrutinize a list of 12 potential problems with expert testimony (e.g., failure of party(ies) to provide discoverable information concerning retained experts, indigent party unable to retain expert to testify, delays in trial schedule caused by unavailability of experts).[4] In addition, they were asked to rate how frequently they had encountered each of the

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[2] The list of potential effects of exchanging expert reports included "It prompts parties to reach stipulations on certain issues," "It prompts parties to dismiss certain claims or defenses," "It helps me to focus on the key issues to be addressed by the testimony," "It helps me determine whether testimony by experts should be admitted," "It permits more informed deposition and cross-examination of experts," "It obviates the need for some other discovery (e.g., some depositions)," "It discourages testimony by experts that is outside their area(s) of expertise," "It does not have much effect on the litigation," "The effects are unclear," and "Other."

[3] The remaining procedures on the list were as follows: hold a pretrial hearing on the admissibility of expert testimony (i.e., *Daubert* hearing), ask the parties to provide special education or instruction to the court in specific areas of testimony, engage in your own research in specific area(s) of testimony, ask clarifying questions of experts from the bench, appoint a special master under F. R. Civ. P. 53 to prepare a report for the court, appoint an expert under F.R.E. 706, appoint an advisor to educate the court about scientific or technical areas, designate certain scientific or technical issues for separate trial (bifurcation), allow jurors to question experts directly or through the court, have experts for both sides testify sequentially on an issue before moving on to direct testimony on the next issue, limit the number of experts who testify on a particular issue, limit the amount of time devoted to expert testimony on a particular issue, permit expert testimony by videotape, and employ a special verdict or a general verdict with interrogatories.

[4] The remaining problems on the list were as follows: excessive expense of party-hired experts, attorney(s) unable adequately to cross-examine expert(s), experts abandon objectivity and

problems during the previous 5 years (i.e., post-*Daubert*). The frequency scale ranged from 1 (*very infrequent*) to 5 (*very frequent*). Judges were advised that a rating of 1 indicated a problem was rarely or never observed and a rating of 5 indicated it was observed in almost every [civil] case involving expert testimony. Judges then indicated which problems, if any, had decreased in frequency over the past 5 years and which had increased in frequency.

*Post-Daubert changes in judicial management of expert testimony (general).* Finally, judges were asked to indicate whether and how their approach to handling scientific evidence had changed since *Daubert.* Judges who were on the bench before *Daubert* (i.e., those eligible to respond) checked all applicable options from a list that included "I hold pretrial hearings regarding admissibility of expert testimony more frequently," "I *more* often admit expert evidence than I did before *Daubert,*" "I *less* often admit expert evidence than I did before *Daubert,*" "I am *more* likely to appoint expert(s) pursuant to F.R.E. 706 than I was before *Daubert,*" "I am *less* likely to appoint expert(s) pursuant to F.R.E. 706 than I was before *Daubert,*" and "I don't believe my use of procedures has changed very much."

### *1991 Judge Survey*

*Participants and procedure.* The survey procedures in 1991 were identical to those of 1998. The initial mailing was sent to all federal district court judges in active status in November of that year ($N$ = 515). Those who failed to respond within a given time period received a postcard reminder and then a second mailing of the survey, if required.

*Instrument.* The 1991 questionnaire was administered during a time when the federal courts were considering changes to federal rules governing expert testimony. About half of the items in the 1991 questionnaire were applicable to a pre- and post-*Daubert* assessment, so these items were included in the 1998 questionnaire. Consistent with the 1998 questionnaire, judges in 1991 were asked about the most recent civil trial they conducted involving testifying experts and about their general experience with expert testimony. Except where noted in the Results section, the wording of specific items in the 1991 and 1998 judge questionnaires was identical.

### *1999 Attorney Survey*

*Participants and procedure.* Information provided on trials by the 1998 judges permitted us to trace the cases through docket sheets. From the docket, we developed a list of the names and addresses of the lead attorneys for the plaintiff and defendant parties to the cases. We culled the original list to eliminate both individuals representing themselves *pro se* and U.S. government attorneys (who, we have found from experience, do not normally respond to surveys). We initiated a survey of the remaining 458 attorneys in the spring of 1999.

*Instrument.* The attorney questionnaire followed the general organization established by the judge surveys. In the first part of the questionnaire, the trial referenced by the judge was identified and the lead attorneys in the case were asked about the case particulars. Included in this section were items asking which party the attorney represented (plaintiff, defendant, other), whether their party retained nontestifying experts, and what their experience was with respect to their own, and the opposition's, expert reports. A second part of the questionnaire asked attorneys about their general experience with expert testimony. Attorneys reported here on any post-*Daubert* changes in the approaches they use to handle expert evidence, and they also completed an item on the frequency with which they encountered problems. The latter item was identical to an item in the 1991

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become advocates for the side that hired them, conflict among experts that defies reasoned assessment, expert testimony appears to be of questionable validity or reliability, expert testimony not comprehensible to the trier of fact, expert testimony comprehensible but does not assist the trier of fact, expert(s) poorly prepared to testify, and disparity in level of competence of opposing experts.

and 1998 judge surveys. At the end of the survey, attorneys reported on the nature of their law practice, including whether they generally represented plaintiffs, defendants, or equal numbers of plaintiffs and defendants. A description of the questionnaire content follows, with the designations *trial* and *general* appearing next to the topics to signify whether the questions related to the referenced trial or the attorneys' general experience.

*Expert reports (general and trial).* Attorneys reviewed and responded to a list of potential effects of the disclosure of expert reports on the conduct of litigation. The list was comparable to the list reviewed by judges in 1998.[5]

In addition to reporting on their general experience with expert disclosure, attorneys were asked about the particular expert reports used in the referenced trial. Attorneys were asked to indicate both whether they had provided any expert reports to the opposing party and whether they had received any report from an opposing expert in the case.

Those who provided an expert report were asked whether any of the following statements applied to their expert reports: "Expert reports were too expensive," "To comply with the reporting requirement, we retained an expert earlier in the litigation than we would have in the absence of the requirement," and "Expert reports required by the rule included information that would otherwise have been protected from disclosure as attorney work product."

Those who received an expert report were asked whether any of the following statements applied to their expert reports: "Counsel failed to supplement or update its expert reports," "Expert reports failed to provide a complete statement of all expert opinion," and "Expert reports failed to reveal the basis for expert opinions."

To probe the effects of expert discovery on trial preparation, we questioned attorneys who received an opposing expert's report on whether the report had increased, had no effect upon, or had decreased the following: their understanding of the opposing expert's testimony, the amount of information they gathered by subsequent deposition, and the effort they put into conducting formal expert discovery.

*Retention of nontestifying experts (trial).* Attorneys were asked whether their client had retained one or more experts who did not testify. Those who answered affirmatively checked all applicable reasons for the absence of testimony from a list that included: "The judge excluded one or more of my client's expert witnesses from testifying," "My client retained one or more experts with an expectation that they might testify at trial, but we later decided not to present the expert(s)," "My client retained one or more experts solely to provide consulting services; and other."

*Beliefs about post-Daubert changes in judicial management of expert testimony (general).* We asked attorneys who practiced in federal court before the *Daubert* decision, and who handled a sufficient number of civil cases with expert evidence to offer an informed opinion, to report their impressions of how judicial practices regarding expert evidence changed as a result of the *Daubert* decision. They checked all applicable options from a list that was modeled after, but was not identical to, the list provided to judges. Attorneys who believed that judges' procedures had not changed much since *Daubert* were provided with a response option reflecting that judgment.

*Post-Daubert changes in attorney management of expert testimony (general).* Attorneys were asked whether and how their own approach to handling expert evidence in federal civil cases had changed since *Daubert*. Attorneys either indicated that they did not believe their approach changed

[5] The list was comparable but not identical to the list reviewed by judges. An item asking judges whether the exchange of reports helps them determine the admissibility of expert testimony was omitted from the attorney list. An item stating "It [the exchange of reports] helps parties focus on the key issues to be addressed by the testimony" was substituted for the judge item stating "It [the exchange of reports] helps me focus on the key issues to be addressed by the testimony." Three other list items were changed to clarify the meaning of a pronoun (e.g., "It prompts parties to reach stipulations on certain issues" was replaced by "The exchange prompts parties to reach stipulations on certain issues").

very much or identified applicable changes by checking a list of possible options. The list included options concerning the timing of expert retention (experts retained earlier in a case, later in a case), the number of retained experts (more experts retained, fewer experts retained), the involvement of the attorney in the preparation of expert testimony (more involvement, less involvement), the number of objections raised at trial to the admissibility of expert testimony (more objections, fewer objections), increased scrutiny of the credentials of potential expert witnesses by the attorney, increased use of nontestifying, consulting experts by the attorney, increased use of motions *in limine* to exclude experts, and increased use of summary judgment motions in response to limitations or exclusion of the opposing party's proffered testimony.

*Common problems with expert testimony (general).* Attorneys read the same list of potential problems presented to judges and rated the frequency with which they encountered each.

## Analyses and Results

The data presented in this section are largely descriptive.[6] To help organize the substantial amount of information discussed here, topics are covered in the order they are listed in Table 1. Before turning to the results of the survey, we first note the response rates for judges and attorneys and describe the characteristics of the attorneys' legal practices.

### *Judge Response Rates*

A total of 335 usable surveys were obtained from the 1991 survey for a response rate of 65%.[7] In the 1998 survey, however, only 303 usable surveys were obtained for a response rate of 51%.[8] Of this number, four were returned with only the section on general experiences completed. We believe the decreased response rate to the 1998 survey is due to the increased detail we requested from judges in the 1998 survey. Anecdotal evidence also suggests that judges have become less willing to complete surveys than they were in 1991. Numerous judges have commented that they receive too many surveys.

We conducted a series of quantitative and qualitative analyses to determine whether nonresponse bias was detectable in the 1998 survey. The first set of analyses compared late and promptly returned surveys on several dimensions to determine whether statistical differences suggestive of nonresponse bias could be detected. Depending on whether the variable was categorical or ordinal in nature, we performed chi-square tests of homogeneity of distribution or *t*-test differences in means for this purpose on the following survey items: length of time the re-

[6] This article is the final report on the 1998 judge and 1999 attorney surveys. An earlier report by Johnson, Krafka, and Cecil (2000) presented preliminary analysis of portions of the data. Table 1 of the early report summarized data that received additional processing for presentation here in Table 2. This processing resulted in adjustments to judge-provided data on types of experts when attorney information on the trials offered supplemental or corrective information. The processing resulted in minor reporting changes that do not alter the basic conclusions of the preliminary report.

[7] Twenty judges responded that they were unable to complete the 1991 survey. Most noted the absence of a recent relevant trial and/or they indicated that they were new to the bench. None of these judges are counted in the response rate.

[8] Twenty-five judges responded that they were unable to complete the 1998 survey. Of that total, 21 noted the absence of a recent relevant trial. A number of judges indicated that they were new to the bench. None of these judges are counted in the response rate.

spondent was on the bench prior to *Daubert*, time spent at trial receiving expert testimony, total time devoted to trial, presence of an admissibility dispute in the referenced case, presence of excluded or limited expert testimony, the number of reasons cited by the respondent to support a decision to exclude or limit expert testimony, whether respondent had experience with expert reports, and the number of ways in which the respondent indicated such reports affect litigation. None of the statistical analyses reached a conventional level of significance ($p < .05$). In addition to statistical analyses, we inspected the response patterns of judges by district, but the proportion of late and prompt returns did not differ in a meaningful way by district.

A final effort to determine whether nonresponse bias could be detected involved our contacting a sample of non-responding judges ($N = 21$) to query them on their reasons for not returning the questionnaire. Each judge had completed a minimum of 1 year of service on the bench before we mailed the survey and had presided over two or more civil trials during the preceding 2 fiscal years. Most of the judges offered, as reasons for non-completion, variations on the following: (a) their workload was too pressing, (b) the survey came at a bad time, or (c) the survey was too long. These various inquiries into the data do not suggest a problem with the representativeness, but they cannot be considered conclusive on the question of whether nonresponse bias exists.

*Attorney Response Rates and Characteristics of Legal Practice*

A total of 302 useable surveys were obtained from attorneys, a response rate of 66%.[9] The returned questionnaires were split evenly between plaintiff and defense counsel from the cases (n = 154 and 146, respectively, with 2 respondents indicating they represented an "other" party). Despite the even split on counsel for the trials, attorneys reported that their typical client was somewhat more likely to be a defendant than a plaintiff (45% reported primarily representing defendants; 22% reported representing plaintiffs and defendants in about equal numbers; and 31% reported representing primarily plaintiffs in their law practice). Thirty-five percent worked in firms with 2-10 lawyers, 22% worked in firms with 11-49 lawyers, and 23% worked in firms with 50 or more lawyers. Attorneys reported spending an average of 46% of their work time on federal civil litigation and had practiced law an average of 19 years.

*Types of Cases Involving Expert Testimony*

Our data do not provide insight into the absolute frequency of expert testimony in civil trials because we have no estimate of the number of trials involving no expert testimony. The data do, however, provide information on the distribution of case types that go to trial with expert evidence. The most frequent types of trials involving experts—45% of the 299 trials reported—were tort cases, primarily those involving personal injury or medical malpractice. Tort cases were fol-

[9] Fifty-five blank surveys were returned by attorneys who indicated they had insufficient knowledge of the case, and 2 questionnaires were returned as undeliverable. Excluding these brings the response rate for the attorney survey to 75%.

lowed in frequency by civil rights cases (23%); contract cases (11%); intellectual property cases, primarily patent cases (10%); labor cases (2%); prisoner cases (2%); and other civil cases (8%).

To gauge whether expert testimony is differentially associated with certain case types, we compared the distribution of sample cases to the distribution of all federal civil cases terminating during or after a bench or jury trial in the year before and year of our survey. Compared to all civil trials, experts were overrepresented in tort cases (which constituted only 26% of all civil trials) and intellectual property cases (3% of all civil trials). Experts were underrepresented in contract cases (14% of all civil trials); labor cases (4% of all civil trials); general (nonprisoner) civil rights cases (31% of all civil trials); and prisoner cases, nearly all of which are civil rights actions (14% of all civil trials). In cases classified as "other" civil trials, experts were represented in equal proportion to the general case type (8%).[10]

*Trial Characteristics*

Ninety-two percent of reported trials involved expert testimony by plaintiffs, and 79% of trials involved expert testimony by defendants. Seventy-three percent of the trials had experts testifying for both plaintiffs and defendants. These figures are comparable to statistics from 1991, when 95% of trials involved expert testimony for the plaintiff, 81% involved expert testimony for the defendant, and 76% had experts testifying on both plaintiff and defendant sides. Seventy-seven percent of the civil trials we surveyed in 1998 were conducted before juries, and 23% were bench trials. These figures remain essentially unchanged from 1991 (when 74% of referenced cases went to juries). The jury trial rate for cases with expert evidence is somewhat higher than for cases as a whole—in 1998 jury trials accounted for 64% of all civil trials—suggesting that experts appear with somewhat disproportionate frequency in jury trials.[11]

The average number of experts testifying for plaintiffs was 2.47, compared to 1.85 for defendants. Tort cases had the highest mean number of testifying experts—an average of 3.11 experts testified for plaintiffs, with 2.28 testifying for defendants. Civil rights cases averaged 1.81 experts for the plaintiff and 1.24 experts for the defense; case types that fell into the "other" category averaged 2.70 and 2.00 experts, respectively. Each of these differences between the mean number of plaintiff and defendant experts was revealed by a *t* test to be significant at the $p < .001$ level. No significant differences were found for contracts, intellectual property, labor, and prisoner cases.

The mean number of testifying experts in 1998 was 4.31 per trial. This figure is somewhat lower than in 1991, when cases averaged 4.80 experts per trial. The 1991 data do not distinguish between experts for the plaintiffs' and defendants'

[10] The distribution of case types for federal civil cases terminating during or after a trial was calculated from data submitted by the courts and reproduced by the Administrative Office of the U.S. Courts in Table C-4 of the Annual Report of the Director (1997-1998).

[11] The calculation of the jury trial rate for all civil cases is based on data submitted by the courts and reproduced by the Administrative Office of the U.S. Courts in Table C-4 of the Annual Report of the Director (1998).

sides, so unfortunately, we can offer no comparison of the mean number of plaintiff and defendant experts for the earlier data. The median estimate of time spent in direct and cross-examination of experts was 5 hours; the median trial time in total was estimated at 25 hours.

*Testifying Experts' Areas of Expertise*

In both the judge and attorney surveys, respondents were asked to describe the types of experts who testified and the issues addressed by their testimony. Using this information, we coded the 1,281 experts identified as having testified in the 297 trials into specific occupational categories used by Gross (1991). Table 2 indicates the types of experts in each category for plaintiffs and defendants together.

Medical and mental health specialists were the most frequently presented category of experts, accounting for more than 40% of the experts presented overall. The medical profession, representing many types of specialists, collectively accounted for about one-third of all testifying experts. This showing is not surprising, given that 45% of the survey trials were tort cases.

Specialists from business, law, and financial worlds accounted for another 25% of experts. This category includes the most frequently heard professional, the economist, representing almost 12% of all experts.[12] Engineers and other safety, or process, specialists registered close behind experts from the business/ law/ financial sector. These professionals accounted for about 22% of all experts. Individuals representing scientific fields such as chemistry, ballistics, toxicology, and metallurgy accounted for only a small percentage, less than 8%, of testifying experts.

[12] We placed economists in the category of business/law/financial experts rather than with scientists because their testimony typically relies on well-established techniques to estimate lost wages and other forms of economic harm in individual cases. They usually do not offer scientific testimony regarding economic theories and econometric methods, which would support classifying them with other scientific specialties.

Table 2
*Expertise of the Witnesses Offering Expert Testimony (N = 1,281) in 297 Federal Civil Trials in 1998*

| Specialty | % of Total |
|---|---|
| Medical/Mental Health | 42.5 |
| Surgeon | 4.6 |
| Psychiatrist | 4.3 |
| Neurologist/neurosurgeon | 4.0 |
| Physician (unspecified) | 3.8 |
| Psychologist (clinical) | 3.4 |
| Physician (treating) | 3.0 |
| Family/general practitioner | 2.7 |
| Obstetrician/gynecologist | 1.9 |
| Other medical/mental health | 16.3 |
| Business/ Law/ Financial | 25.1 |
| Economist | 11.6 |
| Accountant | 3.2 |
| Patent/trademark expert | 2.0 |
| Vocational rehabilitation expert | 1.9 |
| Other business/law/financial experts | 6.6 |
| Engineering/Process/Safety | 21.8 |
| Mechanical/industrial engineer | 4.1 |
| Other engineering experts | 3.0 |
| Police procedure expert | 2.5 |
| Accident reconstruction expert | 2.0 |
| Products engineer | 2.0 |
| Other engineering/process/safety | 8.3 |
| Scientific Specialties | 7.6 |
| Chemist | 1.6 |
| Ballistics | 0.8 |
| Toxicologist | 0.8 |
| Metallurgist | 0.6 |
| Statistician | 0.6 |
| Other scientific specialties | 3.2 |
| Other Specialty | 3.0 |

Overall, these results are quite consistent with those from the 1991 survey. Medical and mental health specialists were the most frequently represented general category of experts (around 40% of the total), followed by safety, process, and engineering experts (26%) and business/law/financial experts (about 26%). Experts from scientific specialties in the earlier survey amounted to 8% of the total, consistent with the current survey. Economists were the most frequent specific type of testifying expert in the 1991 study, just as they were in the 1998 study.[13]

[13] The collection of data on the types of experts differed somewhat between the 1991 and 1998 surveys. Judges in 1991 viewed a list of 68 expert types taken from Gross (1991) and re-

*Nature and Frequency of Issues Addressed by Expert Testimony*

Judges reported that the most frequent issues addressed by experts at trial were the existence, nature, or extent of injury or damage (68% of 299 trials) and the cause of injury or damage (64%), findings that are consistent with the fact that tort cases represented almost half of all cases reported. Testimony as to the amount of recovery to which plaintiff was entitled was offered by experts in 44% of trials. This type of testimony is consistent with the large number of economists reported as having testified. Other issues addressed by expert testimony were the reasonableness of a party's actions (34% of trials), industry standards/"state of the art" (30%), standard of care owed by a professional (25%), design or testing of a product (25%), and knowledge or intent of a party (16%).

Table 3 lists the percentage of cases in which each issue was reported as having been addressed in the 1991 and 1998 judge surveys. Little change is evident in the pattern of responses across time.

*Presence and Handling of Admissibility Issues*

The 1998 judge survey included several questions about the screening of expert testimony in the referenced cases, about whether the admissibility of any expert testimony was disputed, and about whether any proffered expert testimony had been limited or excluded. These questions do not shed light on the general frequency of admissibility disputes and exclusion of expert testimony because cases in which all expert testimony was excluded would not have been reported in response to our survey inquiry, which asked about recent civil trials in which expert testimony was presented. The cases described here represent instances in which there was sufficient admissible expert evidence to merit a trial.

Motions *in limine* have increased as a device for dealing with admissibility issues. Judges reported in 1991 that they ruled on a motion *in limine* (or after a Federal Rule of Evidence 104(a) proceeding) in only 32% of cases. The more usual forum in which admissibility questions were raised was at trial, where judges in 1991 reported that they ruled on admissibility in 79% of cases. In 1998, judges stated that for nearly half of the referenced cases (46% of 303 trials), admissibility was not disputed. When admissibility was raised as an issue, however, it most frequently emerged in the context of either a motion *in limine* (72% of cases) or in response to an objection made at trial (64% of cases).

Other procedural means for handling admissibility issues arise infrequently. Judges in 1998 reported that they gave advice on admissibility informally at the Rule 16 case conference in only 8% of cases and ruled on admissibility in response to a motion for summary judgment in only 7% of cases. Very rarely did a judge raise a question of admissibility if it was not disputed by the parties (3% of cases).

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corded how many experts of a given type testified at the trial. No distinction was made between experts testifying for a given party. Judges in 1998 reported the type of expert without reference to a list and provided the number of testifying experts separately for the various parties to the trial. These responses were then classified according to the categories appearing on the 1991 list.

Table 3
*Nature and Frequency of Issues Addressed by Expert Testimony*

| | % of Trials | |
|---|---|---|
| Issues | 1991 survey (n = 299) | 1998 survey (n = 328) |
| Existence, nature or extent of injury or damage | 63.4 | 68.2 |
| Cause of injury or damage | 66.8 | 63.5 |
| Amount of recovery to which plaintiff was entitled | 48.8 | 43.5 |
| Reasonableness of a party's actions | 34.1 | 34.1 |
| Industry standards/ "state of the art" | 34.5 | 30.3 |
| Standard of care or attention owed by a professional | 24.1 | 25.1 |
| Design or testing of a project, structure, or device | 32.3 | 25.1 |
| Knowledge or intent of a party | 11.3 | 13.0 |
| Other | 9.1 | 16.1 |

*Note.* Percentages do not add to 100% because judges were directed to check all applicable response options.

### *Limitation or exclusion of expert testimony*

Compared to 1991, judges in 1998 reported that they were more likely to scrutinize expert testimony before trial and were less likely to admit it. Judges said that they limited or excluded some of the testimony proffered by experts in 41% of the referenced 1998 cases, compared to only 25% of the referenced 1991 cases.[14] These figures support the suggestion that judges may exercise more control over expert evidence post-*Daubert* than was done in pre-*Daubert* times. This notion receives additional support from the methodological implications of our having sampled only trials with at least some expert testimony—cases in which all of the expert testimony was ruled inadmissible were not included. Given the reported increase in *in limine* motions, it is likely that the increase in the overall rate of expert testimony exclusion is even higher.

The most frequent reasons cited by judges for excluding testimony relate to traditional rules governing expert testimony. In 1998, judges most frequently said they excluded testimony because it was not relevant (47%), because the witness was not qualified (42%), or because the proffered testimony would not assist the trier of fact (40%). Similar reasons applied to judges' earlier decisions to exclude testimony, the most frequently cited reasons in 1991 being that the testimony would not have assisted the trier of fact (40%) and that the witness was not qualified (36%). The earlier survey did not include an option for judges to indicate whether exclusion was based on a decision that the expert's testimony was not relevant. Other reasons for exclusion in more than 15% of the trials referenced in 1998 were that the facts or data on which the expert's testimony was based were not reliable (22%), that the prejudicial nature of the testimony outweighed its pro-

[14] Johnson, Krafka, and Cecil (2000) report this information in the obverse, stating that 59% and 75% of judges in the respective 1998 and 1991 surveys reported that they had allowed all of the proffered testimony without limitation.

bative value (21%), and that the principles and methods underlying the expert's testimony were not reliable (18%). About 10% of judges said they excluded evidence because the proffered evidence was repetitious and wasteful of court time, and an equal number said the expert's testimony was not applied reliably to the facts of the case.

As noted, 18% of judges who excluded expert testimony said they did so in part because they deemed the methods and principles of the expert unreliable. The evaluation of an expert's methodology is consistent with judicial application of *Daubert* criterion for determining admissibility. Judges invoked other *Daubert* criteria only rarely, however. They cited problems with the acceptance of the expert's methods by others in the field, the absence of peer review, and insufficient theory testing in fewer than 8% of the cases in which they excluded evidence. Problems with the nonfalsifiable nature of an expert's underlying theory and difficulties with an unknown or too-large error rate were cited in less than 2% of cases.

*Expert Reports*

Except in a few courts where the implementation of a federal rule change made in 1993 was delayed (Stienstra, 1998), parties in 1998 were generally obliged by Federal Rule of Civil Procedure 26(a)(2) to provide a written report from any experts they expected to present at trial. The report was to contain a complete statement of all opinions to be offered by the expert witness, the reasoning supporting the opinion(s), and the information considered by the expert witness in forming his or her opinion. An expert's report needed to be supplemented if any of the information it disclosed was, or became, incomplete or inaccurate.

Most judges (91%) and a majority of attorneys (58%) had sufficient experience with such reports in 1998 to render an opinion about how the reports generally affected the litigation process. Their assessments of the effects are summarized in Table 4.

Although 7% of judges and 18% of attorneys said the exchange of reports does not have much effect on litigation, large percentages of the survey respondents claimed salutary effects. Eighty-three percent of judges and 76% of attorneys indicated that the exchange permits more informed deposition and cross-examination of experts. Sixty-three percent of judges said reports help them to focus on the key issues to be addressed by the testimony, and 65% of attorneys endorsed the same view with respect to parties. More than half of the judges (58%) credited reports for helping them determine whether testimony by the expert should be admitted.

A substantial number of judges claimed that reports prompt parties to reach stipulations on certain issues (40%), limit the need for some other discovery (e.g., some depositions) (46%), or discourage testimony by experts that is outside their areas of expertise (45%). Attorneys perceive more modest effects in these areas—12% believed the reports prompt stipulations, 41% believed the reports obviate the need for some discovery, and 24% believed the reports discourage testi-

mony beyond the witness' area of expertise. Only 10% of judges and 9% of attorneys describe the effects of exchanging expert reports as unclear.

Greater numbers of judges endorse the positive effects of the reporting requirements than do attorneys. In the course of their work, judges handle more expert reports than do most litigators, and their assessments may reflect this greater exposure. Attorneys, by contrast, probably spend more hands-on time working with experts than with expert reports. Their expectations regarding reports differs from judges' expectations, and their assessment of the value of the reporting requirement appears to be tempered.

Table 4
*Effects of the Exchange of Expert Reports on the Conduct of the Litigation, as Reported by Respondents Having Experience With the Reports*

| | Survey Respondent | |
|---|---|---|
| Responses | 1998 Judges (n=268) | 1999 Attorneys (n=174) |
| It prompts parties to reach stipulations on certain issues | 39.9 | 12.1 |
| It prompts parties to dismiss certain claims or defenses | 32.1 | 13.2 |
| It helps me to focus on the key issues to be addressed by the testimony | 63.1 | |
| It helps parties to focus on the key issues to be addressed by the testimony | | 64.9 |
| It helps me determine whether testimony by experts should be admitted | 57.5 | |
| It permits more informed deposition and cross-examination of experts | 83.2 | 76.4 |
| It obviates the need for some other discovery (e.g., some depositions) | 46.3 | 40.8 |
| It discourages testimony by experts that is outside their area(s) of expertise | 45.1 | 24.1 |
| It does not have much effect on the litigation | 6.7 | 17.8 |
| The effects are unclear | 10.4 | 9.2 |
| Other | 12.7 | 9.2 |

*Note.* Percentages do not add to 100% because respondents were directed to check all applicable response options.

Additional information about the specific expert reports used in the sampled cases provides a glimpse into attorneys' views on their effects. Seventy-five percent of the sampled attorneys provided one or more written expert reports to opposing counsel. Half of the attorneys represented the plaintiff, and half represented the defendant. Relatively few of the attorneys endorsed statements suggesting they perceived the reporting requirement as either an imposition or an excessive expense. Twelve percent believed the reports included information that would otherwise have been protected from disclosure as attorney work product, 23% said they retained an expert earlier than would have occurred in the absence of a requirement, and 19% said the reports were too expensive.

Although only a small percentage of attorneys cited problems with their own expert reports, larger numbers cited problems with opposing expert reports. Of the

70% of the attorneys who received one or more written expert reports from opposing counsel, 44% stated the reports failed to provide a complete statement of all expert opinion, 30% claimed the reports failed to reveal the basis for expert opinions, and 27% contended that the opposition failed to supplement or update its expert reports.

Despite the fact that a substantial minority of attorneys found fault with reports from opposing counsel, the larger point is that the majority did not register problems and, as noted above, judges and attorneys more often than not credit the reports with helping to sharpen trial preparation. Seventy-six percent of attorneys receiving reports claimed the report increased their understanding of the opposing expert's testimony. Sixty percent claimed the report increased the amount of information they gathered by subsequent deposition. It is interesting to note that the increased informational value of a deposition appears in many cases to have been obtained without an increase in transactional costs, since 55% percent of attorneys also said the report had no effect on the effort they put into conducting formal expert discovery (which included efforts to gather information by deposition). An additional 15% of attorneys said the report actually decreased the effort they put into conducting expert discovery. Counsel for plaintiff and defendants reported these effects in equal proportion.

*Retention of Non-testifying Experts*

In response to the question "Did your client retain one or more experts who did not testify?", 32% of attorneys answered yes. Asked to review a short list of explanations for the situation and to check all that applied, 25% said their client retained one or more experts solely to provide consulting services. Fifty-six percent indicated that their client retained one or more experts with an expectation that they might testify at trial, but they later decided not to present the expert(s). Fifteen percent said the judge excluded one or more of their client's expert witnesses from testifying. This last figure may appear at first glance to contradict the finding that 41% of judges said they excluded or limited testimony in the cases. However, this apparent inconsistency is reconciled by noting that the judges' figure includes cases in which an expert was limited in what evidence he or she presented at trial but was allowed to testify in part.

*Use of Different Judicial Procedures for Managing Complex Evidence*

Judges have a variety of procedures at their disposal for managing expert evidence. Table 5 summarizes judge respondents' use of 17 procedures, listed in descending order of use. For each procedure, judges who said they use the technique reported whether it was used: (a) exclusively in cases with difficult or complicated scientific and technical evidence, (b) in cases with various types of expert evidence, or (c) not at all.

The two most commonly deployed procedures for handling civil cases with expert evidence involved judges asking questions of experts from the bench and requiring or encouraging early exchange of expert reports. Ninety-four percent of judges asked questions from the bench. Only 5% of them indicated that they reserved this technique for use exclusively in cases with difficult scientific evidence.

Table 5
*Percentage of Judges Using Various Procedures in Civil Cases Involving Expert Testimony*

| Procedure | Circumstance in which procedure is used | | |
|---|---|---|---|
| | Exclusively in cases with difficult or complicated sci./tech. evidence | In cases with various types of expert evidence | Not at all |
| Ask clarifying questions of experts from the bench. | 5.4 | 88.2 | 6.4 |
| Require or encourage early exchange of reports of prospective trial experts (F. R. Civ. P. 26 (a)(2)). | 4.4 | 87.6 | 8.1 |
| Permit expert testimony by videotape. | 1.0 | 85.0 | 13.9 |
| Employ a special verdict, or a general verdict with interrogatories. | 5.1 | 82.0 | 12.9 |
| Hold a pretrial hearing on the admissibility of expert testimony (i.e., *Daubert* hearing). | 28.7 | 48.6 | 22.6 |
| Define scope of expert testimony at Rule 16 conference. | 10.1 | 53.5 | 36.5 |
| Limit the number of experts who testify on a particular issue. | 4.7 | 58.8 | 36.5 |
| Engage in your own research in specific areas(s) of testimony. | 19.4 | 21.8 | 58.8 |
| Ask the parties to provide special education or instruction to the court in specific areas of testimony. | 28.1 | 11.0 | 61.0 |
| Limit the amount of time devoted to expert testimony on a particular issue. | 1.4 | 30.7 | 67.9 |
| Appoint an expert under F.R.E 706. | 16.2 | 10.0 | 73.9 |
| Suggest that experts who will testify specify their areas of agreement and disagreement. | 7.7 | 15.3 | 77.0 |
| Appoint a special master under F. R. Civ. P. 53 to prepare a report for the court. | 16.6 | 5.5 | 77.9 |
| Designate certain scientific or technical issues for separate trial (bifurcation). | 11.4 | 8.7 | 79.9 |
| Allow jurors to question experts directly or through the court. | 1.4 | 14.4 | 84.2 |
| Have experts for both sides testify sequentially on an issue before moving on to direct testimony on the next issue. | 5.5 | 4.5 | 90.0 |
| Appoint an advisor to educate the court about scientific or technical areas. | 7.6 | 1.7 | 90.7 |

Note. sci. = scientific; tech. – technical.

Ninety-two percent of judges required or encouraged the exchange of expert reports. Only 4% reserved this procedure for cases with difficult evidence. We should note that the exchange of expert reports has been required by F. R. Civ. P. 26(a)(2) since 1993, but a few courts had not yet fully implemented the rule in 1998 (Stienstra, 1998).

Several other procedures featured prominently in judges' management kit in 1998. Eighty-seven percent of judges indicated that they permitted expert testimony by videotape, and 86% commonly used a special verdict or a general verdict with interrogatories. Only a small percentage of judges reported using videotaped testimony and special verdict forms exclusively in their difficult cases. Over three quarters of judges (77%) indicated that they commonly held a *Daubert* hearing on evidence admissibility, although a high percentage (29%) held such hearings only in cases with difficult scientific evidence. Sixty-four percent of judges dealt with the scope of the expert's testimony at the scheduled Rule 16 conference, with 10% taking up the matter in conference time only when cases presented difficult evidence. Another 64% of judges said they limited the number of experts they permitted to testify on a particular issue; few restricted this technique to cases with complex scientific evidence (5%).

In general, judges reported that procedures to manage testimony were used with cases spanning a range of expert evidence (i.e., cases that utilized various types of expert evidence). For several procedures, however, the predominate use was with cases having difficult scientific and technical issues. These procedures included asking the parties to provide special education or instruction to the court in specific areas of testimony, appointing an expert under F.R.E. 706, appointing a special master under F. R. Civ. P. 53 to prepare a report for the court, and having experts for both sides testify sequentially on an issue before moving on to direct testimony on the next issue. The latter procedure was invoked only in rare circumstances (90% of judges never used the procedure at all). The other procedures were used at least some of the time by 20% or more of judges.

With one exception, judges' reported use of the most common procedures changed little between the 1991 and 1998 surveys. The exception involved pretrial hearings on the admissibility of expert testimony, which have come to be called *Daubert* hearings. As expected, these pretrial hearings were invoked much less frequently in 1991 than in 1998. Only 51% of judges from the early survey reported making use of such hearings, and 13% limited their use to cases having difficult or complicated scientific or technical evidence.[15] As noted above, 77% of judges in 1998 used this procedure.

### *Common Problems with Expert Testimony*

Table 6 summarizes relative frequencies with which expert evidence in general is associated with specific problems in the post-*Daubert* era. The problems listed in Table 6 appear in descending order of the mean frequency rating provided by judges. The rank ordering is given for both judge and attorney groups. A

[15] Three items from the list of procedures for managing expert testimony were worded differently in 1998 than in 1991. The first, “Require or encourage that experts who will testify specify their areas of agreement and disagreement” (1991), was changed to “Suggest that experts who will testify specify their areas of agreement and disagreement” (1998). The second, “Hold a pretrial hearing on the admissibility of expert testimony” (1991), was changed to “Hold a pretrial hearing on the admissibility of expert testimony (i.e., *Daubert* hearing)” (1998). The third, “Designate certain scientific or technical issues for separate trial” (1991), was changed to “Designate critical scientific or technical issues for separate trial (bifurcation)” (1998). We assumed comparability in our analyses.

prominent feature of this table is the degree to which judges and attorneys agree about the relative frequency of problems. The correlation coefficient between judge and attorney ratings is .93, and the correspondence between the problem rankings for both groups is unusually high.

Table 6
*Frequency of Post-Daubert Problems With Expert Testimony in Civil Cases as Reported by Judges and Attorneys (1998, 1999)*

| Problem | Mean Judge | | Mean Attorney | |
|---|---|---|---|---|
| | Rating[a] | (Rank) | Rating[a] | (Rank) |
| Experts abandon objectivity and become advocates for the side that hired them. | 3.69 | (1) | 3.72 | (1) |
| Excessive expense of party-hired experts. | 3.05 | (2) | 3.40 | (2) |
| Expert testimony appears to be of questionable validity or reliability. | 2.86 | (3) | 3.05 | (4) |
| Conflict among experts that defies reasoned assessment. | 2.76 | (4) | 3.13 | (3) |
| Disparity in level of competence of opposing experts. | 2.67 | (5) | 3.02 | (5) |
| Expert testimony not comprehensible to the trier of fact. | 2.49 | (6) | 2.66 | (6) |
| Expert testimony comprehensible but does not assist the trier of fact. | 2.43 | (7. 5) | 2.63 | (7) |
| Failure of parties to provide discoverable information concerning experts. | 2.43 | (7.5) | 2.62 | (8) |
| Attorneys unable adequately to cross-examine experts. | 2.32 | (9) | 2.05 | (11) |
| Indigent party unable to retain expert to testify. | 2.10 | (10) | 2.13 | (10) |
| Delays in trial schedule caused by unavailability of experts. | 2.03 | (11) | 1.76 | (12) |
| Experts poorly prepared to testify | 1.98 | (12) | 2.29 | (9) |

[a] The mean rating is the average rating from respondents using a scale of 1 (*very infrequent*) to 5 (*very frequent*) to denote the frequency with which they encountered a problem.

The two most frequent problems with experts cited by judges and attorneys involve experts who become advocates for the side that hired them and the excessive expense of hiring experts. These two problems received mean judge and attorney ratings above the scale midpoint, indicating that they occurred with some regularity. No other problems were rated above the midpoint by judges, and attorney ratings for other problems fell at or below the midpoint.

Certain problems with expert testimony were cited as frequent by judges both in 1991 and 1998, suggesting that these problems may be institutionalized. In 1991, as in 1998, expert advocacy and expense were rated the two most frequent problems, followed by expert conflict that defied reasoned assessment and testimony that appeared to be of questionable validity or reliability.

To determine whether problems listed in Table 6 were believed to have become more or less prevalent over time, we asked respondents to the post-*Daubert* surveys to indicate which problems had increased (or decreased) in frequency

during the past 5 years. Responses to this question from judges and attorneys were limited, but, where provided, they underscored the salience of the problem with expert advocacy and expense. Twenty-nine judges and 16 attorneys said advocacy had increased; 21 judges and 22 attorneys said the expense of hiring experts had increased. A problem that was identified as having ameliorated over time involved failure of parties to provide discoverable information (23 judges and 10 attorneys).

*Post-Daubert Changes in Judicial Management of Expert Testimony*

Sixty-nine percent of judges reported on how their procedures for assessing expert testimony had changed since *Daubert.* The other 31% of judges came onto the bench after *Daubert*. Sixty percent of attorneys offered their perspective on how judicial procedures changed after *Daubert.* The other 40% either did not practice before *Daubert* or did not feel they handled enough cases with expert evidence to offer an informed opinion.

Sixty percent of responding judges did not believe their use of procedures had changed very much since *Daubert.* A smaller but still sizeable number of attorneys (29%) reported results similar to judges. This finding is puzzling because the evidence indicates that despite the perceptions of the majority (60%) of judges, common practice has been altered. Perhaps the changes are a matter of degree rather than transformation, or perhaps the change is accounted for by the actions of the 40% of judges who report managing expert testimony differently. Regardless of the explanation, *Daubert* gives every appearance of having affected the judicial approach to handling expert evidence in federal civil cases.

Results discussed earlier, for example, show judges responding to more motions *in limine* and limiting expert testimony with increased frequency. Moreover, the likelihood of a pretrial hearing being held has increased since *Daubert* was decided. Forty-five percent of judges reported that they hold more frequent pretrial hearings regarding admissibility of expert testimony than they used to, and their account is supported by 56% of attorneys reporting the same thing. This judicial scrutiny probably contributes to a greater incidence of judges limiting expert evidence. Thirty-three percent of judges maintain that they admit expert evidence less often than they did before *Daubert*, and 61% of the attorneys concurred. Twenty percent of attorneys additionally indicated that federal judges are more likely now to admit some types of expert evidence but less likely to admit other types of expert evidence, lending further support to the notion that there is greater judicial discretion exercised over what testimony goes to trial.

*Beliefs About Post-Daubert Changes in Attorney Management of Expert Testimony*

Like judges, many attorneys claim they exercise greater scrutiny over expert testimony in the post-*Daubert* era. The effects of the increased attention apply both to the expert witness testifying for the attorney's client and to the expert hired by the opposition. With respect to their own experts, 48% of attorneys said they scrutinize the credentials of the expert witnesses they are considering hiring more closely. Forty percent said they are more involved in the preparation of the

expert's testimony. Twenty-two percent said that they retain experts earlier in a case because of *Daubert.*

With respect to the opposition's expert, 41% of attorneys claimed they make more objections to the admissibility of expert testimony at trial, and 24% said they make more summary judgment motions when the opposing party's proffered testimony is limited or excluded. The more typical response to *Daubert* however, has been the filing of a greater number of motions *in limine* to exclude experts. Fifty-four percent of attorneys report making greater use of such motions. This figure is consistent with our data showing a post-*Daubert* increase in the percentage of cases (from 32% to 72%) where judges ruled on admissibility following a motion *in limine.* Thirty-five percent of attorneys indicated that they did not believe their approach changed very much after *Daubert*.

## Discussion

The results of these surveys suggest that recent Supreme Court decisions have influenced the practices of federal judges and attorneys with respect to expert testimony in civil cases. Clarification of admissibility standards appears to have encouraged both groups to take a more active role in scrutinizing proffered testimony.

Judges have become were more discerning with respect to the evidence they permit experts to introduce at trial. A third of judges in 1998 claimed to admit expert evidence less often than they did before *Daubert*, and well over half of the attorneys surveyed reported the same trend in judges' rulings. These claims are supported by outcomes. Judges who ruled on expert admissibility issues in the cases sampled for the recent survey permitted 59% of cases to proceed to trial without limitation on the evidence, whereas judges who ruled on admissibility in the early survey permitted a full 75% of cases to proceed without limitation.

The number of trials in which all of the proffered expert testimony was allowed has been reduced relative to the pre-*Daubert* era. The difference in rates is modest but robust. Our statistics do not address the effect of rulings on all cases (since some cases will settle after an adverse ruling on admissibility), but within the subset of civil cases that proceed to trial, we find no evidence that judicial scrutiny of expert testimony has become overly restrictive. The majority of cases proceeded to trial without admissibility in dispute, and when the admissibility of expert testimony was flagged as an issue, it was attorneys who brought the issue to the courts' attention.

Judges are handling admissibility issues most often in the context of motions *in limine* and objections to expert evidence raised at trial. Motions *in limine* are in much greater use than they were prior to *Daubert*, so it is not surprising to find that judges are holding more pretrial *Daubert*-like hearings than previously. The bases for limiting or excluding testimony do not appear to have been greatly affected by *Daubert*, at least not with respect to the cases we sampled. Judges who excluded testimony in the recent survey did so most often because it was not relevant, the witness was not qualified, or the testimony would not have assisted the trier of fact. These reasons are similar to reasons most frequently cited by judges in 1991, and they do not reflect the factors cited in *Daubert*.

In addition to changing the way judges deal with expert evidence, *Daubert* appears to have altered the behavior (or at least the self-reported behavior) of many attorneys. Perhaps in response to the increasingly active role of the judges in excluding or limiting testimony, attorneys reported more closely scrutinizing the credentials of their own experts and filing more motions to exclude opposing expert evidence. They also reported greater involvement in the preparation of their expert s testimony.

Although expert testimony has received increased judicial attention in the years since *Daubert,* problems with testifying experts have been largely unaffected by the passage of time. Judges and attorneys in the recent surveys reported frequent problems with partisan experts and the excessive expense of experts. These same issues dominated in pre-*Daubert* times.

The surveys reported on here fill in some of the gaps concerning what we know about judicial practices regarding expert evidence in civil litigation. They describe changes in practice that have taken place since the Supreme Court decided *Daubert*, and they document the characteristics of cases that proceed to trial with expert evidence. While this work addresses an important set of issues, it describes only the final stages of litigation involving expert evidence. To determine how *Daubert* and its associated cases have affected judicial and attorney practices in the majority of cases that never go to trial, further research will be needed.

## References

Administrative Office of the United States Courts (1998). *Judicial business of the United States courts: Report of the Director.* Washington, DC: Author.

Berger, M. A. (1994). Procedural paradigms for applying the *Daubert* test. *Minnesota Law Review, 78,* 1345-1386.

Berger, M. A. (2000). The Supreme Court's trilogy on the admissibility of expert testimony. In Federal Judicial Center (Ed.), *Reference Manual on Scientific Evidence* (2nd ed.) (pp. 9-38). Washington, DC: Federal Judicial Center.

Capra, D. J. (1998). The *Daubert* puzzle. *Georgia Law Review, 32,* 699-782.

Champagne, A., Shuman, D., & Whitaker, E. (1992, June-July). Expert witnesses in the courts: An empirical examination. *Judicature,* 76, 5-10.

*Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

Dixon, L. & Gill, B. (2001). *Changes in the standards for admitting expert evidence in federal civil cases since the Daubert decision.* Santa Monica: RAND Institute for Civil Justice.

Elliott, E. D. (1989). Toward incentive-based procedure: Three approaches for regulating scientific evidence. *Boston University Law Review*, 69, 487-511.

Faigman, D. L., Kaye, D. H., Saks, M. J., & Sanders, J. (Eds.) (1997). *Modern scientific evidence: The law and science of expert testimony* (Vols. I & II). West Publishing Company.

Federal Rules of Civil Procedure. (2001).

Federal Rules of Evidence for United States Courts and Magistrates. (2001).

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

Gatowski, S. I., Dobbin, S. A., Richardson, J. T., Ginsburg, G. P., Merlino, M. L., & Dahir, V. (2001). Asking the gatekeepers: A national survey of judges on judging expert evidence in a post-*Daubert* world. *Law and Human Behavior, 25,* 433-458.

*General Electric Co. v. Joiner,* 522 U.S. 136 (1997).

Gottesman, M. (1998). From *Barefoot* to *Daubert* to *Joiner*: Triple play or double error? *Arizona Law Review, 40,* 753-780.

Groscup, J. L., Penrod, S. D., Studebaker, C. A., Huss, M. T., O'Neil, K. M. (in press). The effects of *Daubert v. Merrell Dow Pharmaceuticals* on the admissibility of expert testimony in state and federal criminal cases. *Psychology, Public Policy, and Law.*

Groscup, J. L., Studebaker, C. A., Huss, M. T., O'Neil, K. M., & Penrod, S. D. (2000, March). A *'scientific' analysis of the admissibility of expert testimony: Investigating the effects of Daubert v. Merrell Dow Pharmaceuticals.* Paper presented at the meeting of the American Psychology-Law Society, New Orleans, LA.

Gross, S. R. (1991). Expert evidence. *Wisconsin Law Review, 1991*, 1113-1232.

Gross, S. R. & Syverud, K. D. (1996). Don't try: Civil jury verdicts in a system geared to settlement. *University of California at Los Angeles Law Review, 44*, 1-6.

Johnson, M. T., Krafka, C., & Cecil, J. S. (2000). *Expert testimony in federal civil trials: A preliminary analysis.* Washington, DC: Federal Judicial Center.

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

Landsman, S. (1995). Of witches, madmen, and products liability: An historical survey of the use of expert testimony. *Behavioral Sciences & the Law, 13*, 131-157.

Langbein, J. H. (1985). The German advantage in civil procedure. *University of Chicago Law Review, 52*, 823-866.

Patterson , M. R. (1999). Conflicts of interest in scientific expert testimony. *William and Mary Law Review, 40*, 1313-1394.

Posner, R. A. (1991). An economic approach to the law of evidence. *Stanford Law Review, 51*, 1477-1546.

Risinger, D. M. (2000). Navigating expert reliability: Are criminal standards of certainty being left on the dock? *Albany Law Review, 64*, 99-152.

Saks, M. J. (2000). The aftermath of *Daubert*: An evolving jurisprudence of expert evidence. *Jurimetrics, 40*, 229-241.

Shuman, D. W. (1997). What should we permit mental health professionals to say about "the best interest of the child?": An essay on common sense, *Daubert*, and the Rules of Evidence. *Family Law Quarterly, 31*, 551-569.

Songer, D. R. (1988). Nonpublication in the United States district courts: Official criteria versus inferences from appellate review. *Journal of Politics, 50*, 206-215.

Stienstra, D. (1988). *Implementation of disclosure in United States District Courts, with specific attention to courts' responses to selected amendments of Federal Rule of Civil Procedure 26.* Washington, DC: Federal Judicial Center.

Vidmar, N., Diamond, S.S. (2001). Juries and expert evidence. *Brooklyn Law Review, 66*, 1121-1180.

Walker, L. & Monahan, J. (1996). *Daubert* and the reference manual: An essay on the future of science in law. *Virginia Law Review, 82*, 837-857.

Willging, T. E., Shapard, J., Stienstra, D., Miletich, D. (1997). *Discovery and disclosure practice, problems and proposals for change: A case-based national survey of counsel in closed federal civil cases*. Washington, DC: Federal Judicial Center.