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A New Guide To Understanding Science In The Courtroom

Law360, New York (January 09, 2012) -- The Reference Manual on Scientific Evidence was first published in 1994, one year after the seminal U.S. Supreme Court Case Daubert v. Merrell Dow Pharmaceuticals Inc.[1] tasked federal judges to act as "gatekeepers" for the admission of scientific expert testimony.

Since that time, scientific evidence has played an increasingly large role in litigation, requiring judges and attorneys to understand an array of scientific concepts in order to fulfill their respective roles of gatekeeper and advocate. From the time of its first publication, and the subsequent publication of the second edition in 2000, the Reference Manual has been a respected and commonly looked-to source of guidance regarding scientific evidence.

Judges and attorneys now have the benefit of an updated third edition, which was released in electronic format in 2011 and is available in hard copy as of the first week of January 2012.[2]

This article provides an introduction to the manual, and highlights some of the new edition's notable additions and changes.

An Introduction to the Manual

The manual was first published by the Federal Judicial Center, a research and education agency of the federal judicial system. It was originally developed at the recommendation of the Federal Courts Study Committee to aid judges in understanding scientific evidence.

The third edition, developed in collaboration with the center, is published by the National Research Council, a branch of the congressionally chartered National Academies of Science, which is responsible for advising the federal government on scientific matters.

The manual covers disciplines of science from which evidence is typically offered — for instance, toxicology, multiple regression and survey research. It explains fundamental principles, standard expert qualifications and evidentiary problems specific to the area of science, as well as provides citations to cases in which courts have analyzed these questions.

For instance, the chapter on mental health evidence explains how mental disorders are diagnosed and treated; training and qualifications of psychiatrists, psychologists and other mental health professionals; and the limitations specific to this kind of evidence.

Courts often look to the manual for guidance and authority for understanding an area of science. It has been cited by the U.S. Supreme Court, the Courts of Appeals for every circuit and hundreds of federal district courts and state courts.

Chief Justice William Rehnquist described the manual as offering "helpful suggestions."[3] The Seventh Circuit found in one opinion that had the district judge read the relevant portions of the manual, he would have rejected the plaintiff's expert testimony.[4] The Ninth Circuit once approved of evidentiary analysis as "fully consistent with the [Manual]."[5]

Indeed, Supreme Court Justice Stephen Breyer placed his stamp of approval on the manual by serving as the author of the introduction. According to Breyer, the manual "represents one part of a joint scientific-legal effort that will further the interests of truth and justice alike."

An Updated Exploration of Admissibility

Keeping to its roots, there are significant changes to the manual's chapter on the admissibility of expert testimony. The second edition focused on the Supreme Court's "trilogy" of cases regarding expert testimony: Daubert; General Electric Co. v. Joiner; and Kumho Tire Co. v. Carmichael.[6]

When the last edition was published, Kumho was relatively new case law, and therefore significant discussion was dedicated to considering Kumho's possible implications, including whether its seemingly flexible approach to evaluating admissibility might result in a reversion to the "general acceptance" standard rejected by the court in Daubert.

The third edition adds little to the discussion of the Supreme Court's "trilogy." The extent of the additional coverage is regarding one case that held that a litigant has only one chance to offer an expert who can withstand a Daubert motion.[7]

As for the questions about Kumho's implications that were posed in the second edition, answers were apparently provided by the jurisprudence that developed over the past 10 years; as the manual notes, when assessing expert testimony, courts still most often rely upon and cite to Daubert.

Even so, there remain many open questions regarding admissibility of expert testimony that are addressed for the first time in the third edition, signaling their increased significance since the publication of the last edition.

Some of these topics include: the difficulties associated with proving exposure in toxic tort cases; expert credibility and conflicts of interest; the recent trend in rejecting class certification based on rejecting expert testimony; recent changes to discoverability of expert reports and communications; and the possible increasing need for e-discovery experts.

The new chapter on admissibility also devotes substantially more attention to forensic evidence. In 2000, the manual briefly discussed the topic, noting that while some had begun to question its reliability, few successful challenges had been made to forensic evidence.

The third edition speculates this may soon change as the reliability and validity of forensic evidence are increasingly called into question. The manual explores possible problems and questions regarding forensic evidence, such as human error and bias, the quality of proficiency tests for experts, and lack of standard accreditation for crime labs.

New Areas of Science Included

Many topics also receive their own chapter for the first time in the third edition, thereby signaling their increased relevance since the last edition was published in 2000. Just as problems proving exposure are addressed for the first time in the chapter on admissibility, "exposure science" now receives its own chapter.

The manual notes that exposure science is "not yet a distinct academic discipline." For this reason, in addition to the usual exploration of the substantive science, the manual explains in greater detail what exposure scientists do, their appropriate qualifications, and the legal contexts to which exposure science may apply.

The manual also provides a case study that illustrates exposure assessment — i.e., whether local residents' health problems were caused by water contamination from a nearby hazardous waste site. The assessment considers possible pathways of exposure, such as water consumption and dermal absorption, and their respective exposure rates, which are then compared with exposure rates that were found to cause injury in animal studies.

Likewise, complementing the extensive discussion of forensic evidence in the chapter on admissibility, the manual has a new chapter dedicated to "forensic identification expertise."

The additional information should be helpful in navigating an area of law that is in flux, as demonstrated in part by the National Research Council 2009 report that raised questions as to the reliability of forensic evidence, and the 2009 Supreme Court case Melendez-Diaz v. Massachusetts[8], which addressed the application of the Confrontation Clause to forensic evidence, and also cited the 2009 council report.

The manual addresses many areas of forensic evidence, including those that are typically used in criminal cases, such as ballistics analysis, and those that are relevant in both the criminal and civil context, such as handwriting analysis.

The manual also has new chapters on "neuroscience" and "mental health evidence," which provide valuable guidance regarding these evolving and increasingly important areas of scientific evidence.

The mental health chapter includes an illustrative case example of an assault victim's suit against a medical center that treated his attacker for psychiatric issues. In the example, the manual presents two uses of medical health evidence:

1. To establish negligence, a psychiatrist testifies that the defendant should have recognized the attacker's potential for violence before discharging him; and
2. To prove damages, a psychologist testifies that the plaintiff suffers post-traumatic stress disorder resulting from the attack.

The manual offers "questions for consideration" related to that testimony.

Chapters from the last edition have been updated with additional material and new case law. Some sections are also reorganized or edited, providing more clarity and ease of reading.

Overall, the Third Edition of the Reference Manual offers the same types of useful guidance provided in the previous editions, with updates for new scientific areas of interest and expanded discussions of topics that have received more attention over the past 10 years.

With these additions, the manual should continue to be a valuable resource for judges and attorneys who are called upon to understand and apply scientific issues in litigation around the country.

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[1] 509 U.S. 579 (1993).

[2] The electronic version of the Reference Manual is available from the National Academies' website at www.nap.edu/catalog.php?record_id=13163.

[3] Atkins v. Virginia, 536 U.S. 304, 327 (2002) (regarding admissibility of survey evidence) (Rehnquist, C.J., dissenting).

[4] ATA Airlines, Inc. v. Fed. Express Corp., 2011 U.S. App. LEXIS 25818, 19 (7th Cir. 2011).

[5] In re Hanford Nuclear Reservation Litig., 292 F.3d 1124, 1137 (9th Cir. 2002).

[6] 509 U.S. 579 (1993); 522 U.S. 136 (1997); 526 U.S. 137 (1999).

[7] Weisgram v. Marley Co., 528 U.S. 440 (2000).

[8] -- U.S. --, 129 S.Ct. 2527 (2009).