E9 The Exclusion of Forensic Identification Science Evidence Since *Daubert vs. Merrell Dow Pharmaceuticals, Incorporated*

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After attending this presentation, attendees will be able to describe incidences and patterns of judicial reasoning in cases where forensic science evidence has been excluded since the decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*

This presentation will impact the forensic science community by presenting how analysis of judicial reasoning for exclusion of forensic evidence reveals that pure deference to the *Daubert* factors is not the primary means by which to avoid potential exclusion of forensic science evidence in court. Judicial reasoning in decisions to exclude forensic identification science can be categorized in such a way as to be of relevance to forensic scientists as they conduct their analysis and present their evidence. These criteria for exclusion, derived from case law examples, are explained to participants so that they may take heed from other forensic scientists' experiences and avoid exclusion of their evidence in court.

The 1993 United States Supreme Court decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.* transformed the way scientific expert evidence was reviewed in courts across the United States. Five hundred fourty eight judicial opinions were analyzed from cases involving a challenge to forensic identification evidence since the *Daubert* decision in order to gauge its impact on the admission of such testimony. Eighty-one (15%) of these cases resulted in exclusion or limitation of evidence. These eighty-one cases were then coded according to the reasons given for exclusion or limitation. Relevancy issues accounted for exclusion of evidence in fifteen of these cases (19%); and, the witness was deemed not qualified as an expert in a further in sixteen (20.3%). A failure to meet the state or federal requirements for reliability was cited in fifty of the eighty-one cases (65.7%), mainly due to lack of an underpinning scientific foundation (twenty-seven cases), and inappropriate or unsupported witness conclusions (seventeen cases). Further analysis revealed that forensic odontology was the discipline most likely to be excluded due to reliability issues (100% of excluded odontology cases), followed by handwriting analysis (72%), fingerprint analysis (58.3%), and firearm and tool mark analysis (52.8%). The greater incidence of exclusion or limitation due to a lack of demonstrable reliability compared to other reasons suggests that there is a continuing need for the forensic sciences to pursue basic research validating their underlying theories and techniques of identification in order to ensure their continued acceptance by the courts.

Following a statistical analysis of these cases, those in which forensic science evidence was excluded were analyzed qualitatively in an attempt to discern patterns in judicial reasoning. The results reveal that exclusion of forensic science evidence is not simply based on superficial application of the *Daubert* indicia to the evidence in question. The use of unfounded statistics, a failure to address the reliability of the evidence as it relates to the case at bar, an inability to clearly explain the methodology behind analysis, and the failure to adhere to recognized standards have all been fatal to the admission of forensic science evidence in the United States since 1993. In addition, the existence of observer bias, unrealistic proficiency testing, a lack of objective standards, custom experiments and implausible error rates have also contributed to decisions to exclude fingerprint, firearm and tool mark, odontology and handwriting evidence. A reliance on general acceptance alone has also been cited by several cases as reasons for rejection. None of these reasons for exclusion can successfully be addressed by the legal community. It falls to the researchers and practitioners in forensic science to discern ways in which to overcome
these shortcomings.

Forensic Science, *Daubert*, Law

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