



## E100 Forensic Science in the United States Court of Appeals: A Ten-Year Review (2009–2018)

*Danielle M. Crimmins, MS\*, Purdue University, West Lafayette, IN 47907; Martin Novak, MPA\*, National Institute of Justice, Washington, DC 20531*

**Learning Overview:** After attending this presentation, attendees will understand: (1) which scientific disciplines are most frequently associated with appeals relating to the introduction or exclusion of scientific evidence; (2) which forensic science disciplines are challenged; and (3) how legal issues for appeal vary by scientific discipline.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by addressing the forensic science disciplines that are appealed in the United States Courts of Appeals. In recent years, there have been efforts to look at the underlying validity and reliability of forensic science evidence from criminal and civil law and regulatory issues.<sup>1</sup> While there have been some efforts to look at legal challenges to scientific evidence, specifically surrounding the impact of the United States Supreme Court's 1993 *Daubert v. Merrell Dow Pharmaceuticals* decision, an updated effort to catalog the diversity of scientific domains that are called upon in the course of criminal law, and in what contexts, would be beneficial.<sup>2-4</sup> For instance, identifying the scientific disciplines that are most frequently associated with appeals relationship to the introduction or exclusion of scientific evidence, how do legal issues vary by scientific discipline, and are there trends or areas of law as applied to scientific disciplines that require further attention from criminal justice stakeholders, including the forensic science community, courts, and trial attorneys.

The United States Courts of Appeals records were surveyed from the past decade (2009–2018) and categorized by scientific disciplines brought up on appeal. Lexis Advance was used to identify cases, using search terms that were adapted from previous literature.<sup>2</sup> The main goal of the search was to identify cases involving admissibility, Rule 702, and Rule 703 (rules addressing expert evidence in the Federal Rules of Evidence). The search terms were designed to be overly inclusive in an effort not to miss any cases in which the opinion rendered included expert evidence. The final search included 1,775 cases. Stratified random sampling, based on the circuit size, was used to identify a sample of 350 cases.

For the 350 cases identified, case opinions were reviewed based on a 28-question codebook pertaining to information about the case (e.g., report number, circuit, data of decision, and subsequent actions); items pertaining to the basis of appeal and secondary basis of appeal; and items pertaining to the evidence type, primary scientific discipline, and a broad categorization of discipline. If there was forensic testimony, there were items related to the broad category of forensic evidence (e.g., biology, digital/multimedia) and the expert education level (e.g., PhD, MD, DDS). The codebook was reviewed individually by two attorneys and two individuals in the forensic science community. Cases were excluded if the case was a civil case that was not a writ of habeas relief, the opinion contained insufficient detail to determine the background and type of expert witness testifying (i.e., no reference as to the expert witness' profession or domain of expertise), if the appeal was about lay opinion testimony, appeals focused on a search warrant, or the result of a false search hit.

### Reference(s):

1. National Commission on Forensic Scienc. In its Views Document: Defining forensic science and related terms. Adopted 2015 Apr 30-May 1. [www.justice.gov/ncfs/file/786571/download](http://www.justice.gov/ncfs/file/786571/download).
2. Dixon L., Gill, B. (2002). Changes in the standards for admitting expert evidence in federal civil cases since the *Daubert* decision. *Psychology, Pub Policy Law* 2002;8(3):251.
3. In Groscup J.L., Penrod S.D., Studebaker C.A., Huss M.T., O'Neil K.M. The effects of *Daubert* on the admissibility of expert testimony in state and federal criminal cases. *Psychology Pub Policy Law*. 2002;8(4):339.
4. *Daubert v. Merrell Dow Pharmaceuticals*, 509 US 579 (1993).

### Evidence, Appeals, Case Review