



AMERICAN STATISTICAL ASSOCIATION

Promoting the Practice and Profession of Statistics®

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March 21, 2018

The Honorable Rod J. Rosenstein  
Deputy Attorney General  
U.S. Department of Justice  
950 Pennsylvania Avenue, NW  
Washington, DC 20530-0001

Dear Deputy Attorney General Rosenstein,

Thank you for traveling to the American Academy of Forensic Sciences (AAFS) conference in Seattle last month to announce the Department of Justice's (DOJ) new policies on forensic science. We appreciate you emphasizing the critical role of forensic science in the search for truth and the department's desire to advance the reliability of forensic evidence. We must note, however, our concern regarding the omission of two paramount components from the department's efforts to continue improving forensic science. Given the large financial and grave societal costs incurred due to weak forensic science, we urge the department to actively facilitate collaboration among law enforcement, legal professionals, forensic science practitioners, and scientists and to strongly support more scientific research to bolster the many forensic science disciplines.

Before elaborating on these points, let me briefly explain the role of statistics in strengthening forensic science and the general perspective of the American Statistical Association (ASA). Forensic science, like all areas of science, involves elements of uncertainty, whether it be measurement uncertainty, uncertainty due to sampling, or the framing of hypotheses. Statistics—the science of learning from data—provides the language and methods to characterize and quantify this uncertainty. Indeed, as we noted in a 2010 ASA Board statement,<sup>1</sup> “statisticians are vital to establishing measurement protocols, quantifying uncertainty, designing experiments for testing new protocols or methodologies, and analyzing data from such experiments.” Over the years, the ASA—with the guidance of the ASA Forensic Science Advisory Committee—has supported and encouraged sound scientific practice in forensic science, including the use of statistics and statistical reasoning.

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<sup>1</sup> [http://www.amstat.org/asa/files/pdfs/POL-Forensic\\_Science\\_Endorsement.pdf](http://www.amstat.org/asa/files/pdfs/POL-Forensic_Science_Endorsement.pdf)

Because problems in forensic science are multifaceted and complicated, we believe it is imperative the DOJ assemble the four key stakeholder communities: law enforcement, legal professionals, forensic science practitioners, and scientists. Their joint engagement, input, and involvement are required to address the underlying challenges needed to effect forensic science reform. Only DOJ has the authority to convene these four communities.

The 2009 National Academy report, *Strengthening Forensic Science*, helped spotlight the need to further the scientific underpinning of many forensic evidence disciplines. Progress has been made since the report, but needs remain. Your comments in Seattle, along with the administration's proposal to cut support for the National Institute of Standards and Technology's forensic science efforts, seem to suggest the administration believes progress can be made without more scientific research.

In reality, the work required to close the many gaps identified in the forensic sciences is still in its early stages. Consider for example that we currently lack the scientific knowledge required for a forensic science examiner to quantify the strength of evidence provided by observed correspondences between crime scene evidence and a suspect or an item associated with the suspect. This is true for finger prints, dental imprints, firearm markings, and other types of evidence.

As you move forward, we respectfully urge you to incorporate these two vital components—actively facilitating collaboration among law enforcement, legal professionals, forensic science practitioners, and scientists and strongly supporting more scientific research to bolster the many forensic science disciplines—to your department's forensic science policies. We would be happy to work with you to help ensure their success. As a reminder, we enclose our 2017 comments in response to the department's call for comments regarding forensic science (Docket No. OLP 160).

Thank you for your consideration.

Sincerely,

A handwritten signature in blue ink that reads "Lisa LaVange". The signature is written in a cursive, flowing style.

Lisa LaVange, Ph.D.

2018 President

American Statistical Association

Enclosure: ASA's June 2017 comments to the Department of Justice in response to its spring 2017 call for comments regarding forensic science.



## **ASA's Comments on Forensic Science in Response to the Department of Justice Call for Comments**

Prepared by the ASA Advisory Committee on Forensic Science

June 8, 2017

The American Statistical Association (ASA) is pleased to respond to the Department of Justice (DOJ) Call for Comments regarding forensic science (Docket No. OLP 160). Our comments focus on ways that the Department should move forward to evaluate and improve the underlying science for forensic science disciplines.

We believe it is imperative that DOJ leadership recognize the high financial and societal cost from weak forensic science. Innocent people can be wrongfully imprisoned while the guilty parties remain a danger to society. The steps necessary to address errors due to faulty or misstated forensic science evidence can include innumerable hours of court and legal time and can take years to correct. The large financial and grave societal costs incurred due to weak forensic science call for active DOJ leadership and engagement in this area. The problem is multifaceted and complicated, and it requires collaboration among law enforcement, legal professionals, forensic science practitioners, and scientists. Indeed, sidelining scientists has been a key problem. The National Commission on Forensic Science (NCFSS) showed the value of bringing together these four communities who, together, made joint recommendations.

All aspects of science, including forensic science, involve elements of uncertainty, such as measurement uncertainty, uncertainty due to sampling, and in the framing of hypotheses. Statistics provides the language and the methods to characterize and quantify this uncertainty. In this document, the ASA emphasizes the importance of strengthening the science in forensic science and the critical role that statistics plays in this process.

The ASA is the oldest scientific association in the United States. Over the years the ASA, with the guidance of the ASA Forensic Science Advisory Committee, has supported and encouraged sound scientific practice in forensic science, including the use of statistics and statistical reasoning. Our efforts

have led to increased numbers of statisticians for the Organization of Science Area Committees for Forensic Science (OSAC), a statistical review on a forensic science report for the Government Accountability Office (GAO), and presentations to the Federal Bureau of Investigation (FBI) to help increase statistical rigor at the Bureau. We look forward to continuing this work with DOJ and others.

Our input comes in the form of recommendations that fall into two categories: recommendations of an administrative nature for DOJ leadership and recommendations to improve forensic science practice..

#### *Administrative Recommendations*

- The Department of Justice should remain focused on assembling the four communities - law enforcement, legal professionals, forensic science practitioners, scientists - whose joint engagement, input, and involvement are required to address the underlying challenges needed to effect forensic science reform. **Only DOJ has the authority to convene these four communities.** DOJ leadership, including FBI, NIJ, and BJS, should stress the importance of continuing active scientific engagements with NIST and the Organization of Scientific Area Committees (OSAC), and include other federal agencies as necessary. This engagement should go beyond their scientists' participation in the OSAC and also include FBI and DOJ leadership.
- We urge DOJ to consider carefully the recommendations made in the 2015 National Academies report, *Support for Forensic Science Research: Improving the Scientific Role of the National Institute of Justice*. We specifically endorse and urge adoption of recommendations 4-1 and 4-2 for NIJ to develop a formal and comprehensive strategic plan for its forensic science research and development program and for NIJ to establish a research advisory board to identify and prioritize research needs and monitor progress in achieving the strategic plan's designated goals. Such an advisory board would benefit by including statisticians. Quoting the 2010 ASA Board statement on forensic science reform ([http://www.amstat.org/policy/pdfs/Forensic\\_Science\\_Endorsement.pdf](http://www.amstat.org/policy/pdfs/Forensic_Science_Endorsement.pdf), 2010), "Statisticians are vital to establishing measurement protocols, quantifying uncertainty, designing experiments for testing new protocols or methodologies and analyzing data from such experiments."
- We also support recommendation 4-5 of the 2015 report: "Federal policy makers should ensure the ability of the National Institute of Justice to advance forensic science research and development through dedicated, adequate, and stable appropriations coupled with funding flexibility to help support both short- and long-term research strategies." Robust funding for forensic science research is essential to strengthening forensic science given the many deficiencies that have been identified. The research needs identified by OSAC should be prioritized through their integration with DOJ solicitations.

#### *Recommendations to Improve Forensic Science Practice*

- The uncertainty associated with forensic science measurements, processes and interpretations must be acknowledged and integrated in forensic examination reports and testimony. DOJ should insist on this practice for the forensic laboratories within the Department and encourage

widespread adoption of this principle.

- DOJ should take steps to encourage improved understanding of the processes followed by forensic science laboratories, and to encourage the development of quality control standards in the labs. As one specific example, labs should be encouraged to carefully assess all aspects of their verification processes (types, frequencies, and characteristics of cases that are verified; outcomes of verification processes; etc).

DOJ should encourage the incorporation of more statistical thinking and practice in the training requirements for forensic science practitioners. Topics should include principles of experimental design, sampling from populations, uncertainty and its role in interpreting forensic evidence, and basic probability.