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

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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 (NCFS) 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, 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.