

OPENING STATEMENT
The Honorable Harry T. Edwards
Co-Chair, Forensic Science Committee

Good afternoon. Dr. Constantine Gatsonis and I are here today as the co-chairs of the “Committee on Identifying the Needs of the Forensic Science Community” to announce the release of the committee’s report. Our work on this report commenced in 2007, after Congress authorized the National Academy of Sciences to create an independent committee to study forensic science practices in the United States. The congressional authorization directed that, among other things, our report should "assess the present and future resource needs of the forensic science community," "make recommendations for maximizing the use of forensic techniques," and "make recommendations for programs that will increase the number of qualified forensic scientists and medical examiners." The legislative history makes it clear that Congress was convinced that this study was necessary because, “outside of the area of DNA,” the American public does not have a good understanding of the forensic science disciplines.

Our committee was composed of a diverse and talented group of professionals, some expert in various forensic science disciplines, others in law, some in higher education, and others in different fields of science, engineering, and medicine. It was gratifying to work with Dr. Gatsonis – who taught me much about scientific methodology – and with the other wise and dedicated members of the committee as we waded through the complex maze of science, law, and policy issues before us. Dr. Gatsonis and I are also grateful for the superb support given to the committee by National Academy of Sciences staff, most particularly, Anne-Marie Mazza, Scott Weidman, Steven Kendall, and Kathi Hanna.

In assessing the forensic science community, the committee heard from and reviewed materials published by countless experts, including forensic science practitioners, heads of public and private laboratories, directors of medical examiner and coroner offices, scientists, scholars, educators, government officials, members of the legal profession, and law enforcement officials. The picture that they painted of the forensic science community and the problems that they illuminated were compelling.

"Forensic science" encompasses a broad range of disciplines (such as toxicology, drug analysis, fingerprints, writing samples, tool marks, bite marks, and specimens such as hair), each with its own set of technologies and practices. The "forensic science community," in turn, includes, variously, scientists (with degrees in chemistry, biochemistry, biology, and medicine); other practitioners without such degrees; laboratory technicians; crime scene investigators; and law enforcement officers. Within the forensic science community, there is also wide variability across disciplines with regard to techniques, methodologies, reliability, types and numbers of potential errors, research, general acceptability, and published material. Given this reality, it was no mean feat for the committee to meet Congress’ charge to "assess the present and future resource needs of the forensic science community."

It was easy for the committee to see that there are a number of talented and dedicated people

in the forensic science community. The problem that we found, however, is that too many scientists and other practitioners in the forensic science community are strapped in their work, for lack of adequate resources, sound policies, and national support. And the forensic science community is plagued by fragmentation and inconsistent practices in federal, state, and local law enforcement jurisdictions and agencies. The quality of practice in forensic science disciplines varies greatly. And the quality of practice often suffers because of the absence of adequate training and continuing education; the absence of rigorous, mandatory certification requirements for practitioners; the absence of mandatory accreditation programs for laboratories; failures to adhere to robust performance standards; and the lack of effective oversight. These shortcomings obviously pose a continuing and serious threat to the credibility of forensic science practice.

In considering the testimony and evidence that was presented to the committee, what surprised us the most was the consistency of the message that we heard. The message was simple: *The forensic science system in the United States has serious problems that can only be addressed by a national commitment to overhaul the current structure that supports the forensic science community in this country. This can only be done with effective leadership at the highest levels of both federal and state governments, pursuant to rigorous and mandatory standards, and with a significant infusion of federal funds.*

In other words, the committee found that, not only does the forensic science community lack adequate resources, talent, and mandatory standards; it also lacks the necessary governance structure to address its current weaknesses. Inefficiencies in the current system cannot be remedied simply by increasing the staff within existing crime laboratories and medical examiner offices. The forensic science community needs strong governance to adopt and promote an aggressive, long-term agenda.

- Governance must be strong enough – and independent enough – to identify the limitations of forensic science methodologies;
- it must be well connected with the Nation's scientific research base in order to catalyze meaningful advances in forensic science practices;
- it must be able to create appropriate incentives for jurisdictions to adopt and adhere to best practices and promulgate the necessary sanctions to discourage ineffective or faulty practices; and
- oversight necessarily must sweep broadly, beyond just criminal investigation and prosecution.

With these considerations in mind, the committee first considered whether such a governing entity could be established within an existing federal agency. We concluded that no existing agency has the capacity or appropriate mission to take on the roles and responsibilities needed to govern and improve the forensic science community. *Therefore, the committee's principal recommendation is that Congress should authorize and fund the creation of an independent federal entity, the National Institute of Forensic Science, or NIFS.*

This new agency should have a full-time administrator and an advisory board with members who have expertise in research and education, forensic science disciplines, the physical and life sciences, forensic pathology, engineering, information technology, measurements and standards, testing and evaluation, law, national security, and public policy.

NIFS, as we envision it, will, as appropriate, establish, enforce, oversee, and/ or encourage:

- best practices (including the enforcement of robust performance standards);
- mandatory accreditation of forensic science laboratories;
- mandatory certification of forensic science practitioners;
- peer-reviewed research and technical development in forensic science disciplines and forensic medicine;
- improved forensic science research and educational programs;
- funding state and local forensic science agencies, independent research projects, and educational programs, with conditions that aim to advance the credibility and reliability of forensic science disciplines;
- education standards and the accreditation of forensic science programs in higher education;
- programs for lawyers and judges to better understand the forensic science disciplines and their limitations; and
- the development and introduction of new technologies in forensic investigations.

We are convinced that if NIFS is established as envisioned, it will serve our country well, as a new, strong, and independent entity, with no ties to the past dysfunctions of the forensic science community, and with the authority and resources to implement a fresh agenda designed to address the many problems found by the committee.

There is one final point that I would like to make before turning the stage over to Dr. Gatsonis. The work of the forensic science community is critically important in our system of criminal justice. Indeed, as one scholar has noted, “forensic science is but the handmaiden of the legal system.” The goal of law enforcement actions is to identify those who have committed crimes and to prevent the criminal justice system from erroneously convicting the innocent. Forensic science experts and evidence are routinely used in the service of the criminal justice system. So it matters a great deal whether an expert is qualified to testify about forensic evidence and whether the evidence is sufficiently reliable to merit a fact finder's reliance on the truth that it purports to support.

Unfortunately, the adversary system, and its highly partisan approach to the submission of evidence in court, is not well suited to the task of finding "scientific truth." The judicial system is encumbered by, among other things, judges and lawyers who generally lack the scientific expertise necessary to comprehend and evaluate forensic evidence in an informed manner, defense attorneys who often do not have the resources to challenge prosecutors' forensic experts, trial judges (sitting alone) who must decide evidentiary issues without the benefit of judicial colleagues and often with little time for extensive research and reflection, and very limited appellate review of trial court rulings admitting disputed forensic evidence. Furthermore, the judicial system embodies a case-by-case adjudicatory approach that is not well suited to address the systematic problems in many of the various forensic science disciplines. Given these realities, there is a tremendous need for the forensic science community to improve. *Judicial review, by itself, will not cure the infirmities of the forensic science community.*

In reaching this conclusion, I want to make it clear that the committee's report does not mean to offer any judgments on any cases in the judicial system. The report does not assess past criminal convictions, nor does it speculate about pending or future cases. And the report offers no proposals for law reform. That was beyond our charge. Each case in the criminal justice system must be decided on the record before the court pursuant to the applicable law, controlling precedent, and governing rules of evidence. The question whether forensic evidence in a particular case is admissible under applicable law is not coterminous with the question whether there are studies confirming the scientific validity and reliability of a forensic science discipline.

Although the report offers no proposals for law reform, the committee believes, that with more and better educational programs, mandatory accreditation and certification, sound operational principles and procedures, and serious research to establish the limits and measures of performance in each discipline, forensic science experts will be better able to analyze evidence and coherently report their findings in the courts.

The *practices of science* provide two attributes that the law needs from the forensic disciplines: (1) reliable methodologies that enable the accurate analysis of evidence and reporting of results, and (2) practices that minimize the risk of results being dependent on subjective judgments or tainted by error or the threat of bias. Because of the many problems presently faced by the forensic science community and the inherent limitations of the judicial system, the forensic science community as it is now constituted cannot consistently serve the judicial system as well as it might. As the committee's report makes clear, what is needed is a massive overhaul of the forensic science system in the United States, both to improve the scientific research supporting the disciplines and to improve the practices of the forensic science community. And the creation of NIFS is the keystone for such an overhaul.

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I would now like to pass the microphone to Dr. Gatsonis, who will outline the fundamental principles of the scientific method, explain why the committee's report raises doubts about whether some forensic practices can be credited as "scientific," and then conclude by highlighting some of the other recommendations in the committee's report.