

Statement of

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before the

**Subcommittee on Crime, Terrorism, and Homeland Security**

**Committee on the Judiciary  
U.S. House of Representatives**

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**Hearing on the**

**National Research Council's publication**

***Strengthening Forensic Science in the United States:  
A Path Forward***

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Mr. Chairman and members of the Subcommittee, thank you for the opportunity to appear before you today and to offer my perspective on the findings and recommendations found in the recently released report of the National Academy of Sciences (NAS), *Strengthening Forensic Science in the United States: A Path Forward*. The Academy was given a broad charge to assess the state of forensic practices across the country and to make recommendations for improvement. In addition to traditional forensic laboratory services, the scope of its review included functions of medical examiners and coroners in determining cause and manner of death.

First, I should say I do not support the call for the creation of a National Institute of Forensic Science. In my view, a separate federal agency would be costly to establish and unnecessarily duplicative of well-established programs and activities now found within several federal agencies. I do agree with the underlying premise of this proposal that there needs to be a well coordinated effort among these agencies and within the national forensic community to focus attention on issues related to the quality and delivery of forensic services by publicly funded agencies.

The essential recommendations found in the NAS report may be grouped into four broad categories:

- (1) methods development and standardization;
- (2) laboratory accreditation and quality assurance;
- (3) research and training; and
- (4) resource needs.

As described briefly below, a number of congressional initiatives over the past few years have directed much needed attention to the resource needs within the forensic community and to forensic laboratory quality improvement issues, including laboratory accreditation and staff training. It is recommended that support for these initiatives be continued. It is clear, however, that additional steps are needed to address critical concerns related to methods development and validation, especially for forensic disciplines other than DNA analysis.

Priority attention should be directed to elements found in NAS recommendations numbered 1, 3 and 10. Specifically, under NAS recommendations 1 and 3, funding should be directed at promoting scholarly, competitive peer-reviewed research which addresses issues of accuracy, reliability, and validity in forensic science disciplines. Funds should also be directed at assessing the development and introduction of new technologies in forensic investigations, especially technologies that improve the detection and discrimination potential for materials typically encountered at crime scenes and those automation technologies which can be applied to reduce evidence processing times.

As called for under the NAS recommendation 10, funding should be made available for distribution to educational institutions and other appropriate organizations to encourage the development, improvement, and delivery of graduate education programs in the forensic sciences. Funding should also support continuing education programs for

lawyers, judges, law enforcement personnel, practitioners and other groups that are involved in the collection of physical evidence or groups that utilize the results of forensic analyses within the criminal justice system. Such groups might include those involved in the medical treatment of victims of crimes.

It should be noted that with regard to the forensic use of DNA technology, the Congress has already authorized a series of highly relevant and critically needed programs that provide the resources to help meet the unprecedented demand for DNA testing services. These programs are administered by the National Institute of Justice (NIJ) and are intended to help eliminate testing backlogs and reduce case turnaround times, to provide defendants with access to post-conviction DNA testing, and to help assure that the technology is used effectively to identify missing persons.

With regard to “non-DNA” forensic laboratory services and medical examiner services, legislation was enacted in 2000 which created the Paul Coverdell Forensic Sciences Improvement Program which awards grants to states and units of local government to help improve the quality and timeliness of forensic science and medical examiner services. Among other things, the Coverdell program calls for laboratory accreditation by recognized accrediting bodies and provides for staffing and training needs. To assure transparency in laboratory operations, especially when problems may be indicated, Coverdell also requires that there be an independent entity with authority to investigate allegations of malfeasance or misconduct by laboratory personnel. While working in New York State, it has been my experience that these programs have been highly effective in bringing needed improvements to the 22 state and local forensic laboratories across the State.

It is strongly recommended that federal support be continued for these programs which have already been demonstrated to address critical needs identified in the NAS report. There is a need to expand or establish other programs which can focus greater attention on the development and validation of methodologies used in forensic disciplines. In addition, funding is needed to support a range of in-service and other specialized training initiatives to maintain and improve the technical skills of forensic laboratory personnel.

In the NAS report, as in the Senate report that ordered the NAS study, forensic DNA technology was set apart from other forensic disciplines with the recognition of the robustness of the underlying research and validation work that was conducted to support its applications in the criminal justice system. The confidence in forensic DNA technology is the result of the considerable efforts of scores of scientists in the public and private sectors - academic researchers and forensic science practitioners - to identify, assess, validate and optimize the various DNA testing methods in use today. A national Technical Working Group was formed at the outset to facilitate communication among forensic practitioners and help advance the technology in a coordinated way. The Technical Working Group on DNA Analysis Methods (TWGDAM) was specifically cited in the DNA Identification Act of 1994 which authorized CODIS, the national DNA Database. This effort was driven by Congressional leaders and agency administrators

who recognized the importance and potential of this emerging technology as an identification tool to solve crimes and assure justice in the courts. This high level support and direction was essential to maintain a focus that would assure the standardized methods necessary for data compatibility to enable the mutual sharing of information which has been proven so helpful in resolving crimes which might otherwise have gone unsolved. Key federal agencies that contributed to the development and validation of forensic DNA technology include the Federal Bureau of Investigation (FBI), the National Institute of Justice (NIJ) and the National Institute of Standards and Technology (NIST).

The NAS Committee expressed concern over the apparent lack of systematic research to validate the basic premises and techniques for forensic disciplines that have been in practice since before the emergence of DNA technology. Disciplines which drew particular attention in their report are those that rely, in large part, on pattern recognition techniques as used in the examination of fingerprints; firearms and fired ammunition components; tool marks; and handwriting. For these and other “non-DNA” forensic techniques that are widely used today, it would be helpful to identify and gather existing empirical studies, to conduct other studies as deemed necessary to update or supplement these data, and to put the information in a form that is readily disseminated within the relevant forensic and scientific communities. Based on these studies, appropriate standards should be developed or updated to assure the use of uniform and scientifically validated examination techniques by forensic practitioners. These kinds of activities are among the core competencies found in NIST and supported by other federal agencies such as NIJ and the FBI.

While perhaps best known for its work in industry, NIST has been actively involved with elements in the forensic community over the past decade and has made important contributions working collaboratively with other federal agencies as well as with industry and academia. For example, in close coordination with the FBI and NIJ, the agency undertook a number of inter-laboratory and other studies pertaining to individual markers used in DNA identification which have helped guide the successful development and forensic application of this revolutionary technology. The results of these efforts are in daily use in public and private forensic DNA laboratories and NIST scientists have presented their work in academic courses in order to prepare the next generation of forensic scientists. They have also provided in-service training sessions and seminars at professional meetings across the country.

NIST has also performed studies designed to validate and improve the performance of large data systems used in criminal justice applications such as the Automated Fingerprint Identification System (AFIS), a vital system in continuous use by law enforcement and other agencies to resolve personal identification issues, and the National Integrated Ballistics Identification Network (NIBIN) which correlates imaged data from bullets and cartridge casings recovered during the course of criminal investigations. NIST provides standard reference materials for use by laboratories in private industry as well as public laboratories (including forensic laboratories). As new technologies continue to emerge with potential applications in forensic laboratories, NIST is uniquely positioned to facilitate communications between the forensic

community and private industry to assure the timely and appropriate development and production of laboratory equipment, reagents and other supplies needed for implementing new techniques.

In my view, the most efficient, effective, and economical way to move the forensic community forward, especially in those disciplines where such a need is indicated, is through a coordinated effort by agencies already engaged in forensic science research under the general guidance of a national advisory board comprised of forensic science practitioners, research scientists and academicians. The DNA experience provides a useful model and a framework upon which to build. The National Advisory Board for Forensic Sciences might include federal, state and local officials from the criminal justice and crime laboratory communities, key professional associations, and established accrediting organizations such as the American Society of Crime Laboratory Directors – Laboratory Accreditation Board (ASCLD/LAB) and the American Board of Forensic Toxicology (ABFT). Established Scientific Working Groups for the various forensic disciplines would be engaged in this effort subject to the general guidance of the national advisory board. This process should be sufficiently transparent to assure the courts of the general acceptance and scientific validity of forensic techniques. It would be important to engage the academic research community in this effort and to provide expanded resources to support the development and delivery of specialized training programs not only for forensic laboratory personnel but also for the “client” groups that receive their work product such as investigators, prosecutors, defense attorneys and judges. Again, the forensic DNA experience provides a helpful and proven model in this regard.