

National Commission on Forensic Science

Reflecting Back— Looking Toward the Future

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NIST
**National Institute of
Standards and Technology**
U.S. Department of Commerce

Note: This Commission Business document reflects the viewpoints of the National Commission on Forensic Science and does not necessarily represent the views of the Department of Justice or the National Institute of Standards and Technology. The National Commission on Forensic Science is a Federal Advisory Committee established by the Department of Justice. For more information, please visit: <https://www.justice.gov/ncfs>.

In 2013, the National Commission on Forensic Science¹ (NCFS or Commission) was created as a Federal Advisory Committee to the U.S. Department of Justice (DOJ) as part of a memorandum of understanding between DOJ and the National Institute of Standards and Technology (NIST).² NCFS serves a critical function because it—like no other existing entity—represents the broadest range of interests involved in, affected by, or able to improve forensic evidence: Forensic Science Service Providers (FSSPs), prosecutors, defense counsel, victim advocates, judges, law enforcement, academics, and members of the broader scientific community. NCFS has also provided a forum for a wide variety of stakeholders to participate and comment in the process, as well as spurring discussion at the state and local levels.

The Commission provides recommendations and advice to the Attorney General of the United States and is able to express views for forensic policy considerations at the Federal level. Its work should ultimately affect forensic science policy for state and local law enforcement, prosecutors, and FSSPs, as forensic analysis in the United States largely occurs at the state and local level. One of the most valuable results from the creation of the Commission has been to move the discussion of these critical issues in forensic science out of the silos in particular disciplines and professional groups and allow discussion with the broader scientific community as well as the public. The NCFS has created a forum where all stakeholders in an adversarial legal system can come together, establish common ground, and find solutions for policy recommendations to strengthen the criminal justice system. The Commission's work is now part of the national discussion surrounding forensic science at the Federal, state and local levels. Since its inception, the Commission has been able to move the path toward forensic reform in a number of ways that have been talked about and worked on by a variety of professional organizations, technical working groups, and state and local agencies for decades. Its work is discussed in detail below, but a few examples of its impact are appropriate here.

- Grant funding has been made available to support further research opportunities and promulgate quality assurance programs. DOJ's National Institute of Justice (NIJ) and Bureau of Justice Assistance (BJA) redrafted grant solicitations for the Paul Coverdell Forensic Science Improvement Grants Program³ and the Edward Byrne Memorial Justice Assistance Grant (JAG) Program⁴ to support accreditation activities and encourage applicants to review NCFS recommendations when developing grant proposals.
- NIJ also introduced opportunities to fund postdoctoral fellowships to foster collaboration between emerging forensic science researchers and forensic science laboratories.⁵
- On the state and local level, crime lab directors have proactively adopted and implemented some of the recommendations in their own laboratories.
- As a result of recommendations by the Commission, DOJ has committed to changes in their discovery practices and adopted a new code of professional conduct for those working in Federal DOJ laboratories.^{6,7}

¹ U.S. Department of Justice. (n.d.) National Commission on Forensic Science home page. See: <https://www.justice.gov/ncfs>

² This memorandum of understanding (MOU) also created the Organization for Scientific Area Committees (OSAC), which focuses on improving forensic science practice through supporting documentary standards development; the Commission is focused more toward policy issues. The MOU can be found at: <https://www.justice.gov/ncfs/file/761051/download>

³ National Institute of Justice's grant solicitation, *Paul Coverdell Forensic Science Improvement Grants Program*. Retrieved from: <https://nij.gov/funding/Documents/solicitations/NIJ-2016-8974.pdf>

⁴ Bureau of Justice Assistance's grant solicitation, *Edward Byrne Memorial Justice Assistance Grant (JAG) Program*. Retrieved from: <https://www.bja.gov/funding/JAGLocal16.pdf>

⁵ National Institute of Justice's grant solicitation, *Research and Evaluation for the Testing and Interpretation of Physical Evidence in Publicly Funded Forensic Laboratories*. Retrieved from: <https://nij.gov/funding/Documents/solicitations/NIJ-2016-9011.pdf>

⁶ Attorney General Memorandum on Recommendations of the NCFS; Announcement for NCFS Meeting Twelve. Retrieved from: <https://www.justice.gov/ncfs/page/file/930411/download>

- Although DOJ does not conduct its own medicolegal death investigation (MDI) activities, which predominantly occur at the state and local level, DOJ coordinated with the Office of Science and Technology Policy to convene an interagency working group to examine MDI recommendations. As a result, this National Science and Technology Council MDI interagency working group published a report in December 2016, *Strengthening the Medicolegal-Death Investigation-System: Accreditation and Certification—A Path Forward*.⁸ NIJ also announced the first Federal grant program specifically dedicated to strengthening the MDI system by supporting forensic pathology fellowships and offering resources necessary to achieve accreditation for medical examiner and coroner offices⁹.

As the second term of the Commission’s Charter comes to a close in April 2017, this document reflects on work that has been accomplished and highlights issues that those involved in the Commission did not have time to address during the Commission’s first two terms.

The first section briefly describes the Commission’s structure, including the Charter, membership, subcommittees, and work products organized in three key categories: Foundational, Operational, and Relational. The second section describes work that the Commission believes needs to be addressed going forward.

I. A LOOK BACK

In his 1963 Letter from Birmingham Jail, Rev. Martin Luther King, Jr., reminded us that “Injustice anywhere is a threat to justice everywhere.” Isn’t this the point? We are not talking about good science merely for its own sake. We are talking about the need for good science in order to serve justice. And when justice is done, our society as a whole is better for it. I sincerely hope that the work of this Commission will push us closer to this goal.

—Judge Harry Edwards¹⁰

It was with these words that Judge Harry Edwards ended his speech, *Reflections on the Findings of the National Academy of Sciences Committee on Identifying the Needs of the Forensic Science Community*, at the first NCFs meeting on February 3, 2014, passing the torch in forensic reform from the National Academy of Sciences (NAS) to the Commission. For the ensuing 3 years, this Federal Advisory Committee¹¹ responded to NAS’s call to strengthen forensic science with concrete recommendations and views to assure justice is served by good science.

⁷ Justice Department Announces New Steps to Advance and Strengthen Forensic Science. Retrieved from: <https://www.justice.gov/opa/pr/justice-department-announces-new-steps-advance-and-strengthen-forensic-science>

⁸ National Science and Technology Council interagency working group, *Strengthening the Medicolegal-Death Investigation-System: Accreditation and Certification—A Path Forward*. Retrieved from: https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/NSTC/mdi_wg_-_accreditation_and_certification_white_paper_1.6.pdf

⁹ National Institute of Justice’s grant solicitation, *Strengthening the Medical Examiner-Coroner System Program*. Retrieved from: <https://nij.gov/funding/Documents/solicitations/NIJ-2017-11566.pdf>

¹⁰ U.S. Department of Justice. (n.d.) National Commission on Forensic Science, Meeting One, *National Academy of Sciences Report Executive Summary*. Retrieved from: <https://www.justice.gov/sites/default/files/ncfs/legacy/2014/05/13/harry-edwards.pdf>

¹¹ United States General Services Administration, Federal Advisory Committee Act. Retrieved from <https://www.gsa.gov/portal/content/100916>

The NCFS Charter

The Commission’s mission is to “enhance the practice and improve the reliability of forensic science.”¹² The Commission’s Charter¹³ outlines the objectives and scope of activities, as well as a description of duties to achieve its mission.

Objectives and Scope of Activities

The objectives and scope directed the Commission to provide recommendations and advice to DOJ concerning national methods and strategies for the following:

1. Strengthening the validity and reliability of the forensic sciences (including medicolegal death investigation);
2. Enhancing quality assurance and quality control in forensic science laboratories and units;
3. Identifying and recommending scientific guidance and protocols for evidence seizure, testing, analysis, and reporting by forensic science laboratories and units; and
4. Identifying and assessing other needs of the forensic science communities to strengthen their disciplines and meet the increasing demands generated by the criminal and civil justice systems at all levels of government.¹⁴

Description of Duties

These objectives were subdivided into six categories in the Charter’s description of duties.

- A. To recommend priorities for standards development to the Attorney General;
- B. To review and recommend that the Attorney General endorse guidance identified or developed by subject-matter experts;
- C. To develop proposed guidance concerning the intersection of forensic science and the courtroom;
- D. To develop policy recommendations, including a uniform code of professional responsibility and minimum requirements for training, accreditation and/or certification;
- E. To consider the recommendations of the National Science and Technology Council’s Subcommittee on Forensic Science; and
- F. To identify and assess the current and future needs of the forensic sciences to strengthen their disciplines and meet growing demands.¹⁵

¹² U.S. Department of Justice. (n.d.) National Commission on Forensic Science home page. Retrieved from: <https://www.justice.gov/ncfs>

¹³ U.S. Department of Justice. (n.d.) National Commission on Forensic Science, *Charter*, U.S. Department of Justice, National Commission on Forensic Science. Retrieved from: <https://www.justice.gov/ncfs/file/624216/download>

¹⁴ Ibid.

¹⁵ Ibid.

Commission Membership and Subcommittees

The makeup of the Commission is unique. It was designed to bring the stakeholders in forensic science and the judicial system together with those in the broader scientific community to discuss and make recommendations in important policy matters. The Commission brought experience from forensic practitioners, scientists, lawyers, and judges as well as advocacy groups. DOJ and NIST gave careful consideration to geographic diversity, subject-matter expertise, and relevant experience from Federal and state jurisdictions in the selection of the 40 Commission members who serve on the Commission.¹⁶ The Commission developed subcommittees whose members draft recommendations and views focusing on their specific target areas: Interim Solutions, Accreditation and Proficiency Testing, Human Factors, Medicolegal Death Investigation, Reporting and Testimony, Training on Science and the Law, and Scientific Inquiry and Research.¹⁷ In addition to allowing the exchange of ideas among Commissioners, the subcommittees also create a robust system for public engagement.

Although the Commission’s Charter states that its objectives and scope of activities are to advise DOJ on forensic issues, the Charter also directs the Commission to identify and assess the needs of the forensic science communities, as outlined above in Objective 4. Given the foundational diversity of the Commission itself and the fact that the vast majority of forensic-related analysis litigation occurs in state and local jurisdictions, all Commission work has been constructed with the hope of providing leadership from the Federal government and guidance to “enhance the practice and improve the reliability of forensic science” in all jurisdictions throughout the United States.¹⁸

To that end, the Commission itself is populated with at least one member of each of the following categories: state prosecutors, defense counsel, judges, law enforcement officials, and lab analysts. Subcommittees provide an even greater diversity to the Commission’s work. All proposals are discussed and evaluated on their potential impact on state and local practices. State and local stakeholders have also been active participants in submitting comments on all Commission recommendations and views.

In addition to those who served as Commissioners and on subcommittees, participation by the public has been an integral part of the Commission’s work. All Commission meetings are open to the public and are documented with recordings and materials available on the website. All work products were subject to a thirty day public comment period and all public comments were addressed as part of the adjudication process.¹⁹

Over 600 written public comments were received during the open public comment periods for the 45 work products introduced by the Commission. In addition, over 30 comments were provided in response to NCFS work products and activities during the oral public comment periods at the quarterly Commission meetings. Of these comments, the adopted work products receiving the greatest number of comments were the Recommendation on Accreditation of Digital and Multimedia Evidence Forensic Science Service Providers (over 90 comments), the Recommendation on Pretrial Discovery (over 50 comments), and the Recommendation on a National Code of Professional Responsibility for Forensic Science and Forensic Medicine Service Providers (over 45 comments).²⁰

¹⁶ See Appendix A for the Commissioner biographies.

¹⁷ For more information about the structure of NCFS, see Appendix B for the subcommittee descriptions and membership.

¹⁸ This broader mission is evidenced by the inclusion of medicolegal death investigation (MDI), which occurs almost exclusively outside of the Federal system.

¹⁹ NCFS operational documents: Process for the Development of Work Products; Guidance for the Adjudication of Public Comments. Retrieved from: <https://www.justice.gov/ncfs/operational-documents>

²⁰ See Appendix D for public comments submitted to NCFS.

As Dr. Patrick D. Gallagher, then NIST Director and Commission Co-Chair, noted at the first Commission meeting, the work of the Commission has been like “building a plane in midair.” The structure, process, members, and subject-matter focus have evolved since that first meeting. Changes included expansion of the Commission’s review to include digital evidence, creation of a more formalized process for the review and adoption of work products, revision of the Commission bylaws, and addition or deletion of certain subcommittees.

Work Products

The Commission has adopted 43 work products: 20 Recommendation documents and 23 Views documents. Recommendation documents propose specific requests to the Attorney General and describe actions for consideration and implementation within the Federal system. Views documents represent the collective views of the Commissioners and do not request specific action by the Attorney General. Views documents are designed to comment generally on particular subjects and serve as guidance for all forensic and criminal justice communities, whether Federal, state, or local. A complete list of the Commission’s work products can be found in Appendix C, and the work product documents can be downloaded from the Commission’s website.²¹

The Commission focused and prioritized its work in large part on the four objectives outlined in the Charter (see list above). As the Commission was building on the work of other national discussions and initiatives, recommendations made by the National Science and Technology Council’s Subcommittee on Forensic Science were also reviewed. All work products can be grouped into three broad categories: Foundational, Operational, and Relational.

Foundational Work Products

Foundational work products explore the discipline of forensic science generally and fulfill the Commission’s Objective 1, “strengthening the validity and reliability of forensic evidence.” Through these work products, the Commission has sought to accomplish its mission in three ways: strengthening the scientific basis and research standards for forensic science, assessing how forensic science is currently used and understood by the community, and understanding the community’s potential to produce high-quality forensic evidence. The Commission believes that the implementation of these practices will assist in assuring that forensic evidence is based on valid scientific research and that forensic science is used effectively and accurately.

As of April 2017, the Commission has adopted five (5) Recommendations and five (5) Views documents in the Foundational category (see Appendix C).

Operational Work Products

Operational work products address management and laboratory systems practicing forensic science and fulfill the Commission’s Objective 2, “enhancing quality assurance and quality control in forensic science laboratories and units” as well as MDI systems in the United States.²² The Commission’s operational work products can be categorized into those discussing general laboratory and forensic science practices and those focusing on the improvement of MDI systems. Operational work products seek to achieve several goals: implementing professional standards across the practice of forensic science by encouraging broad accreditation of FSSPs and certification of practitioners; implementing quality-control mechanisms

²¹ DOJ National Commission on Forensic Science Adopted Work Products. Retrieved from: <https://www.justice.gov/ncfs/work-products-adopted-commission>

²² Medicolegal death investigation (MDI) systems refer to the medical examiner and coroner systems existing in the United States as well as the investigation units that support these systems.

to ensure reproducible forensic techniques are used; creating a culture of learning from mistakes with a robust process (root cause analysis); and increasing capacity and improving infrastructure between the forensic practitioner and law enforcement communities (through system interoperability, communication networks between medical examiner and coroner offices, and the National Disaster Call Center).

As of April 2017, the Commission has adopted twelve (12) Recommendations documents and eleven (11) Views documents in the Operational category, which are subdivided into accreditation and certification topics and improving infrastructure and increasing capacity (see Appendix C).

Relational Work Products

Relational work products analyze the way forensic science is understood and communicated to the users of forensic science, including investigators, lawyers, judges, victims, defendants, and the general public. Many of these work products arose from the Commission’s Objective 3 for “identifying and recommend[ing] scientific guidance and protocols for evidence seizure, testing, analysis, and reporting by forensic science laboratories and units”²³ as well as one of its express duties, “to develop proposed guidance concerning the intersection of forensic science and the courtroom” from Duty C (see list above). The Commission’s relational work products address the language used within the forensic community and expert testimony to discuss forensic findings and recommend practices by which judges and attorneys can interact with forensic evidence and forensic experts in the courtroom.

As of April 2017, the Commission has adopted three (3) Recommendations documents and seven (7) Views documents in the Relational category (see Appendix C).

During the proceedings of Meeting #12, the Reporting and Testimony Subcommittee indicated that they will continue development of the two remaining NCFs draft work products under consideration: a Views document on Report and Case Record Contents (Operational), and a Views document on Statistical Statements in Forensic Testimony (Relational). At the 13th meeting, neither draft received the required 2/3 majority vote; however, the issues each report addresses have been of concern to the Commission since its inception and remain crucial to the forensic science community.

II. LOOKING TO THE FUTURE

The work of the Commission has been involved with identifying gaps and making recommendations to improve quality assurance within laboratories; generating more research in areas identified by the National Research Council 2009 report, *Strengthening Forensic Science in the United States: A Path Forward*; and determining how to move forward in creating a more robust research culture supporting the practical application of forensic science in the courtroom. The Commission also focused on issues of laboratory management, oversight, and accreditation as well as examiner certification, and documenting and reporting analysis results. Although the Commission has made significant progress in these areas, what remains is even more challenging—that is, the identification of the implications and complexities in which these considerations will impact the criminal justice system.

Topics that were not explored and should be evaluated by the Commission or other groups with a multiple stakeholder perspective willing to take on these important tasks can be grouped into the same three broad categories mentioned in the first section of this report—Foundational, Operational, and Relational—mirroring the four objectives identified in the Commission’s Charter.

²³ Forensic science laboratories and units are broadly defined to include both those that provide forensic sciences services and the consumers of such services.

A. Foundational

Much of the work of the Commission was directed in trying to strengthen the foundational underpinnings of forensic disciplines by calling for additional research and a review of the current literature. The Commission believes that the following three foundational areas have not been completed:

1. Undertake a survey of law enforcement agencies conducting forensic science analysis.

Although the Commission was focused on drafting recommendations for the Federal government and DOJ forensic laboratories, the Commission also recognized at the outset that the number and diversity of entities at the state, local, and Federal level relying on each other and the extent to which forensic services are provided to the criminal justice system are not fully understood. For example, state and local agencies frequently call on the expertise and services of Federal laboratories, while conversely, the Federal prosecutors on occasion use services of local examiners in lieu of Federal laboratories. In addition, there is a growing trend by laboratories to outsource work to private laboratories for forensic analyses. However, Commission recommendations adopted by DOJ are not binding on non-DOJ laboratories. Additionally, information sharing across jurisdictions is often necessary. This is particularly the case since databases, such as DNA, fingerprints, shoeprints, digital forensics data files (e.g. hash sets of known or suspected child exploitation files) and the like, are increasingly relied upon by agencies at all levels. Interoperability needs to be considered.

The Commission believes that a better understanding of the full scope and quality of laboratories and FSSPs that deliver forensic science data is essential to addressing many critical questions. The DOJ Bureau of Justice Statistics designs, implements, and establishes surveys on forensic services, and it is willing to share these data with the Commission. Data have been gathered by different organizations, but a survey focused on answering the Commission's questions has not been completed. Opportunities for doing so should continue to be a priority.

2. Develop implementation and enforcement recommendations for the uniform code of professional responsibility.

The Commission recommended a national code of ethics and professional responsibility for FSSPs and Forensic Medicine Service Providers (FMSPs). A revised version of the code that was passed by the Commission was adopted by DOJ to be used in DOJ component Federal laboratories. However, there are still substantial questions about how broadly such a code should or could apply and how (or even if) enforcement mechanisms should be implemented. What can or should the accrediting bodies do to move this forward? Is there an interplay between certification of examiners and a national code? These and many other questions remain unexplored and unanswered.

3. Address digital forensics.

When the Commission began its work, digital evidence was specifically excluded from its scope. The Charter was later amended in 2015 to allow the Commission to consider digital forensics. What became obvious right from the beginning is that the challenges facing digital forensics are in some ways unique. This area of practice is fast paced, often done in law enforcement settings by technicians rather than scientists, and has security issues that may not be of concern in other areas of forensics. Digital forensics, as a fairly new yet pervasive area of forensic science, can benefit from guidance of the Commission or similar group regarding quality assurance, foundational reliability, evidence preservation, and more. This entire area of forensic science needs more study and significant input from subject-matter experts. The Attorney General as well as the Federal government could benefit from further evaluation of these issues.

B. Operational

1. Provide guidance on evidence preservation and retention.

There has been guidance by other organizations concerning biological evidence preservation.²⁴ However, this is a complex area, and more work is needed on the scope, policies, and methodologies necessary for biological evidence preservation, as well as other kinds of evidence preservation (e.g., digital evidence). What can and should be done regarding retention of evidence that may have forensic value in the future? What are the legal consequences of granting access to evidence to individuals other than officers of the court, such as crime victims and their families, so that they can do additional forensic testing? Guidance is needed for the forensic testing of cold-case evidence, particularly when advances in testing may make re-evaluation worthwhile, and for the retesting of evidence in a case that has been previously litigated. Are there, or should there be, ways that victims can pay for private testing of untested evidence when their interest in answers continues beyond the criminal justice system's needs in pursuing the case? What is the status of state legislation/requirements/practices regarding evidence testing and destruction? Are there practices in place in state jurisdictions that should or could be adopted federally? Are there, or should there be, guidelines for evidence handling by defense experts, court personnel, and even jurors to ensure ongoing preservation and integrity of biological material on items of evidence in a trial?

2. Consider examiner certification: is this feasible, and should this be a requirement for Federal examiners?

The Commission has weighed in on certification and expressed its view that FSSPs should be encouraged to certify practitioners. There was exploration as to the cost, accessibility, and training issues surrounding certification. The Commission did not fully address this issue, and further exploration is needed.

3. Address source code accessibility and commercial transparency.

As forensic analysis evolves, the role of computers in forensic analysis has also grown. These technologies have led to questions about discovery of closed-source software programs used to generate the analysis or used as part of commercially available instruments during forensic analysis. Should source code be available to prosecution and defense for analysis? Should the Federal government have policies about using open-source or closed-source instrumentation in their laboratories? If access is allowed, what guidance should be given in relation to access? Are protective orders appropriate?

4. Consider recommendations regarding how to address human factors issues in MDIs, especially around cases involving child death, in-custody death, and police shootings.

Human factors such as implicit, cognitive, and implied bias can and are being addressed in forensic science disciplines. In particular, MDI presents unique issues and challenges related to human factors. When cases are high profile or involve issues of great public interest, these factors may be magnified. Examining and exploring these human factors and how they affect these kinds of cases could lead to great insight in all MDIs.

²⁴ NIST/NIJ Technical Working Group on Biological Evidence Preservation. Retrieved from: <https://www.nist.gov/topics/forensic-science/nistnij-technical-working-group-biological-evidence-preservation>; <http://nvlpubs.nist.gov/nistpubs/ir/2013/NIST.IR.7928.pdf>

C. Relational

1. Train forensic science users—law enforcement, lawyers, judges, and the public.

The Training on Science and the Law subcommittee was one of the first subcommittees created by the Commission. It was charged with the task of looking at training lawyers and judges on forensic science. What became clear over time was that this training was important, but this work could wait until after issues surrounding foundational reliability and laboratory operational reforms were addressed. As a result, the Commission made only a general recommendation that a forensic science curriculum should be developed.

Many questions remain. What does this curriculum look like, who is to implement such a curriculum, and what funding and resources are needed for curriculum development and distribution to accomplish this goal? Lawyers need guidance on who should determine when something is foundationally sound: When is forensic analysis sound enough to be used as a forensic tool or an “investigative lead,” and when is it robust enough to be admissible? Are these concepts, or should these concepts, be distinguishable? Judges and lawyers alike need to understand the differences between presumptive and confirmatory testing, and they require better guidance on how to assess and evaluate admissibility. The subcommittee did mention that there is a need for education among the general public, but no further action was taken.

2. Make recommendations for how autopsy findings regarding cause and manner of death might be presented to the fact finders (whether in investigation or adjudication phases of a case).

The Commission’s MDI subcommittee made several recommendations to improve the country’s coroner/medical examiner system. Recommendations regarding the more relational aspects of those involved in MDI, the fact finder, and the public need additional exploration. Considering how “cause” and “manner” of death findings are presented and understood could lead to improved communication between these organizations.

3. Establish key principles of a defendant/victim notification process.

The Commission adopted a Recommendation on Root Cause Analysis that makes a policy recommendation for the adoption of root cause analysis protocols for all FSSPs and forensic science medical providers (FSMPs). In addition, the Commission’s recommendation for a model code of professional responsibility, which in part recommended FSSPs to “appropriately inform affected recipients (either directly or through proper management channels) of all nonconformities or breaches of law or professional standards that adversely affect a previously issued report or testimony and make reasonable efforts to inform all relevant stakeholders, including affected professional and legal parties, victim(s) and defendant(s)”, was only partially adopted by DOJ. Unresolved issues include how to identify those adversely affected; what processes can or should be used to do so; who should be involved in this process; who is responsible for notification; can there be systems developed to ensure that today’s victims and defendants can be reached—if necessary—decades later; and should there be a model process developed for notice of affected professionals and legal parties, victims, and defendants? There are individual cases around the country that serve as examples of how this might be done. Additionally, most effective examples of large-scale notifications have been collaborative processes between FSSPs, attorneys, court clerks, and others. Discussion, debate, and serious consideration as to how to most effectively implement such a process needs more work.

4. Establish research-based means of effectively and accurately communicating forensic science information with the judicial system and the public.

As previously mentioned, some of the Commission’s work focused on the nexus between the laboratory and the courtroom and considered how information can be effectively and accurately communicated to those within the legal system as well as to the jury. Recommendations included discontinuing the use of some terminology. The Commission reached general consensus that language in reports and testimony should not be misleading to the fact finder. Exploring and establishing research-based means of how to effectively and accurately communicate forensic science information in a way that is meaningful to the finder of fact would assist in guiding how practitioners as well as attorneys can best communicate without misleading the finders of fact. There is also concern that even when information is accurately reported and testified to, the lack of forensic-related knowledge of those in the judicial system (judges, lawyers, and juries) can lead to confusion.

There is existing social science research on juries and their ability to process complex forensic information. Incorporating this research and determining whether further social science research on how particular terminology and/or statistical statements are presented and understood by the fact finder, could lead to more precision, therefore leading to a better understanding by the investigators, lawyers, judges, and the general public. Questions include how to most effectively communicate forensic science concepts to the trier of fact, and whether comparative statements or statistical statements are more or less helpful to the fact finder. Questions remain about how such statements and language, including those used by attorneys in describing and presenting the forensic findings again, are understood by the fact finder.

5. Focus on issues with communication and understanding between forensic analysts, investigators, lawyers, judges, juries, and the public.

The Commission should consider recommending training judges and attorneys on the forensic-related information that is used in the courtroom. Many issues arise when the legal community does not understand the terms, techniques, and conclusions that forensic experts present in court. For example, judges and attorneys should be trained on how to address laboratory results that may need further clarification, such as the meaning of a finding of “inconclusive.” The same is true regarding the use of presumptive testing as opposed to confirmatory testing in court cases. Do lawyers, judges, and law enforcement personnel know the difference between these types of testing? Would they know the best form of testing to develop an investigatory lead? Should they receive guidance for legislation or rules of evidence to address presumptive testing? How would this knowledge come into play when assessing the results of a preliminary breath testing conducted roadside, which is often not admissible to prove a DUI, compared with the use of infrared spectrometry breath-test technologies performed for evidentiary purposes? Is there other forensic testing that should be treated similarly? The Commission or other similar group should continue to examine this communication and knowledge gap and its effect on courtroom proceedings.

CONCLUSION

The National Commission on Forensic Science has provided an essential forum for the exchange of information and discussion on public policy to improve the forensic sciences. This organization’s diversity in subject-matter experts, interests, perspectives, and geographic and jurisdictional representation has generated rich discussion about issues facing the forensic science community and the criminal justice community, as well as the public. The solicitation of public comments for draft work products from subcommittees allowed participation by any interested person or organization and provided the Commission with access to a range of opinions. But there is still work to be done.

Many of these issues have been worked on by discrete entities such as working groups or agencies. The Commission's focus has been to take these efforts, inform them with a national and interdisciplinary perspective, and place them into a broader view of the needs of forensic science.

Criminal justice is a high-stakes endeavor. As in health care or aviation, errors at any stage of the process can have devastating consequences to victims, suspects, and the public. Decisions made as a result of forensic evidence have a direct and permanent impact on the lives of citizens. Because of this, the U.S. criminal justice system strives for excellence. But getting to the right result requires not only excellence in all phases of the process, but also the public's trust.

Creating excellence is an ongoing effort. Scientific understanding and technology are constantly changing. Like health care and aviation, the field of forensic science will have to adapt, and its practitioners will need to be forever vigilant. But there are special challenges for forensics, as it serves an adversary system. There is often little room for adversaries to reflect on policy issues that impact all stakeholders, let alone to reflect on system wide adjustments to accommodate changes in scientific understanding and technology. This challenge is answered in part by the existence of a forum such as the Commission—a forum that generates an open dialog among stakeholders, scientists, the public, and DOJ.

A forum such as the National Commission on Forensic Science in such a complex system has been a proven asset over the past several years. The Commission has been successful in identifying policies that will advance forensic science. It is critical to continue a path forward to provide further exploration into the questions outlined in this report, as well as those that have not yet been considered.

Appendix A. National Commission on Forensic Science Commissioners and Biographies

Co-Chairs:

Acting Deputy Attorney General
Dana J. Boente

Acting NIST Director and Under
Secretary of Commerce for
Standards & Technology Kent
Rochford, Ph.D.

Vice-Chairs:

Nelson Santos

John Butler, Ph.D.

Commission Staff:

Jonathan McGrath, Ph.D. (DFO)

Danielle Weiss

Lindsay DePalma

Commission Members:

Thomas Albright, Ph.D.

Suzanne Bell, Ph.D.

Frederick Bieber, Ph.D.

Arturo Casadevall, Ph.D.

Gregory Champagne

Cecelia Crouse, Ph.D.

Gregory Czarnopys

Deirdre Daly

M. Bonner Denton, Ph.D.

Jules Epstein

John Fudenberg

S. James Gates, Jr., Ph.D.

Dean Gialamas

Paul Giannelli

Randy Hanzlick, M.D.

Hon. Barbara Hervey

Susan Howley

Ted Hunt

Linda Jackson

Hon. Pam King

Troy Lawrence

Marc LeBeau, Ph.D.

Julia Leighton

Hon. Bridget Mary McCormack

Peter Neufeld

Phil Pulaski

Matthew Redle

Sunita Sah, Ph.D.

Michael “Jeff” Salyards, Ph.D.

Ex-Officio Members:

Rebecca Ferrell, Ph.D.

David Honey, Ph.D.

Marilyn Huestis, Ph.D.

Gerald LaPorte

Patricia Manzolillo

Hon. Jed Rakoff

Frances Schrotter

Kathryn Turman

Former Chairs:

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Willie E. May, Ph.D.

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Former Commission Members:

Thomas Cech, Ph.D.

William Crane

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Troy Duster, Ph.D.

Andrea Ferreira-Gonzalez, Ph.D.

Stephen Fienberg, Ph.D.

John Kacavas

Ryant Washington

Former Ex-Officio Members:

Mark Weiss, Ph.D.

NCFS Co-Chairs

Dana J. Boente

Dana J. Boente was named Acting Deputy Attorney General of the United States on Thursday, February 9, 2017. Prior to his current appointment, Boente served as Acting Attorney General of the United States from January 30 to February 9, 2017.

Boente was nominated by President Barack Obama on October 8, 2015, and confirmed by the U.S. Senate on December 15, 2015, as the 60th U.S. Attorney for the Eastern District of Virginia. As the chief federal law enforcement for the District, which includes offices in Alexandria, Richmond, Norfolk and Newport News, Boente supervises the prosecution of all federal crimes and the litigation of all civil matters in which the federal government has an interest.

Boente is a 32-year veteran of the Department of Justice, and has spent his entire professional career in public service. He began his work in law by serving as a law clerk to Chief U.S. District Judge J. Waldo Ackerman for the Central District of Illinois in 1982. In 1984 he joined the Tax Division's Criminal Section as part of the Attorney General's Honors Program. In January 2001, Boente became an Assistant U.S. Attorney in the Fraud Unit of the U.S. Attorney's Office for the Eastern District of Virginia (EDVA). He was detailed back to the Tax Division in August 2005 to serve as the Principal Deputy Assistant Attorney General. Boente returned to EDVA when he was selected as the First Assistant U.S. Attorney in May 2007, and later served as the U.S. Attorney for EDVA from October 2008 through September 2009. In December 2012, Boente was appointed by Attorney General Eric Holder to serve as the U.S. Attorney for the Eastern District of Louisiana, a position he held until September 2013. He became the Acting U.S. Attorney for EDVA by virtue of the Vacancy Reform Act on Sept. 23, 2013, and served in that position until December 15, 2015.

Boente is a graduate of St. Louis University (B.S.B.A. and M.B.A.) and its School of Law (J.D.). He has lived in Arlington, Virginia, for 30 years.

Kent Rochford, Ph.D.

Dr. Rochford is Acting NIST Director and Acting Under Secretary of Commerce for Standards and Technology. As principal NIST deputy director, Dr. Rochford assumed this role on January 4, 2017, following the retirement of previous director Willie E. May. As NIST Acting Director, Dr. Rochford provides high-level oversight and direction for NIST. Dr. Rochford's current permanent position is NIST's Associate Director for Laboratory Programs (ADLP). As ADLP, he provides direction and operational guidance for NIST's scientific and technical mission-focused laboratory programs and serves as principal deputy to the Under Secretary of Commerce for Standards and Technology and NIST director, among other duties. Dr. Rochford was formerly director of NIST-Boulder Labs and the Communications Technology Laboratory (CTL), also headquartered in Boulder, Colo. He was responsible for the creation of the CTL, which focuses on measurement science to assist first responder communications, spectrum sharing and advanced communications technologies. In that position, he also served as the co-director of the Center for Advanced Communications, a joint activity of NIST and the National Telecommunications and Information Administration. Previously, Dr. Rochford served as chief of both the Quantum Electronics and Photonics and Optoelectronics Divisions at NIST, as well as acting director of the Electronics and Electrical Engineering Laboratory. Apart from NIST, Dr. Rochford served as senior director for Sharp Laboratories of America's Material and Device Applications laboratory and managed systems R&D at YAFO Networks, a fiber-optic communications start-up. Dr. Rochford received his Ph.D. in optical sciences from the University of Arizona, Bachelor of Science degree in electrical engineering at Arizona State University, and an MBA from the University of Colorado.

Vice-Chairs

Nelson Santos

Mr. Santos serves as a Deputy Assistant Administrator for the Drug Enforcement Administration (DEA). He began his career in 1987 as a Forensic Chemist in Miami, Florida and has held supervisory/managerial positions in Miami, Chicago and Washington, DC. In 2006, Mr. Santos was promoted to the Senior Executive Service, where he is responsible for directing the operations of eight regional laboratories, six sub-regional laboratories and one research laboratory. In 2010, he moved into his current position as the Deputy Assistant Administrator for the Office of Forensic Sciences. In this capacity, he leads the largest de-centralized forensic science laboratory system in the federal government consisting of over 550 scientific, technical, and administrative personnel. Mr. Santos has lead significant efforts to enhance DEA laboratory system operations to include achieving ISO accreditation of all DEA laboratories; implementing a system-wide integrated laboratory information management system (LIMS); developing and implementing DEA's first centralized training program for forensic chemist; enhancing the quality assurance program's oversight role in laboratory operations; reorganizing drug research activities and functions; streamlining and automating the delivery of digital evidence analyses results and reorganizing the latent print program to provide for increased technical oversight. Throughout his career Mr. Santos has been active in the national and international forensic science community holding several key leadership positions in prominent organizations. From 2010-2013, Mr. Santos served as the Chair of Interpol's Forensic Science Symposium Committee where he was responsible organizing Interpol's triennial forensics conference serving forensic science managers. He was the DEA member-representative to the White House Subcommittee of Forensic Science and served for five years as Chair of the Scientific Working Group for the Analysis of Seized Drugs (SWGDRUG). Mr. Santos Chaired the Council of Federal Forensic Laboratory Directors (CFFLD) for three years, and from 2004-2006 he served on the Board of the American Society of Crime Laboratory Directors (ASCLD). He remains an active member of ASCLD, American Society for Testing and Materials (ASTM), the International Association of Chiefs of Police (IACP) Forensics Committee and Interpol's Forensic Science Managers Organizing Committee. Mr. Santos holds a Bachelor of Arts in Chemistry from Florida International University and a Master in Public Administration from George Mason University.

John Butler, Ph.D.

Dr. Butler is a NIST Fellow and Special Assistant to the Director for Forensic Science at the National Institute of Standards and Technology. He has authored five textbooks on forensic DNA analysis along with more than 150 scientific articles and invited book chapters. In 2011, ScienceWatch named him the #1 worldwide high-impact author in legal medicine and forensic science for the previous decade based on citations to his work. He has served as an invited guest to the FBI's Scientific Working Group on DNA Analysis Methods (SWGDM) for 17 years. As a member of the World Trade Center Kinship and Data Analysis Panel (2002–2005), he aided the New York City Office of the Chief Medical Examiner in its work to identify the remains of victims of the 9/11 terrorist attacks. He also served for 4 years (2009–2013) on the Virginia Department of Forensic Sciences Science Advisory Committee. He is a member of the American Academy of Forensic Sciences and the International Society for Forensic Genetics and serves as an associate editor for Forensic Science International: Genetics and on the editorial board for the Journal of Forensic Sciences. His awards include the Presidential Early Career Award for Scientists and Engineers (2002), the Department of Commerce Silver Medal (2002) and Gold Medal (2008), the Arthur S. Flemming Award (2007), the Edward Uhler Condon Award (2010), Brigham Young University's College of Physical and Mathematical Sciences Honored Alumnus (2005), the Scientific Prize of the International Society for Forensic Genetics (2003), and the American Academy of Forensic Sciences Criminalistics Section Paul L. Kirk Award (2017). Dr. Butler holds a B.S. in Chemistry from Brigham Young University and a Ph.D. in Analytical Chemistry from the University of Virginia.

Commission Staff

Jonathan McGrath, Ph.D.

Dr. McGrath serves as senior policy analyst with the Department's National Institute of Justice (NIJ), Office of Investigative and Forensic Sciences (OIFS) in Washington, DC, and serves as the NCFS Designated Federal Officer (DFO). Prior to joining DOJ, he served 8 years as a forensic scientist/chemist and science officer for the U.S. Customs and Border Protection Laboratories and Scientific Services Directorate. In 2007, he joined the newly established CBP Southwest Regional Science Center in Houston, TX, where he performed laboratory analysis to support CBP examinations of imported merchandise and forensic evidence, including digital evidence, latent prints, and controlled substances. Dr. McGrath frequently conducted mobile security operations and trainings to support the CBP Office of Field Operations and Office of Border Patrol. In 2011, he transferred to CBP LSSD Headquarters, where he managed several forensics, trade, and WMD programs. Dr. McGrath earned his B.S. in Chemistry at the University of Dallas in 2001 while completing the UD liberal arts core curriculum. While pursuing a M.S. in Forensic Science at the University of Illinois at Chicago in 2002, he performed an internship at the Illinois State Police Forensic Science Center. He earned his Ph.D. in analytical chemistry at the Georgia Institute of Technology in 2007, where he participated in the Sam Nunn Security Fellowship Program to examine the impact of science and technology on public policy, and published several papers on his research of thermoresponsive nanomaterials.

Danielle M. Weiss

Danielle Weiss is currently a Lead Associate with Booz Allen Hamilton working as a senior-level policy and strategy consultant and technical advisor to the Department of Justice's National Institute of Justice (NIJ), Office of Investigative and Forensic Sciences. Ms. Weiss provides analytical research, project management and technical support on a variety of portfolios and special projects involving the forensic sciences, medicolegal death investigation and missing persons issues, sexual assault response, and the law. She has been key to the development and expansion of a first-of-its-kind database system and resource center, the National Missing and Unidentified Persons System (NamUs) for which she was a lead member of the team that won a Service to America medal in 2011. Ms. Weiss also provides leadership support for two of NIJ's very successful forensic programs: Using DNA Technology to Identify the Missing and Postconviction Testing of DNA Evidence to Exonerate the Innocent. She provided technical editing for and managed the production of the most up-to-date definitive resource on the science and landscape of fingerprint identification, *Fingerprint Sourcebook*, one of NIJ's most popular products. She managed or contributed to the development of numerous training programs for scientists, attorneys, medico-legal death investigators and sexual assault first responders, including "Law 101," "DNA for the Defense," "DNA: A Prosecutor's Practice Notebook," and "DNA Collection and Utilization in Sexual Assault Cases: The Role of the First Responder." As the liaison on a number domestic and international partnerships, Ms. Weiss drafted and oversaw the development of Memoranda of Understanding between NIJ and the Netherlands; Australia; New Zealand; and the United Kingdom, to advance relationships among forensic science researchers and encourage collaborative projects. Most recently, she is managing the development of a best practices guide for the collection and processing of biological evidence in sexual assault cases, titled, *National Best Practices for Sexual Assault Kits: A Multidisciplinary Approach*. Prior to coming to NIJ, Ms. Weiss was a Senior Attorney in the DNA Forensics Division of the National District Attorneys Association, where she developed and provided forensic science trainings for prosecutors, defense attorneys, judges, scientists and law enforcement officers offered at the National Advocacy Center and other locations around the country. She has worked as an attorney, a correctional officer and a private investigator, and has written many articles dealing with the forensic sciences, the law and other criminal justice issues. She holds a Bachelor's degree from Western New England University, a Juris Doctorate from Western New England University School of Law, and a Master's degree in Forensic Sciences from the George Washington University.

Lindsay DePalma

Lindsay DePalma is an associate with Booz Allen Hamilton working as a technical consultant to the Department of Justice's National Institute of Justice (NIJ), Office of Investigative and Forensic Sciences (OIFS). Ms. DePalma provides executive-level analysis and support for strategic planning and program development relevant to the DNA Initiative and other NIJ forensic programs and activities. In previous years, Ms. DePalma has supported NIJ's DNA Backlog Reduction, DNA Research and Development, DNA Unit Efficiency, and Sexual Assault Nurse Examiner/Sexual Assault Response Team (SANE/SART) portfolios. She served as a member of the Biological Evidence Preservation Technical Working Group and assisted in drafting the best practices handbook for biological evidence preservation. In addition to supporting NIJ, Ms. DePalma has supported the Department of Homeland Security's (DHS) chemical and biological defense division in the bioassays program with developing, evaluating, and validating early detection assays for tier 1 and tier 2 select agents and toxins. Prior to Booz Allen Hamilton, Ms. DePalma was the manager of the immunobiology department at a private biotechnology company in Maryland. Ms. DePalma provided clinical trial support by monitoring patients and nonhuman primates' immune responses to a HIV gene therapy and HIV vaccine developed by the company. She holds a B.S. degree from James Madison University in integrated science and technology, and a M.S. degree in biotechnology from Johns Hopkins University.

Commission Members

Thomas Albright, Ph.D.

Dr. Thomas Albright is professor and Conrad T. Prebys Chair at the Salk Institute for Biological Studies, where he joined the faculty in 1986. He is an authority on the neural basis of visual perception, memory, and visually guided behavior. His laboratory seeks to understand how perception is influenced by attention, behavioral goals, and memories of previous experiences. Dr. Albright currently serves on the National Academy of Sciences Committee on Science, Technology, and Law. He served as co-chair of the National Academy of Sciences Committee on Scientific Approaches to Eyewitness Identification, which produced the 2014 report *Identifying the Culprit: Assessing Eyewitness Identification*. Dr. Albright is director of the Salk Institute Center for the Neurobiology of Vision, adjunct professor of psychology and neurosciences at the University of California, San Diego, and visiting centenary professor at the Indian Institute of Science, Bangalore. He is a member of the National Academy of Sciences, a fellow of the American Academy of Arts and Sciences, a fellow of the American Association for the Advancement of Science, and an associate of the Neuroscience Research Program. Dr. Albright received a Ph.D. in psychology and neuroscience from Princeton University. (*Joined the Commission in August, 2015.*)

Suzanne Bell, Ph.D.

Dr. Bell is originally from Los Alamos, NM. She obtained a B.S. degree in 1981 from Northern Arizona University with a dual major in chemistry and police science (criminal justice) and an M.S. in forensic science from the University of New Haven in 1983. She worked at the New Mexico state police forensic laboratory from 1983–1985 and for the Los Alamos National Laboratory from 1985–1992. She obtained a Ph.D. in chemistry from New Mexico State University in 1991 and returned there to complete a post-doctoral appointment. She joined the chemistry department at Eastern Washington University in 1994. She worked with the Washington State patrol to establish a B.S. option in the chemistry department in forensic chemistry. In 2003, she moved to a research position and joined the faculty of West Virginia University in the chemistry department, analytical division, where she assists both the department and the forensic and investigative sciences (FIS) in the forensic chemistry track. She oversees M.S. students from the FIS program as well as her chemistry Ph.D. students. To date, she has mentored nine graduating Ph.D. students. She was tenured in 2011 and is now a professor with research interests in gunshot residue, forensic toxicology, ion mobility spectrometry, and chemical data analysis. Dr. Bell is active in international forensic science education and training, having traveled to China, Portugal, and

Brazil to present workshops and teach forensic chemistry. She is a member of the Scientific Working Group for Seized Drug Analysis (SWGDRUG) as well as the American Academy of Forensic Sciences (AAFS) and the American Chemical Society (ACS). She has written several text and reference books, including *Forensic Chemistry*, the *Oxford Dictionary of Forensic Science*, and the 4th Edition of *An Introduction to Forensic Science* (editor).

Frederick Bieber, Ph.D.

Dr. Frederick R. Bieber is a medical geneticist at Brigham and Women's Hospital and associate professor of pathology at Harvard Medical School. His work focuses on the forensic aspects of DNA-based human identification. He has testified as an expert witness in state, federal, and military courts. As an officer in the U.S. Army Reserve he served at the U.S. Army Criminal Investigation Laboratory (USACIL) and the Armed Forces DNA Identification Laboratory (AFDIL). Professor Bieber served on the World Trade Center Kinship and Data Analysis Panel (KADAP), working with the NYC Office of the Chief Medical Examiner in the DNA-based identification of victims of the September 11th attack on the twin towers, and as a member of the Hurricane Victim DNA Identification Expert Group (HVDIEG), assisting the Louisiana State Police in the identification of victims of Hurricanes Katrina and Rita. Dr. Bieber has served as a member of numerous state and federal forensic advisory boards, including the Scientific Advisory Board of the Virginia Department of Public Safety and the FBI DNA Advisory Board. He currently serves on the Advisory Committee of the National DNA Databank of Canada, the DNA Subcommittee of the New York State Forensic Commission, and as Chair of the Quality Assurance oversight committee of the United States Army DNA Identification Laboratory (AFDIL). He served as senior advisor in forensic science to the Executive Office of Public Safety in Massachusetts and to the commissioner of the Connecticut Department of Environmental Services and Public Protection. For his public and community service, Dr. Bieber has received many awards, including Distinguished Service and Public Service Awards from the Massachusetts District Attorney's Association, Massachusetts House of Representatives, Massachusetts State Police, Louisiana State Police, Federal Bureau of Investigation, and the U.S. Department of Justice.

Arturo Casadevall, M.D., Ph.D.

Dr. Arturo Casadevall is Bloomberg Distinguished Professor and chair of the department of molecular microbiology and immunology at the Johns Hopkins Bloomberg School of Public Health. Dr. Casadevall's major research interests are in fungal pathogenesis and the mechanisms of antibody action. In the area of biodefense, he has an active research program to understand the mechanisms of antibody-mediated neutralization of *Bacillus anthracis* toxins. In recent years, Dr. Casadevall has become interested in problems with the scientific enterprise, and with his collaborators, he has shown that misconduct accounts for the majority of retracted publications. Dr. Casadevall has suggested a variety of reforms to the way science is done. He has served in numerous NIH committees, including those that drafted the NIAID Strategic Plan and the Blue Ribbon Panel on Biodefense Research. He also served on the National Academy of Sciences panel that reviewed the science on the FBI investigation of the anthrax terror attacks of 2001. He served as a member of the National Science Advisory Board for Biosecurity from 2005–2014 and currently co-chairs the NIAID Board of Scientific counselors. The author of more than 630 scientific papers, Dr. Casadevall is the editor-in-chief of *mBio*, the first open access general journal of the American Society of Microbiology, and is on the editorial board of the *Journal of Clinical Investigation* and the *Journal of Experimental Medicine*. Previously he served as director of the division of infectious diseases at Montefiore Medical Center, the University Hospital and academic medical center for Einstein, from 2000–2006, and as chair of the department of microbiology and immunology from 2006–2014. In 2008, he was recognized by the American Society of Microbiology with the William Hinton Award for mentoring scientists from underrepresented groups. He has been elected to AAAS Fellowship, the American Society for Clinical Investigation, the American Academy of Microbiology, the American Association of Physicians, and the National Academy of Medicine (Institute of Medicine). Dr.

Casadevall received both his M.D. and Ph.D. (biochemistry) degrees from New York University. (*Joined the Commission in August, 2015.*)

The Honorable Gregory Champagne

Mr. Gregory Champagne is the elected Sheriff of St. Charles Parish, LA, serving in this capacity since 1996. Previously, he was a felony prosecutor for the 29th Judicial District of Louisiana, from 1982–1996, where he prosecuted thousands of cases, including several capital murder cases. Sheriff Champagne is the first vice president of the National Sheriffs' Association (NSA) and will assume the presidency in June 2016. He is also a past president of the Louisiana Sheriffs' Association and was named Louisiana Sheriff of the year in 2003. He chairs NSA's Legal Advisors Committee and is a longtime member of the Louisiana State Law Institute's Criminal Justice and Procedure Committee. He also is a gubernatorial appointee on the Louisiana Commission on Law Enforcement. Sheriff Champagne earned a B.A. in Government from Nicholls State University and a J.D. from the Louisiana State University Law Center. He and his wife, Alice, a retired adult education teacher, have been married for 34 years and have two children and three grandchildren. (*Joined the Commission in August, 2015.*)

Cecelia Crouse, Ph.D.

Dr. Crouse is currently the crime laboratory director of the ASCLD-LAB ISO-17025 accredited Palm Beach County Sheriff's office crime laboratory. She has been with the PBSO laboratory for 21 years, including 16 years as the manager of the forensic biology unit. She received a B.S. from Michigan State University and Ph.D. from the University of Miami, department of microbiology and immunology, and conducted a post-doctoral virology fellowship in the department of ophthalmology of the UM Bascom Palmer Eye Institute. Prior to graduate school, Dr. Crouse was a plant genetics research associate with Eli Lilly and Company. Dr. Crouse has authored or co-authored more than 40 scientific manuscripts and invited book chapters. Research and forensic validation studies have been presented at more than 60 meetings both nationally and internationally. Dr. Crouse has been a past or present member of the following: Accreditation and Certification Interagency Working Group (IWG) under the National Science and Technology Council Subcommittee (NSTC) on Forensic Science, Florida Association of Crime Laboratory Directors, United States American Prosecutors Research Institute DNA Faculty Member; Attorney General Janet Reno's Laboratory Funding Group for the National Commission for the Future of DNA Evidence; Attorney General John Ashcroft's Attorney General's Initiative on DNA Laboratory Analysis Backlog; the FBI Scientific Working Group on DNA Analysis, National Institute of Justice DNA Technical Working Group; the National Institute Justice Advisory Board for DNA Expert Systems; *Journal of Forensic Science* Editorial Board; Department of Defense Quality Assurance Oversight Committee for the U.S. Armed Forces DNA Identification Laboratory; International Commission on Missing Persons Expert Panel Review Quality Assurance Quality Control; as well as local and state committees and several law enforcement advisory boards.

Gregory Czarnopys

Gregory Czarnopys has worked at the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) since 1989, when he began his career as a forensic chemist at the Forensic Science Laboratory—Washington. As a manager, supervisor, and chemist, he has dedicated himself to scientific methods that advance ATF's ability to solve violent crime and provide unbiased expert testimony in criminal proceeding. Mr. Czarnopys provided forensic support following the first World Trade Center bombing in 1993; the 1996 explosion of Trans World Airlines Flight 800, which crashed into the Atlantic ocean in East Moriches, NY, killing 230; the 1995 bombing of the Alfred P. Murrah Federal Building in Oklahoma City; the Washington, DC, snipers in 2002, the Atlanta abortion clinic bombings between 1996–1998; Washington, DC, serial arson cases, and the 9/11 terrorist attacks. Over the years, Mr. Czarnopys has assumed increasing levels of responsibility at ATF as a supervisor and manager. In 2001, he was named

chief, arson and explosives section, FSL-W; in 2007, he was named chief, FSL-W, and in 2007, he became the deputy director, ATF laboratory services. As a leader in the forensic science community, Mr. Czarnopys has directed numerous projects, task forces, and programs that have advanced scientific disciplines around the world. As a national response team (NRT) chemist, from 1991–2000, he led research that addressed ATF concerns regarding contamination at the scene of explosions related to clothing worn on the scene, training and remediation of explosives. The completion of his study resulted in the establishment of ATF protocols and procedures regarding the processing of explosive materials both on the scene and in the laboratory. Other scientific projects shepherded by Mr. Czarnopys during the last 15 years include disciplines such as DNA, trace evidence, tobacco analysis, fire research and the NIBIN program, all of which are at the forefront of ATF's efforts to solve violent crime and protect the public. He recently oversaw the International Organization for Standardization (ISO) -17025 accreditation of all four ATF laboratories. As a result of his efforts, ATF is a leader within the forensic science community and is a sought-after partner in field. Mr. Czarnopys received a B.S. degree in criminalistics from Michigan State University (1988) and has attended ATF supervisory and managerial training classes since 2001. In 2007, he attended a 2-week leadership training program presented by the prestigious Center for Creative Leadership. In addition, he completed the formal segment of the ATF Leadership Development Program and the Treasury Executive Institute/Executive Forum. Mr. Czarnopys is an expert guest speaker and an active participant in scientific forums such as the American Society of Crime Laboratory Directors (ASCLD), is a past member of the Subcommittee on Forensic Sciences, and is the current chair of the Council of Federal Forensic Laboratory Directors.

Deirdre Daly

Ms. Deirdre Daly was nominated by President Barack Obama to serve as the U.S. Attorney for the District of Connecticut on March 13, 2014. She was confirmed by the U.S. Senate on May 21, 2014, and was sworn in on May 28, 2014. Ms. Daly is the first woman to be nominated and confirmed as the U.S. Attorney for Connecticut. Ms. Daly was the U.S. Attorney in an acting or interim capacity since May 14, 2013. She currently serves as a member of U.S. Attorney General Loretta Lynch's Attorney General's Advisory Committee and as a member of the National Commission on Forensic Science, which the Justice Department established in 2013 to improve the reliability of forensic science. Between 2010 and 2013, she was the First Assistant U.S. Attorney, during which time she assisted in the oversight of both the criminal and civil divisions. From 1985 to 1997, Ms. Daly was an Assistant U.S. Attorney in the Southern District of New York, where she prosecuted a wide range of cases, from racketeering and murder to corruption and fraud, and she later served as the Assistant-in-Charge of the White Plains office for 3 years. After leaving DOJ, Ms. Daly was a partner at Daly & Pavlis LLC, a Connecticut law firm with a practice focused on corporate and commercial litigation, white-collar criminal investigations, SEC enforcement actions, and corporate internal investigations and monitoring. A graduate of Dartmouth College and Georgetown University Law Center, Ms. Daly served earlier in her career as a law clerk for the Honorable Lloyd F. MacMahon, U.S. District Judge for the Southern District of New York. (*Joined the Commission in August, 2015.*)

M. Bonner Denton, Ph.D.

M. Bonner Denton received his B.S. in chemistry and B.A. in -psychology degrees in 1967 from Lamar State College of Technology, and his Ph.D. in chemistry in 1972 from the University of Illinois. Today Dr. Denton is a Galileo Professor of chemistry and professor of geological sciences at the University of Arizona. Research interests include analytical instrumentation, optical spectroscopy, mass spectrometry, separation science, and scientific imaging. Over the years Dr. Denton and his group have developed methodologies that are today widely used in the field of forensic science. He pioneered the development of high resolution array detector technology for both ultra-sensitive spectroscopic analysis and microscopic imaging. The high performance achievable in modern raman, fluorescence and atomic emission spectroscopies is directly traceable to contributions made by Dr. Denton and his research

group. Currently Dr. Denton is applying new advanced detector innovations leading to the development of ultra-trace level explosives detection instrumentation capable of detecting small quantities of explosives at more than 40 meters standoff distances. Dr. Denton is a fellow of the Royal Society of Chemistry; fellow of the American Association for the Advancement of Science; fellow of the Society for Applied Spectroscopy; and fellow of the American Chemical Society. He has published more than 200 peer reviewed publications and holds 15 patents in the field of chemical instrumentation.

Jules Epstein

Jules Epstein is professor of law and director of advocacy programs at Temple Beasley School of Law, where he teaches evidence. He has published extensively regarding the death penalty, eyewitness identification, and evidence, and is faculty for the National Judicial College, teaching evidence and capital case courses. In the area of forensics, Professor Epstein has worked on two DNA workgroups and in capital case trainings for NIJ, and on a working group on latent print issues for the National Institute for Standards and Technology that led to publication of *Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach* (NIST Interagency Report 7842, 2012) He is co-editor of the *Scientific Evidence Review* (ABA, 2013) and *The Future of Evidence* (ABA, 2011) and served as section editor for the *Encyclopedia Of Forensic Sciences*, 2nd Edition. Professor Epstein has lectured on forensics to judges and attorneys.

John Fudenberg

John Fudenberg is the Coroner of The Clark County Office of the Coroner/Medical Examiner (CCOCME) in Las Vegas, NV. The Coroner is an appointed position and functions as the head of the department, Clark County employs six full-time and eleven part-time board certified forensic pathologists. The CCOCME also employs 30 Medicolegal Death Investigators who are all ABMDI certified. There are nearly 17,000 deaths annually in Clark County and the office investigates nearly 75 percent of those deaths. CCOCME is the only Coroner's Office accredited by both the International Association of Coroner's and Medical Examiners (IAC&ME) and the National Association of Medical Examiners (NAME). John has been employed with the CCOCME for 13+ years and has 16+ years of law enforcement experience from Minnesota and Las Vegas. John is the Past President for the International Association of Coroner's and Medical Examiners (IAC&ME), served as the Chair of the Scientific Working Group on Medicolegal Investigations (SWGMDI) and the Chair of the Medicolegal Subcommittee of the OSAC.

S. James Gates, Jr., Ph.D.

Sylvester James (Jim) Gates, Jr., a theoretical physicist known for his work on supersymmetry, supergravity, and superstring theory at the frontiers of his field, received B.S. (mathematics & physics) degrees in 1973 and a Ph.D. (physics) in 1977, all from the Massachusetts Institute of Technology. His thesis was the first at MIT on supersymmetry, a topic that has dominated fundamental theoretical physics since. He is currently University System of Maryland Regents Professor, the Toll Professor of Physics, and center for particle and theory director. He serves on the U.S. President's Council of Advisors on Science & Technology (PCAST), and the Maryland State Board of Education. His scientific work, together with that on STEM (science, technology, engineering, & mathematics) education policy, lead to engagements with the public and policy makers around the globe on the topics of science, STEM education and policy, and diversity. Since 1972 he has taught as a college-level instructor (mathematics/physics) at the University of Maryland, MIT., Caltech, Howard University, and Gustavus Adolphus College. He has been recognized as the recipient of College Science Teacher of the Year (Washington Academy of Sciences–1999), and the Klopsteg Award (American Association of Physics Teachers–2005). Since 1996, with “Breakthrough: The Changing Face of Science in America,” he appeared in seven documentaries, with an eighth (“Mystery of Matter: A Search for the Elements”)

broadcast in 2014. This led to recognition with the Public Understanding of Science and Technology Award (AAAS–2006). His presence on the Web is such that more than 1 million hits have been recorded on Web sites affiliated with his activities. Professor Gates is the recipient of the 2011 Medal of Science and the 2013 Mendel Medal, and he is a member of the National Academy of Sciences, the American Philosophical Society, the American Academy of Arts & Science, the American Physical Society, the National Society of Black Physicists, and the American Association for the Advancement of Science, being a fellow of the last three organizations, and the Stellenbosch Institute for Advanced Study in South Africa. His election to the NAS makes him the first African-American physicist so recognized in its 150 year-long history.

Dean Gialamas

Dean Gialamas is the division director (civilian chief) for the Los Angeles County Sheriff Department's technology and support division. In his role, he leads and manages the Department's technology services, which includes communications, fleet, information technology, records, biometric identification, forensic sciences, crime analysis, and law enforcement information sharing programs. With more than 1,100 sworn and technical personnel and a budget of more than \$216 million, the division supports the entire department in the application of science, technology and innovation services to public safety. Previously he served as crime lab director for both the Los Angeles County Sheriff's Department and the Orange County Sheriff's Department, each ASCLD/LAB ISO 17025 Internationally accredited entities. Over his 24-year career in forensic science, he has worked in both public and private forensic laboratories. He is an active member of several professional organizations and has been appointed to several state and federal task forces and workgroups regarding forensic science issues. He served on the editorial board of the Forensic Science Policy & Management Journal, on the White House Subcommittee on Forensic Science Interagency Working Group, and is a past-president of the American Society of Crime Laboratory Directors and the California Association of Crime Laboratory Directors. Mr. Gialamas also served as an instructor for several criminal justice agencies and universities, and he currently consults on forensic science management and leadership principles and issues. He holds dual majors in chemistry and biology from UC Irvine and a Master's degree in Criminalistics from Cal State Los Angeles. He is professional certified in forensic science by the American Board of Criminalistics and is a proud graduate of the West Point Leadership and Command Program.

Paul Giannelli

Paul C. Giannelli is a distinguished university professor and the Albert J. Weatherhead III & Richard W. Weatherhead Professor of Law at Case Western Reserve University. He received his J.D. degree from the University of Virginia, where he served as articles editor of the *Virginia Law Review*. His other degrees include an LL.M. from the University of Virginia, an M.S. in Forensic Science from George Washington University, and a B.A. summa cum laude from Providence College. After law school, he served as both a prosecutor and defense counsel in the military. Professor Giannelli has written extensively in the field of evidence and criminal procedure, especially on the topic of scientific evidence. He has authored or co-authored 12 books, including *Scientific Evidence* (5th ed. 2012), and has written more than 200 articles, book chapters, reports, book reviews, and columns, including articles in the Columbia, Virginia, Cornell, Vanderbilt, Illinois, Fordham, North Carolina, Wisconsin, Ohio State, and Hastings law reviews. Other articles have been published in specialty journals at Northwestern, Georgetown, Texas, and N.Y.U. In addition, his work has appeared in interdisciplinary journals, such as the *Journal of Law, Medicine & Ethics*, *Issues in Science and Technology* (National Academies), *International Journal of Clinical & Experimental Hypnosis*, and the *Journal of Forensic Sciences*. He is also co-author of a chapter on forensic science in Federal Judicial Center/National Academy of Sciences, *Reference Manual on Scientific Evidence* (3d ed. 2011). Professor Giannelli's work has been cited in nearly 700 judicial opinions throughout this country (including seven decisions of the U.S. Supreme Court) as well as in foreign courts. In addition, he has testified before the U.S. Senate Judiciary Committee and served

as: reporter for the American Bar Association Criminal Justice Standards on DNA Evidence; co-chair of the ABA Ad Hoc Committee on Innocence; and a member, National Academy of Sciences, Bullet Lead Elemental Composition Comparison Committee.

Randy Hanzlick, M.D.

Randy Hanzlick, MD, is a board-certified forensic pathologist, Emeritus Professor of Forensic Pathology at Emory University School of Medicine, and retired chief medical examiner for Fulton County, GA. Born in Ohio, he graduated college and medical school at Ohio State University, where he also did his pathology training. After completing his forensic pathology training in Atlanta, he remained in Atlanta and has worked in the field of death investigation since the early 1980s. He is a past-president of the National Association of Medical Examiners and former pathology/biology section officer for the American Academy of Forensic Sciences. Dr. Hanzlick is active on numerous committees for professional organizations and on multiple federal panels and projects related to death investigation and death certification, such as the CDC Guidelines for Investigation of Sudden, Unexplained Infant Death and the NIJ Guide for Death Scene Investigators. Author of two texts, several manuals, multiple chapters, and about 200 publications, Dr. Hanzlick's major interest areas include the development of professional guidelines, improvement in death investigation practices, death certification and mortality data, electronic data system development and data sharing, and the role of the medical examiner in public health surveillance and epidemiological research. Dr. Hanzlick was also a primary developer of the original NamUs system for unidentified deceased individuals. He has received multiple awards including the National Association of Medical Examiners' Lifetime Service Award (2007) and Milton Helpern Laureate Award (2014), and the American Academy of Forensic Sciences Distinguished Fellow Award (2009).

Hon. Barbara Hervey

Judge Barbara Parker Hervey was elected to the Texas Court of Criminal Appeals in November 2000. Prior to her election, she worked for 16 years at the Bexar County District Attorney's Office in San Antonio, Texas, where she prosecuted landmark cases and trained office personnel.

Judge Hervey is currently a Commissioner on the National Commission of Forensic Science, an advisor to Center for Statistics and Applications in Forensic Evidence (CSAFE), an advisor on the American Law Institute's panel to rewrite the Model Penal Code: Sexual Assault and Related Offenses, and an advisor for the American Association for the Advancement of Science (AAAS). She is also the Chair of the Court of Criminal Appeals' Grants Committee, which awards approximately \$18 million per biennium to educate participants in the Texas criminal-justice system; the Chair of the Texas Criminal Justice Integrity Unit, which identifies areas of the criminal-justice system that can be strengthened; a member of the Rules Committee of the Texas Court of Criminal Appeals; and the Court's liaison to the State Bar of Texas.

Formerly, she was a member of the Timothy Cole Advisory Panel on Wrongful Convictions and the Governor's Ad Hoc Committee to Rewrite the Texas Code of Criminal Procedure. She also was a faculty member for the National College of District Attorneys, was recognized as a distinguished alumna from St. Mary's University School of Law, and was awarded the Rosewood Gavel for Outstanding Judicial Service. Judge Hervey is an accomplished author and has spoken at more than 250 lectures, including at the National Academy of Sciences and the White House Subcommittee on Forensic Science. She also participated in a wrongful-conviction study conducted by the International Association of Police Chiefs in 2013.

Judge Barbara Hervey is a native of New Jersey and earned her Bachelor of Arts Degree in 1975 from The University of North Carolina at Greensboro and her Juris Doctor in 1979 from St. Mary's University

School of Law. Judge Hervey and her husband, Richard Langlois, live in San Antonio, Texas, and have three children and two grandchildren.

Susan Howley

Susan Smith Howley has worked with the National Center for Victims of Crime since 1991, serving as its director of public policy since 1999. From 2002 through 2005, she also served as the Center's director of victim services. During that time, she has worked to promote the rights and interests of crime victims, advocating for laws and policies that help victims pursue justice and recover from crime. She has also led major projects to improve the national response to victims, including co-leading Vision 21: Building Capacity, a project to examine the challenges and solutions to building the capacity of crime victim service providers, and directing a project to develop recommendations to bridge the gap between research and practice in victim services. She also oversees the National Center's work to promote victim-centered policies and practices in the processing of backlogged sexual assault forensic evidence. Ms. Howley has served on the National Advisory Committee on Violence Against Women, the Victims Advisory Group to the U.S. Sentencing Commission, and the Sexual Assault Advisory Committee for the Peace Corps. She was the 2011 winner of the Congressional Victims' Rights Caucus' Lois Haight Award for Excellence and Innovation. She received a J.D. in 1987 from Georgetown University Law Center.

Ted Hunt

Ted Hunt is chief trial attorney at the Jackson County Prosecutor's Office in Kansas City, MO. He has been a prosecuting attorney for more than 22 years. In that time, he has prosecuted more than 100 felony jury trials, the vast majority of which have involved the presentation of forensic evidence. He is a teaching faculty member for a number of organizations that train prosecutors, law enforcement, and laboratory analysts on various aspects of the courtroom litigation of forensic evidence. Mr. Hunt is also a member of the Board of Directors for the American Society of Crime Lab Directors Laboratory Accreditation Board (ASCLD/LAB); a member of the International Association of Chiefs of Police (IACP) Forensic Science Committee; and a member of the Missouri Crime Laboratory Review Commission.

Linda Jackson

Linda Jackson currently serves as Director of the Virginia Department of Forensic Science (VADFS). VADFS provides scientific analysis of evidential material for all law enforcement agencies, Commonwealth's attorneys, medical examiners and other agencies in the Commonwealth as prescribed by law; provides expert testimony at trial; maintains a DNA Data Bank; and trains law enforcement personnel on forensic related subjects.

Ms. Jackson has a B.S. degree from Wake Forest University and an M.S. in Chemistry from the University of North Carolina at Charlotte. She began her career with DFS in 1995 as a Controlled Substances Examiner and then was promoted to Mass Spectrometer Operator, Section Supervisor, Controlled Substances Section Chief and Chemistry Program Manager before assuming her current position. As Director, she has worked to increase laboratory transparency by offering all Breath Alcohol instrument records and test results on the VADFS website. She has worked with the Department of Criminal Justice Services to publish annual seized drug statistics for use by Virginia public safety and public health agencies and is a member of Governor McAuliffe's Opioid Executive Leadership Team.

Ms. Jackson was a member of the international Scientific Working Group for Seized Drug Analysis (SWGDRUG) from its inception in 1997 until 2014 and served as the Vice Chair from 2013 - 2014. She has been a certified assessor for the ASCLD/LAB-*International* program since 2004. She currently serves on the Virginia Commonwealth University Department of Forensic Science Graduate Academic Committee. She is a member of the American Academy of Forensic Sciences (AAFS), the Association of

Crime Laboratory Directors (ASCLD), the ASTM E30 Committee on Forensic Science and the Mid-Atlantic Association of Forensic Scientists (MAAFS). She served on the White House Subcommittee on Forensic Sciences Interagency Working Group on Standards, Practices and Protocols from 2009 - 2012.

Hon. Pam King

Pam King is a Minnesota district court judge, presiding in criminal, civil, family, juvenile, and probate matters. She was appointed to the bench in October 2015. Previously, Ms. King was a member of the Minnesota public defender's trial team. In this role, she worked statewide representing criminal defendants in cases involving complex litigation and/or forensic science. She also consulted with public defenders on a variety of forensic issues including DNA, pathology, toxicology and drug chemistry. In 2011 she was named one of Minnesota Lawyers' Attorneys of the Year for her role in Minnesota's source code litigation. She was part of the Minnesota State public defender DNA Institute, working with a small group of lawyers to become proficient in forensic DNA testing and interpretation. She presents and teaches in Minnesota and nationally on forensic science issues and litigation skills. Ms. King is a fellow in the American Academy of Forensic Sciences as well as a member of the Olmsted County and Dodge County Bar Associations. She was previously a member of Minnesota Society for Criminal Justice, National College of DUI Defense, and the National Association of Criminal Defense Lawyers. She graduated from William Mitchell College of Law and completed her undergraduate degree at Drake University. Prior to working for the Minnesota State public defender, Ms. King had a private practice representing clients in the areas of criminal and family law.

Troy Lawrence

Troy Lawrence is a twenty-eight-year veteran of the Fort Worth Police Department and is currently a sergeant assigned to the digital forensic lab. He grew the lab from a one-person, part-time, position to six examiners (sworn and civilian) that processes computers, mobile phones, and forensic video. Mr. Lawrence began his forensic career in 2000 and attended the 2001 International Association of Computer Investigative Specialists (IACIS) training event in Orlando. He earned his Certified Forensic Computer Examiner (CFCE) on September 13, 2001. Mr. Lawrence served many roles for IACIS. He was a peer-review coach, certification regional manager, and chairman of the recertification committee prior to being elected to the IACIS Board of Directors. He served 3 years as secretary and since 2012 has been the director of training. He continues to assist in the teaching of various topics including the managing a digital forensic lab course that he co-wrote. Mr. Lawrence is a past member and former president of the local High Tech Crime Investigator Association (HTCIA) chapter. In 2003, Mr. Lawrence testified before the Texas House of Representatives regarding mandatory lab accreditation for digital evidence. As a result of his testimony, he was invited to join the Scientific Working Group on Digital Evidence (SWGDE). As a SWGDE member, he frequently contributes to the writing of best practices and quality assurance manuals for the digital evidence community. Mr. Lawrence serves as a subject matter expert in various classes for the National White Collar Crime Center (NW3C) and has served as a part-time instructor for various forensic training programs. He has a B.B.A. degree from Texas Wesleyan University.

Marc LeBeau, Ph.D.

Marc A. LeBeau, PhD, is the Chief Scientist of the Scientific Analysis Section of the FBI Laboratory. He has worked as a Forensic Chemist and Toxicologist for the FBI since 1994 and has testified in federal, state, and county courts throughout the United States.

Dr. LeBeau holds a Bachelors degree in Chemistry and Criminal Justice from Central Missouri State University (1988) and a Master of Science degree in Forensic Science from the University of New Haven (1990). He was employed in the St. Louis County Medical Examiner's Office (1990-1994), before

beginning his career with the FBI. In 2005, he received his Doctorate in toxicology from the University of Maryland – Baltimore.

As a Fellow of the American Board of Forensic Toxicology, Dr. LeBeau is active in numerous scientific organizations. He is a member and Past-President of the Society of Forensic Toxicologists. Additionally, Dr. LeBeau serves as the President-Elect of The International Association of Forensic Toxicologists and is a Fellow of the American Academy of Forensic Sciences (AAFS).

Dr. LeBeau has served as the chairman of the Scientific Working Group on the Forensic Analysis of Chemical Terrorism (SWGFACT) and co-chair to the Scientific Working Group on the Forensic Analysis on Chemical, Biological, Radiological, and Nuclear Terrorism (SWGCBRN). He was also a co-chair of the Scientific Working Group for Forensic Toxicology (SWGTOX). He is currently the Toxicology Subcommittee Chair of the Organization of Scientific Area Committees (OSAC), Chair of the AAFS Standards Board's Toxicology Consensus Body, and a Commissioner on the National Commission on Forensic Science.

In 2004, Dr. LeBeau won the *FBI Director's Award for Outstanding Scientific Advancement*, the *End Violence Against Women (EVAW) International Visionary Award* in 2008, and the *Alexander O. Gettler Award* from the Toxicology Section of the American Academy of Forensic Sciences in 2015.

Julia Leighton

Julia Leighton is the former general counsel for the public defender service for the District of Columbia (PDS). As general counsel, Ms. Leighton advised the PDS's board of trustees, the PDS management team, and PDS lawyers on a wide variety of legal issues. Ms. Leighton is also a former member of the D.C. Bar Legal Ethics Committee and a former member of the D.C. Rules of Professional Conduct Review Committee. While serving as general counsel, Ms. Leighton was also a member of PDS's forensic practice group and was a 2001 founding member. Prior to becoming PDS's general counsel, Ms. Leighton spent 11 years litigating criminal cases; 8 years as a staff attorney at PDS, and 3 years as a trial attorney in the Environmental Crimes Section of the U.S. Department of Justice. Ms. Leighton received a B.A. in economics from Bowdoin College magna cum laude, and her J.D. from the Georgetown University Law Center, cum laude.

Hon. Bridget Mary McCormack

Justice Bridget Mary McCormack joined the Michigan Supreme Court in 2013. Before her election, she was a law professor and associate dean at the University of Michigan Law School. Justice McCormack continues to teach there as a lecturer. Justice McCormack is a graduate of the New York University Law School. She spent the first 5 years of her legal career in New York, first with the Legal Aid Society and then with the Office of the Appellate Defender. In 1996, she became a faculty fellow at the Yale Law School. In 1998, she joined the University of Michigan Law School faculty, where she taught various clinical courses as well as criminal law and legal ethics. As the associate dean for clinical affairs, she substantially grew Michigan's clinical offerings, founding new clinics focusing on domestic violence, pediatric health, mediation, low income taxpayers, international transactions, human trafficking, juvenile justice, and entrepreneurship. In 2008, she cofounded the Michigan Innocence Clinic, in which she supervised students representing wrongfully convicted Michiganders. The clinic was the first law school innocence clinic exclusively handling non-DNA cases and exonerated seven people in its first 3 years. Her clinic innocence work focused, in large part, on forensic science issues. Justice McCormack currently chairs the Supreme Court's Limited English Proficiency Implementation Advisory Committee and participates with a number of professional organizations, including the American Bar Association Access to Justice committee, the American Bar Association Working Group on Pro Bono and Public Service, the advisory board of the National Consortium on Racial and Ethnic Fairness in the Courts, and the judicial elections committee of the National Association of Women Judges, and she serves as a board member of

the National Board of Legal Specialty Certification. In 2013, Justice McCormack was elected to the American Law Institute.

Peter Neufeld

Peter Neufeld co-founded and co-directs the Innocence Project, an independent non-profit. The Project currently represents hundreds of inmates across the country seeking post-conviction release through DNA testing. In its twenty-five years of existence, the Innocence Project has been responsible in whole or in part for exonerating more than half of the three hundred and forty-seven men and women to be cleared through post-conviction DNA testing. The Innocence Project has been transformed from a clinical program with the single focus of exonerating the wrongfully convicted into a leadership role in identifying and addressing the systemic causes of wrongful convictions while at the same time enhancing public safety. The Project has been instrumental in reforming police practices in eye witness identification, interrogation, and forensic science. In February 2000, *Actual Innocence: Five Days to Execution, and Other Dispatches From the Wrongly Convicted*, co-authored by Peter, Barry Scheck, and Jim Dwyer was published by Doubleday. The second edition was published by Penguin in 2003. In 2014, Peter collaborated with the New York Hall of Science on the creation and publication of the interactive iBook, *False Conviction: Innocence, Guilt & Science* authored by Jim Dwyer. In addition to his *pro bono* responsibilities at the Innocence Project, Peter is a partner in the law firm Neufeld, Scheck & Brustin, specializing in civil rights and constitutional litigation. From 1995 to his resignation in 2016, Mr. Neufeld served on the New York State Commission on Forensic Science which regulates all state and local crime laboratories. He is also a trustee of the Montefiore Medical Center and the Albert Einstein College of Medicine. A 1972 graduate of the University of Wisconsin, Peter received his law degree in 1975 from New York University School of Law.

Phil Pulaski

During March 2014, Chief Phil T. Pulaski retired as Chief of Detectives of the NYPD with more than 33 years of law enforcement experience. Previously, he was Deputy Commissioner of Operations and Commanding Officer of several large commands including the Intelligence Division, Counterterrorism Bureau, FBI / NYPD Joint Terrorist Task Force, Detective Borough Manhattan, Detective Borough Bronx, Special Investigations Division and Forensic Investigations Division. Chief Pulaski also served as a Managing Attorney in the Legal Bureau, a captain in the Internal Affairs Bureau, Commanding Officer of the Arson and Explosion Squad, Acting Director of the Police Laboratory and Coordinator of the NYPD's Chemical, Biological, Radiological, Nuclear and Explosives (CBRNE) investigative programs. As Chief of Detectives, he was responsible for more than 3600 personnel assigned to more than 150 Detective Squads and units. He successfully managed scores of major investigations including murdered police officers, shot police officers, serial killers, quadruple homicides, mass casualty incidents and civilian deaths resulting from police action. Additionally, he significantly re-engineered the Detective Bureau; and, implemented innovative new investigative operations, integrity programs, management protocols and computer systems. Chief Pulaski also served as personal adviser to Police Commissioner Raymond W. Kelly on all forensic science matters; and, managed all of the NYPD's forensic, digital/multimedia, investigative and other physical evidence programs. He significantly re-engineered the operations of the NYPD Police Laboratory, Crime Scene Unit, Latent Print Section, Bomb Squad, Forensic Artist Unit, Computer Crimes Squad and Medical Examiner Liaison Unit; and, was responsible, together with the Director of the Police Laboratory, for ensuring the Police Laboratory was accredited twice under the ASCLD/LAB International Program and once under the Legacy Program. Shortly after September 11, 2001, as Commanding Officer of the FBI / NYPD Joint Terrorist Task Force, Chief Pulaski managed, together with his FBI counterpart, terrorism related investigations and intelligence operations including the 9-11 World Trade Center attack and October 2001 anthrax attacks. During his tenure, the Joint Terrorist Task Force interdicted several serious threats to NYC. Chief Pulaski holds a Juris Doctor from St. Johns University School of Law, Queens NY; and practiced law for the NYPD and

privately for 30 years. He also holds a Bachelor's Degree in Chemical Engineering and a Master's Degree in Environmental Engineering from Manhattan College, Bronx NY; and worked for 4 years as an engineer for the United States Environmental Protection Agency. He also worked as an adjunct assistant professor at John Jay College of Criminal Justice for 3 years. Currently, Chief Pulaski is studying for a LLM advanced law degree at Touro Law School in Suffolk, NY.

Matthew Redle

Matt Redle is the county and prosecuting attorney for Sheridan County, WY. He was first elected to that position in 1986. Mr. Redle is a graduate of the Creighton University School of Law. Since 2004, Mr. Redle has served on the Permanent Rules Advisory Committee, Criminal Division, for the Wyoming Supreme Court. Mr. Redle is a past vice-president of the National District Attorneys Association Board of Directors. He is a vice chair and member of the American Bar Association Criminal Justice Section Council. Mr. Redle is a member of the ABA Criminal Justice Standards Committee. Mr. Redle is a member of the Juvenile Prosecutor Leadership Network at the Center for Juvenile Justice Reform, Georgetown Public Policy Institute, Georgetown University. He has spoken on topics relating to science, the law, and legal ethics at events sponsored by the American Academy of Forensic Science, the American Bar Association, the National District Attorneys Association, the National Institute of Justice, the National Sexual Violence Resource Center, and the Criminal Justice Section of the Indiana State Bar, among others. On September 9, 2009, Mr. Redle was privileged to testify before the U.S. Senate Committee on the Judiciary in a hearing entitled "Strengthening Forensic Science in the United States."

Sunita Sah, M.D., M.B.A., Ph.D.

Dr. Sunita Sah is an expert on judgment and decision making. Her research focuses on institutional corruption, transparency, improving decisions, unconscious and unintentional bias, influence, professionalism, and advice. Incorporating organizational behavior, psychology, and behavioral economics theory, Dr. Sah studies how professionals who give advice alter their behavior as a result of conflicts of interest and the policies (such as disclosure and second opinions) designed to manage them. She serves on the National Institute of Science and Technology Human Factors Committee. Dr. Sah's work has been published in top academic journals in medicine, management, economics, and psychology and has received coverage in the international press, radio, and television. She has won numerous best paper awards from the Academy of Management, Society of Business Ethics, Society of Judgment and Decision-Making, and Society of Personality and Social Psychology. She also serves on the editorial board of the journal *Organizational Behavior and Human Decision Processes*. Dr. Sah teaches critical and strategic thinking at Cornell University, where she is currently an assistant professor of management and organizations and the Balen Sesquicentennial Faculty Fellow at the Johnson Graduate School of Management. Prior to Cornell, Dr. Sah held academic positions at Georgetown University (teaching ethical decision making) and at Harvard and Duke Universities. Before entering academia, Dr. Sah worked as a medical doctor for the U.K.'s National Health Service going on to be senior consultant and European marketing director at IMS Health Consulting. She holds a Ph.D. and M.S. in organizational behavior from Carnegie Mellon University, an M.B.A. with distinction from London Business School, an M.B. Ch.B. in medicine and surgery, and a B.Sc. (Hons.) in psychology from the University of Edinburgh. (*Joined the Commission in August, 2015.*)

Michael "Jeff" Salyards, Ph.D.

Dr. Salyards is the Executive Director of the Defense Forensic Science Center. He has served in this position since December 2012. From 2009-2012, he served as the Chief Scientist. Before coming to this position, he was a Principal Analyst with Analytic Services and authored a study about the best methods to train military personnel to collect forensic material during the conduct of military operations. He holds a PhD in Chemistry from Montana State University, a Masters of Forensic Sciences from The George

Washington University and has completed a Fellowship in Forensic Medicine from the Armed Forces Institute of Pathology. A former Director of the Defense Computer Forensic Laboratory and AFOSI Special Agent, he has 29 years of combined experience in investigations, forensic consulting and teaching. He served as the Deputy for Operations and Assistant Professor at the Air Force Academy Chemistry Department and was honored with the Outstanding Academy Educator Award. Dr. Salyards has served on the Board of Directors for the American Society of Crime Laboratory Directors/Laboratory Accreditation Board, the Department of Justice National Steering Committee for Regional Computer Forensic Laboratories, the Council of Federal Forensic Laboratory Directors, the ASCLD Board of Directors, and as a Commissioner for the Forensic Education Programs Accreditation Commission. He was appointed to the Organization of Scientific Area Committees Forensic Science Standards Board in 2016. He is a Fellow of the American Academy of Forensic Sciences and has an impressive list of publications and presentations. In January of 2014, he was appointed to the National Commission on Forensic Science. Dr. Salyards is a retired commissioned officer in the United States Air Force. He has been married for 25 years and has three daughters.

Ex-Officio Members

Rebecca Ferrell, Ph.D.

Rebecca J. Ferrell, Ph.D., is program director of the biological anthropology program at the National Science Foundation (NSF), where she also serves as co-lead of NSF's forensic science efforts. She received her Ph.D. in anthropology from the Pennsylvania State University, after which she was a postdoctoral fellow at Georgetown University's Center for Population and Health and an assistant professor of anthropology at Howard University. Dr. Ferrell specializes in skeletal and dental anthropology, and she is interested in using the skeleton and dental microstructure to understand stress, health, aging, and mortality in past and present human populations. She has also conducted research on human reproductive aging and the evolution of menopause and is broadly interested in research on aging. In 2009, she transitioned to federal research administration as a scientific review officer at the National Institute on Aging, National Institutes of Health (NIH), where she served as a designated federal official for the peer review of grant proposals. At both NIH and NSF, she has served on working groups to address regulatory and processual challenges in peer review. Since arriving at NSF in 2014, Dr. Ferrell has managed a diverse portfolio of research on human and primate evolution, behavior, and biology. She is also working with colleagues across NSF and at other agencies to identify and cultivate basic research with relevance to forensic science, and to launch a forensic science Industry-University Cooperative Research Center.

David Honey, Ph.D.

Dr. David A. Honey currently serves as the director, Science and Technology, and as the assistant deputy director of National Intelligence for Science and Technology. In this assignment, he is responsible for the development of effective strategies, policies, and programs that lead to the successful integration of science and technology capabilities into operational systems. Prior to this assignment, Dr. Honey served as the deputy assistant secretary of Defense, Research, in the Office of the Assistant Secretary of Defense (Research and Engineering), from August 31, 2009, to November 4, 2011. Before that, Dr. Honey was the defense sector general manager and a senior vice president in a small business pursuing innovations in national security. Dr. Honey also served on the Air Force Scientific Advisory Board. He has also served as the director of the Defense Advanced Research Projects Agency (DARPA) Strategic Technology Office, director of the Advanced Technology Office, and deputy director and program manager of the Microsystems Technology Office. Dr. Honey is a retired Air Force lieutenant colonel who began his military career as a pilot (B-52D/H and FB-111) and later transitioned into managing a wide variety of technical programs involving intelligence, surveillance, and reconnaissance. He received a B.S. in Photographic science from Rochester Institute of Technology; an M.S. in optical science from the

University of Arizona; an M.S. in engineering physics from the Air Force Institute of Technology (AFIT); and a Ph.D. in solid state science from Syracuse University.

Marilyn Huestis, Ph.D.

Professor Dr. Dr. (h.c.) Marilyn A. Huestis recently retired as a tenured senior investigator and Chief, Chemistry and Drug Metabolism Section, IRP, National Institute on Drug Abuse, National Institutes of Health, after 23 years of conducting controlled drug administration studies. She is an Adjunct Professor in the Department of Epidemiology and Preventive Medicine, School of Medicine, University of Maryland Baltimore. She is most proud of mentoring doctoral students in Toxicology, directly overseeing the research of 18 distinguished new toxicologists, and international scientists from more than 20 countries training within and outside her laboratory. Her research program focuses on mechanisms of action of cannabinoid agonists and antagonists, effects of *in utero* drug exposure, oral fluid testing, driving under the influence of drugs and the neurobiology and pharmacokinetics of novel psychoactive substances. Professor Huestis' research also explores new medication targets for cannabis dependence. She has published 444 peer-reviewed manuscripts and book chapters and more than 500 abstracts were presented at national and international meetings. Professor Huestis received a bachelor's degree in biochemistry from Mount Holyoke College (cum laude), a master's degree in clinical chemistry from the University of New Mexico (with honors), and a doctoral degree in toxicology from the University of Maryland (with honors). Professor Huestis received a Doctor Honoris Causa from the Faculty of Medicine, University of Helsinki in Finland in 2010. Other important awards include, 2016 Marian W. Fischman Lectureship Award from the College on Problems of Drug Dependence, 2016 Saferstein Memorial Distinguished Lecturer at Northeastern University to be awarded April 2016, Excellence in Scientific Research, Women Scientist Advisory NIDA Investigator Award March 27, 2015, Norman P. Kubasik Lectureship Award, AACC Upstate New York Section May 7, 2015, Distinguished Fellow Award from the American Academy of Forensic Sciences (AAFS) in 2015, The International Association of Forensic Toxicologists (TIAFT) Alan Curry Award in 2010, the American Association for Clinical Chemistry Outstanding Contributions in a Selected Area of Research Award in 2008, the International Association of Therapeutic Drug Monitoring and Clinical Toxicology (IATDMCT) Irving Sunshine Award in 2007, the AAFS Rolla N. Harger Award in 2005, and the Irving Sunshine Award for Outstanding Research in Forensic Toxicology in 1992. The journal *Clinical Chemistry* featured her as an "Inspiring Mind". She currently serves on the National Commission on Forensic Sciences, and the Organization of Scientific Area Committee on Toxicology, World Anti-doping Agency's Prohibited List Committee, Transportation Research Board Committee on Alcohol and Other Drugs, and the National Safety Council's Alcohol, Drugs and Impairment Division Executive Board. Professor Huestis is President of Huestis & Smith Toxicology, LLC, Senior Scientific Advisor to NMS Labs, a consultant to the Department of Transportation, and advises many diagnostics companies. She is past president of the Society of Forensic Toxicologists, past Chair of the Toxicology Section of the American Academy of Forensic Sciences, and the first woman president of The International Association of Forensic Toxicologists.

Gerald LaPorte

Mr. LaPorte serves as the Director in the Office of Investigative and Forensic Sciences at the National Institute of Justice (NIJ), where its mission is to improve the quality and practice of forensic science through innovative solutions that support research, development, technology, evaluation, and information exchange for the criminal justice community. His primary duties are to manage more than \$450 million in grant funds and to provide expert analysis and advice on agency-wide programs or issues of national impact relating to forensic science. Mr. LaPorte received his B.S. and B.B.A. from the University of Windsor (Canada) and M.S. in Forensic Science from the University of Alabama at Birmingham. Over the course of his 20-year career, he has worked with the Jefferson County coroner/medical examiner office (AL), a private clinical and forensic toxicology laboratory (TX), the Anne Arundel County Police Department crime laboratory (MD), and the Virginia Division of Forensic Sciences. Prior to joining NIJ,

Mr. LaPorte was the chief research forensic chemist for the U.S. Secret Service. Mr. LaPorte has more than 15 publications and presented more than 80 lectures and workshops. He is a member of various organizations, including the American Academy of Forensic Sciences, Mid-Atlantic Association of Forensic Scientists, American Society of Questioned Document Examiners, and the American Bar Association. Mr. LaPorte has served on various committees, including ASTM and SWGDOC, and he is co-chair for the Standards Practices and Protocols Interagency Working Group within the Subcommittee on Forensic Science. Mr. LaPorte received the MAAFS 2005 Forensic Scientist of the Year award as well as numerous commendations, including the Law Enforcement Public Service Award from the U.S. Attorney's Office Eastern District of Virginia. He has testified as an expert more than 75 times in international, federal, and state courts.

Patricia Manzolillo

Ms. Manzolillo began her career with USPIS in 1996 in the Memphis Forensic Laboratory as a forensic document examiner. In 2003, she was promoted to assistant laboratory director in the National Forensic Laboratory in Dulles, VA, and assumed her current position of laboratory director in January 2009. Ms. Manzolillo is responsible for all forensic services supporting USPIS and USPS investigations. This includes the 45,000 square foot National Forensic Laboratory, the digital evidence unit's 20 field locations, and 68 forensic and administrative personnel in 7 primary and 18 subcategories of testing. Ms. Manzolillo received a B.A. from the University of Chicago in 1992 and a M.S. in Forensic Science from the University of Alabama at Birmingham in 1996. Ms. Manzolillo has co-authored papers in several peer reviewed journals. She is a member of the American Academy of Forensic Sciences, the American Society of Questioned Document Examiners, and the American Society of Crime Laboratory Directors, and was chair of the ASTM E30 Committee on Forensic Sciences from 2008 through 2013. Ms. Manzolillo is certified by the American Board of Forensic Document Examiners. From 2009 to 2012, she represented the USPIS on the OSTP National Science and Technology Council Subcommittee on Forensic Science. Ms. Manzolillo chaired the Subcommittee's Interagency Working Group on Accreditation and Certification, leading 30 federal, state, and local forensic scientists in the development of white papers on accreditation, certification, and proficiency testing. Ms. Manzolillo has led numerous projects in her career, including collaboration with a Department of Energy National Laboratory on a project funded by a grant from the U.S. Technical Support Working Group to study the individuality of handwriting. Ms. Manzolillo also led the USPIS National Forensic Laboratory to successful accreditation by ASCLD-LAB in 2010, achieving a goal that had existed for more than 10 years.

Hon. Jed Rakoff

Jed S. Rakoff is a senior United States District Judge for the Southern District of New York as well as an adjunct professor at Columbia Law School, where he teaches an upperclass seminar on science and the courts. Prior to taking the bench in 1996, Judge Rakoff was a federal prosecutor (7 years) and a criminal defense lawyer (18 years). He is currently co-chair of the National Academy of Sciences' Committee on Scientific Approaches to Eyewitness Identification, and he previously served on the National Research Council's Review of the Scientific Approaches Used During the FBI's Investigation of the 2001 Anthrax Letters and on the Federal Judicial Center's Committee on the Development of the Third Edition of the Reference Manual on Scientific Evidence. From 2007-11, he was on the governing board of the MacArthur Foundation Initiative on Law and Neuroscience. He has a B.A. from Swarthmore College, an M.Phil. from Oxford University, and a J.D. from Harvard Law School.

Frances Schrotter

Frances E. Schrotter is senior vice president and chief operating officer at the American National Standards Institute (ANSI). In this position, she has primary responsibility for the Institute's activities supporting and facilitating the participation of U.S. interests in domestic, regional, and international standardization activities. Ms. Schrotter works closely with government agencies and public-sector

stakeholders to explore how the private sector can assist in addressing its standardization needs. In addition, she collaborates with the ANSI constituency and other affected interests to identify the need for new standards and conformance programs and works with these groups to facilitate their timely implementation. Her role encompasses management of the ANSI administrative operations, including membership, communications, education and training services, and human resources as well as overseeing the Institute's cross-stakeholder forums for homeland defense and security, nanotechnology, electric vehicles, nuclear energy, energy efficiency, and identity theft protection and identity management. Since joining ANSI in 1976, Ms. Schrotter has worked with numerous domestic and international committees developing standards in dozens of industries, including the information technology standards arena, where she served as the first international secretariat of the ISO/IEC Joint Technical Committee 1 on Information Technology. Ms. Schrotter was born and raised in New York City. ANSI is a not-for-profit membership organization that brings together organizations from both the private and public sectors dedicated to furthering U.S. and international voluntary consensus standards and conformity assessments. ANSI accredits national standards for developing organizations and approves American National Standards. It is the sole U.S. representative to the International Organization for Standardization (ISO) and, via the U.S. National Committee, the International Electrotechnical Commission (IEC). ANSI is also a member of the International Accreditation Forum, the Pacific Area Standards Congress, and the Pan American Standards Commission.

Kathryn Turman

Kathryn M. Turman is the Assistant Director of the FBI's Office of Victim Assistance in Washington, D.C. She oversees assistance to victims of federal crimes across the FBI, including services to child victims, Native American victims, victims of terrorism, and U.S. citizens who are taken hostage in foreign countries. She created and oversees the multi-disciplinary FBI Victim Assistance Rapid Deployment Team, a uniquely experienced cadre of FBI victim specialists, agents, evidence recovery specialists, and disaster management specialists that has provided crisis response to victims of more than 20 incidents of terrorism and mass violence across the US in the past 10 years. Ms. Turman served in the Department of Justice from 1991 until 2002, first as Director of the Missing and Exploited Children's Program, as Chief of the Victim Witness Assistance Unit in the U.S. Attorney's Office for the District of Columbia, and as Deputy Director then Director of the Office for Victims of Crime before moving to the FBI in January 2002. Ms. Turman created the first forensic child interviewing program in the Federal government and authored the first publications for victims and victim services providers explaining the role of DNA evidence in the criminal justice process. Under her leadership the Office for Victims of Crime sponsored innovative programs such as a telemedicine program by which forensic pediatricians located in urban hospitals could examine and consult with local physicians and nurses on child abuse cases in Indian Country and rural communities. Ms. Turman has served on numerous national task forces, boards, and Federal Advisory Committees, including the White House Hostage Policy Review, the National Commission on the Future of DNA Evidence, the U.S. Advisory Board on Child Abuse and Neglect, and the Federal Advisory Committee on Sexual Assault Nurse Examiner/Sexual Assault Response Team, American Indian/Alaska Native Initiative. Ms. Turman authored a number of professional articles and Department of Justice publications for victims and law enforcement professionals on issues such as reunification of missing children and victim and family management and assistance after terrorism and mass casualty incidents. For her overall leadership on behalf of victims she received the Edmund J. Randolph Award, the highest award provided by the Department of Justice in 2001. She was a 2005 recipient of the National Crime Victims Services Award from the Attorney General, the Attorney General's Award for Distinguished Service, and National Intelligence Meritorious Unit Citations for her work on the Pan Am 103/Lockerbie prosecution and on the Hostage Policy Review Team. Ms. Turman was a recipient of the Presidential Rank Award for Meritorious Service in 2007 and the Presidential Rank Award for Distinguished Service in 2015.

Former NCFS Chairs:

James M. Cole

James Cole was sworn in as the Deputy Attorney General on Monday, January 3, 2011. Mr. Cole first joined the Department in 1979 as part of Attorney General's Honors Program and served for 13 years - first as a trial attorney in the Criminal Division, and later as the Deputy Chief of the Division's Public Integrity Section, the office that handles investigation and prosecution of corruption cases against officials, and employees at all levels of government. He entered private practice in 1992 and was a partner at Bryan Cave LLP from 1995 to 2010, specializing in white collar defense. He served as a court-appointed independent monitor to a large insurance company to establish and oversee corporate compliance programs and ensure it adhered to laws and regulations. He also counseled businesses on securities, regulatory, and criminal law issues. While in private practice in 1995, Mr. Cole was tapped to serve as Special Counsel to the House Ethics Committee. In that role, he led an investigation into allegations that former House Speaker Newt Gingrich had improperly used tax-exempt money for partisan purposes and misled the Committee in its inquiry. His investigation led to a bipartisan resolution that was approved by an overwhelming majority of the full House, and resulted in a formal reprimand of Speaker Gingrich and a requirement that he pay penalties. Mr. Cole has been a member of the adjunct faculty at Georgetown University Law Center, teaching courses on public corruption law and legal ethics, and has lectured at Harvard University's Kennedy School of Government. He is a former chair of the American Bar Association (ABA) White Collar Crime Committee and served as the Chair Elect of the ABA Criminal Justice Section. He received his B.A. from the University of Colorado and his J.D. from the University of California-Hastings. *(As submitted in 2014 at the initiation of NCFS. Service ended January, 2015.)*

Patrick Gallagher, Ph.D.

Dr. Patrick Gallagher was named Acting Deputy Secretary of Commerce on June 1, 2013. Dr. Gallagher was confirmed as the 14th Director of the U.S. Department of Commerce's National Institute of Standards and Technology (NIST) on Nov. 5, 2009. He also serves as Under Secretary of Commerce for Standards and Technology, a new position created in the America COMPETES Reauthorization Act of 2010. Prior to his appointment as NIST Director, Gallagher had served as Deputy Director since 2008. Gallagher provides high-level oversight and direction for NIST. The agency promotes U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology. NIST's FY 2013 budget includes \$778.0 million in direct and transfer appropriations, an estimated \$49.7 million in service fees and \$120.6 million from other agencies. The agency employs about 3,000 scientists, engineers, technicians, support staff, and administrative personnel at two main locations in Gaithersburg, Md., and Boulder, Colo. NIST also hosts about 2,700 associates from academia, industry, and other government agencies, who collaborate with NIST staff and access user facilities. In addition, NIST partners with more than 1,300 manufacturing specialists and staff at more than 400MEP service locations around the country. Under Gallagher, NIST has greatly expanded its participation, often in a leadership role, in collaborative efforts between government and the private sector to address major technical challenges facing the nation. NIST's participation in these efforts stems from the agency's long history of technical accomplishments and leadership in private-sector led standards-development organizations and in research fields such as manufacturing engineering, cybersecurity and computer science, forensic science, and building and fire science. Currently, he co-chairs the Standards Subcommittee under the White House National Science and Technology Council. Gallagher received his Ph.D. in physics at the University of Pittsburgh and a bachelor's degree in physics and philosophy from Benedictine College. *(As submitted in 2014 at the initiation of NCFS. Service ended on June, 2014.)*

Willie E. May, Ph.D.

Dr. Willie E. May is the director of the National Institute of Standards and Technology (NIST). He also serves as Under Secretary of Commerce for Standards and Technology, a new position created in the America COMPETES Reauthorization Act of 2010. Prior to this assignment, Dr. May served as associate director for Laboratory Programs, where he was responsible for oversight and direction of NIST's seven laboratory programs and served as the principal deputy to the NIST director. As NIST director, Dr. May provides high-level oversight and direction for NIST. The agency promotes U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology. NIST's FY 2014 resources totaled \$850million indirect appropriations, an estimated \$47.3 million in service fees, and \$107.0 million from other agencies. The agency employs about 3,000 scientists, engineers, technicians, support staff, and administrative personnel at two main locations in Gaithersburg, MD, and Boulder, CO. NIST also hosts about 2,700 associates from academia, industry, and other government agencies who collaborate with NIST staff and access user facilities. In addition, NIST partners with more than 1,300 manufacturing specialists and staff at more than 400 MEP service locations around the country. Dr. May has several leadership responsibilities in addition to those at NIST. He is vice president of the 18-person International Committee on Weights and Measures (CIPM), president of the CIPM's Consultative Committee on Metrology in Chemistry and Biology; executive board member for the Joint Committee on Traceability in Laboratory Medicine; and on the board of visitors for the University of Maryland College Park's College of Computer, Mathematical, and Natural Sciences. *(Served from June, 2014 - January, 2017.)*

Sally Q. Yates

Sally Quillian Yates was sworn in as Acting Deputy Attorney General on January 10, 2015. President Obama formally nominated her for the position on January 8, 2015. Previously, Ms. Yates was nominated by President Obama to serve as U.S. Attorney for the Northern District of Georgia and was confirmed by the U.S. Senate on March 10, 2010. She was the first woman to serve as U.S. Attorney in the Northern District of Georgia. As the chief federal law enforcement official for the district, she oversaw the prosecution of all federal crimes and the litigation of civil matters in which the government had an interest in a district encompassing more than 6 million residents. She supervised a staff of approximately 95 lawyers and 80 support personnel. During her time as a U.S. Attorney, Ms. Yates was appointed by Attorney General Holder to serve as Vice Chair of the Attorney General's Advisory Committee. Created in 1973, the Committee represents the voice of the U.S. Attorneys and provides advice and counsel to the Attorney General on policy, management, and operational issues impacting the Department of Justice. Ms. Yates has spent most of her professional career in public service and has 25 years of prosecutorial experience in the U.S. Attorney's office. Prior to her appointment as U.S. Attorney, Ms. Yates served as the First Assistant U.S. Attorney for approximately 7 years, and from 1994 to 2002, she was the chief of the fraud and public corruption section of the office where she supervised the prosecution of all of the office's white collar cases. Ms. Yates is an experienced trial lawyer and has prosecuted a wide variety of complex matters, specializing in public corruption cases. She was also the lead prosecutor in the Atlanta prosecution of Olympic bomber Eric Rudolph. Ms. Yates is a Fellow in the American College of Trial Lawyers. Prior to joining the U.S. Attorney's Office, Ms. Yates practiced with King & Spalding in commercial litigation. She graduated magna cum laude from the University of Georgia School of Law in 1986. *(Served from January, 2015 – January, 2017.)*

Former Commission Staff

Andrew J. Bruck

Andrew Bruck served as the Associate Deputy Attorney General & Deputy Chief of Staff to the Deputy Attorney General. Before joining the Office of the Deputy Attorney General, he served as an Assistant U.S. Attorney in the U.S. Attorney's Office for the District of New Jersey, where he prosecuted violent

and organized crime. He graduated with a B.A. from Princeton University's Woodrow Wilson School of Public and International Affairs, and earned a J.D. from Stanford Law School, where he was editor-in-chief of the Stanford Law & Policy Review. Following law school, he clerked for the Honorable Stuart Rabner, Chief Justice of the New Jersey Supreme Court, and worked as a litigation associate at Davis Polk & Wardwell LLP in New York City. (*Served as DFO from May, 2015 – March, 2016.*)

Robin Jones

As the former Program Manager for the National Commission on Forensic Science, Ms. Jones managed daily operations and provided subject matter expertise to the Commission Chairs and Designated Federal Official. Ms. Jones has been spearheading and managing forensic science initiatives within the Department of Justice since 1997 when she served as principal staff for Attorney General Janet Reno's National Commission on the Future of DNA Evidence which received the Attorney General's Award for Outstanding Contributions to Community Partnerships for Public Safety. From 2001 to 2009, Ms. Jones worked at the Office of Justice Programs supporting executive-level policy initiatives on forensic science for the Department, including the Department's response to the 2009 National Academy of Science report on forensic science; briefing material for Congress on the Department's forensic science programs and initiatives; and management of national symposia and conferences on forensic science. Notably, she was integral to the development of the President's five billion-dollar DNA Initiative, "Advancing Justice Through DNA Technology," an effort that received the Service to America Medal for Justice and Law Enforcement (9/07), the Attorney General's Initiative on DNA Laboratory Backlogs, and the National Institute of Justice's Postconviction DNA Testing Assistance program. Ms. Jones also assisted in the coordination of the Department's response to the 9/11 tragedy, including working with the National Human Genome Research Institute and the New York City Police Department to develop How DNA Can Help Identify Individuals, a resource for families of victims of the attacks. From 2009 - 2012 Ms. Jones served as Executive Secretary for the National Science and Technology Council's Subcommittee on Forensic Science, an effort administered through the Office of Science and Technology Policy, Executive Office of the President. Prior to coming to the Department, Ms. Jones was a Legislative Assistant for the Chairman of the Florida Congressional Delegation and Chairman of the Ways and Means Committee, Representative E. Clay Shaw, Jr. Ms. Jones received her Bachelor of Science degree from Virginia Polytechnic Institute and State University. (*As submitted in 2014 at the initiation of NCFS. Service ended November, 2015.*)

Brette Steele

Ms. Brette Steele served as Senior Advisor on Forensic Science, Senior Counsel to the Deputy Attorney General, and Designated Federal Official to the National Commission on Forensic Science. In that capacity, she ensures compliance with the Federal Advisory Committee Act and serves as the Commission's primary point of contact with the Office of the Deputy Attorney General and the Office of the Attorney General. Before joining the Office of the Deputy Attorney General, she coordinated the Department of Justice Forensic Science Working Group through the Office of Legal Policy. Steele graduated with a B.A. from University of California, Berkeley, and a J.D. from UCLA School of Law. Following law school, she clerked for Judge Dorothy W. Nelson on the U.S. Court of Appeals for the Ninth Circuit and worked as an associate in the Supreme Court and Appellate Group of Mayer Brown LLP. (*As submitted in 2014 at the initiation of NCFS. Service ended May, 2015.*)

Victor Weedn, M.D., J.D.

Dr. Weedn was the senior forensic advisor to the Deputy Attorney General on detail from his position as professor and chair of the George Washington University Department of Forensic Sciences. He is a graduate of the Southwestern Medical School and the South Texas College of Law. He underwent anatomical and clinical pathology residency training at the Baylor College of Medicine and the University of Texas Health Science Center at Houston and then anatomic pathology fellowship training at the M.D.

Anderson Hospital and Tumor Institute and forensic pathology fellowship training at the Armed Forces Institute of Pathology. He established the Armed Forces DNA Identification Laboratory and was involved in pioneering efforts to establish STR and mitochondrial DNA sequencing methods. He directed the effort to create the current inspection and accreditation program of the National Association of Medical Examiners. Subsequently, he has had several positions, including as a medical examiner, a crime laboratory director, research scientist, and professor. He is the immediate past president of the American Academy of Forensic Sciences. (*Served from March, 2016 – January 20, 2017.*)

Former Commissioners

Thomas Cech, Ph.D.

Dr. Cech was raised and educated in Iowa, earning his B.A. in chemistry from Grinnell College in 1970. He obtained his Ph.D. in chemistry from the University of California, Berkeley, and then engaged in postdoctoral research in the department of biology at the Massachusetts Institute of Technology in Cambridge, Massachusetts. In 1978 he joined the faculty of the University of Colorado Boulder, where he became a Howard Hughes Medical Institute Investigator in 1988 and Distinguished Professor of Chemistry and Biochemistry in 1990. In 1982 Dr. Cech and his research group announced that an RNA molecule from *Tetrahymena*, a single-celled pond organism, cut and rejoined chemical bonds in the complete absence of proteins. Thus RNA was not restricted to being a passive carrier of genetic information, but could have an active role in cellular metabolism. This discovery of self-splicing RNA provided the first exception to the long-held belief that biological reactions are always catalyzed by proteins. In addition, it has been heralded as providing a new, plausible scenario for the origin of life; because RNA can be both an information-carrying molecule and a catalyst, perhaps the first self-reproducing system consisted of RNA alone. In January 2000, Dr. Cech moved to Maryland as president of the Howard Hughes Medical Institute, which is the nation's largest private biomedical research organization. In addition, HHMI has an \$80 million/year grants program that supports science education at all levels (K-12 through medical school) and international research. In April 2009, Dr. Cech returned to full-time research and teaching at the University of Colorado Boulder, where he also directs the BioFrontiers Institute. Dr. Cech's work has been recognized by many national and international awards and prizes, including the Heineken Prize of the Royal Netherlands Academy of Sciences (1988), the Albert Lasker Basic Medical Research Award (1988), the Nobel Prize in Chemistry (1989), and the National Medal of Science (1995). In 1987 Dr. Cech was elected to the U.S. National Academy of Sciences and also awarded a lifetime professorship by the American Cancer Society. (*As submitted in 2014 at the initiation of NCFS. Service ended May, 2015.*)

William Crane

Mr. William (Bill) Crane is a retired special agent of the U.S. Department of State, with many years of Federal law enforcement experience as well as significant experience in digital forensics and law enforcement training and education. Much of his more recent experience has been international, as he lived and worked in England and New Zealand. He is currently an associate professor and graduate digital forensics program director at Champlain College in Burlington, Vermont. Mr. Crane has more than 20 years of practical experience in the field of cybercrime and the forensic acquisition and analysis of digital data from computers and other digital devices and more than 30 years of supervision and management experience of national-level law enforcement programs. Mr. Crane is experienced as a fact and expert court witness on digital forensics in the United States and New Zealand and is experienced in complicated financial crimes as well as child exploitation, cybercrimes, and Internet fraud. Mr. Crane is a Certified Forensic Computer Examiner since 1994 and is a Digital Forensics Computer Practitioner. He is also a member of numerous technical working groups on the development of digital forensic standards and best practice guidelines. Mr. Crane earned a B.S. from the American University, Washington, D.C., and a Master's Diploma in cybercrime forensics, from Canterbury Christ Church University, in Canterbury, England. (*As submitted in 2015. Served from August 2015 – December, 2015.*)

Vincent Di Maio, M.D.

Dr. Di Maio obtained his Medical Degree from the State University of New York, Downstate Medical Center, in 1965. He did a year internship in Pathology at Duke University Hospital, Durham, N.C., followed by three years of residency in Pathology at the Downstate-Kings County Medical Center in Brooklyn, New York. This was followed by a one year fellowship in Forensic Pathology at the Maryland Medical Examiner's Office. He was then Board Certified in Anatomical, Clinical and Forensic Pathology. From July 1, 1970 - June 30, 1972, he was a Major in the Army Medical Corps assigned to the Armed Forces Institute of Pathology in Washington, D.C. where he was Chief of the Legal Medicine Section and Chief of the Wound Ballistic Section. Dr. Di Maio was a Medical Examiner in Dallas, TX, from July 1, 1972 - February 28, 1981. He served as Chief Medical Examiner in Bexar County, Texas, (San Antonio), from March 1, 1981, until his retirement on December 31, 2006. He was Director of Bexar County Criminal Investigation Laboratory from March 1, 1981 - April 15, 1997. He was a Professor in the Department of Pathology, University of Texas Health Science Center at San Antonio, from February 1, 1987, to December 31, 2006. Dr. Di Maio is Presiding Officer of the Texas Forensic Science Commission and is Editor-in-Chief of the American Journal of Forensic Medicine and Pathology. He is the author/co-author of four texts: Excited Delirium Syndrome; Forensic Pathology; Gunshot Wounds and Handbook of Forensic Pathology. In addition, he is the author/co-author of 88 scientific articles, 14 scientific letters and 15 book chapters. *(As submitted in 2014 at the initiation of NCFCS. Membership ended September, 2016.)*

Troy Duster, Ph.D.

Troy Duster is Senior Fellow at the Warren Institute on Law and Social Policy and Chancellor's Professor at the University of California, Berkeley. He is the past-president of the American Sociological Association, former member of the Social Science Research Council, and he served as chair of the Board of Directors of the Association of American Colleges and Universities. Relevant publications include, *The Legislation of Morality: Law, Drugs, and Moral Judgment* (Free Press) and *Backdoor to Eugenics* (Routledge) - and he is co-author of *Unlocking America: Why and How to Reduce America's Prison Population*, with J. Austin, et al., Washington, DC: The JFA Institute. From 1996-98, he was member and then chair of the joint NIH/DOE advisory committee on Ethical, Legal and Social Issues in the Human Genome Project. He is also Emeritus Silver Professor of Sociology and former Director of the Institute for the History of the Production of Knowledge at New York University. *(As submitted in 2014 at the initiation of NCFCS. Service ended May, 2015.)*

Andrea Ferreira-Gonzalez, Ph.D.

Andrea Ferreira-Gonzalez, Ph.D. is currently Professor and Chair of the Division of Molecular Diagnostics in the Department of Pathology at Virginia Commonwealth University. She is also the Director of the Molecular Diagnostics Laboratory at Virginia Commonwealth University Health System. She is an expert in molecular diagnostics in the area of genetics, oncology, coagulation and infectious diseases. She has been recognized both nationally and internationally for her work in the field of molecular diagnostics. Her publication record demonstrates over 80 publications in peer-reviewed literature and she has been sought after to contribute eight chapters to books in clinical molecular analysis. Dr Ferreira-Gonzalez is a consultant on the Clinical Genetics Panel of the Medical Devices Advisory Committee, Center for Devices and Radiological Health for the Food Drug Administration. She served as a member of the Secretary of HHS Advisory Committee on Genetics, Health and Society (SACGHS) and the Chair of the SACGHS Task Force on Genetic Testing Oversight. In addition, she served on the Secretary of HHS Personalized Healthcare Workgroup. She also served as member of Clinical Laboratory Improvement Advisory Committee (CLIA) to HHS. She has been involved in the development of clinical guidelines with the Clinical and Laboratory Standards Institute. Dr Ferreira-Gonzalez also served as President and Chair of the Professional Relations Committee for the Association

for Molecular Pathology. She is currently the chair of the LDT Working group for AMP Professional Relations Committee. *(As submitted in 2014 at the initiation of NCFS. Service ended April, 2015.)*

Stephen Fienberg, Ph.D.

Stephen E. Fienberg is Maurice Falk University professor of statistics and social science emeritus at Carnegie Mellon University, and co-director of the Living Analytics Research Centre (jointly operated by Carnegie Mellon and Singapore Management University), with appointments in the department of statistics, the machine learning department, the Heinz College, Cylab, and the Human Rights Science Center. He served as dean of the college of humanities and social sciences and taught at the University of Chicago, the University of Minnesota, and York University, where he served as vice president academic. He has been vice president of the American Statistical Association and president of the Institute of Mathematical Statistics and the International Society for Bayesian Analysis. His research includes the development of statistical methods, especially tools for the analysis of categorical data, networks, and privacy protection, from both likelihood and Bayesian perspectives. He is the author or editor of more than 25 books and 500 papers and related publications and is a member of the U. S. National Academy of Sciences, and a fellow of the Royal Society of Canada, the American Academy of Arts and Sciences, and the American Academy of Political and Social Science. In the late 1970s, he led the effort to create the American Statistical Association's Committee on Law and Justice Statistics and served as its first chair. He has been a co-organizer of the triennial International Conference on Forensic Statistics, and was the lead organizer of the 2005 NAS Sackler Colloquium on Forensic Science: The Nexus of Science and the Law, and subsequently served as co-chair, with former Attorney General Janet Reno and the Honorable Judge William Webster, of the American Judicature Society's Commission on Forensic Science and Public Policy, whose goals included "the independent consideration and adoption of forensic science standards, guidelines and best practices when appropriate." *(As submitted in 2014 at the initiation of NCFS. Dr. Fienberg passed away on December 14, 2016.)*

John Kacavas

John P. Kacavas was appointed United States Attorney for the District of New Hampshire by President Barack Obama on August 13, 2009. John is Chairman of the Attorney General's Advisory Committee (AGAC) Forensic Science Working Group, and he was a member of the White House Office of Science and Technology Policy Subcommittee on Forensic Science. He also serves on the AGAC Subcommittee on Criminal Practice, the Child Exploitation and Obscenity Working Group, and he sits on the New England High Intensity Drug Trafficking Area (HIDTA) Executive Board. Following his admission to the New Hampshire Bar in 1990, John began his career in public service when he became a homicide prosecutor with the New Hampshire Attorney General's Office. From 1993 to 1999, he served as an assistant attorney general, senior assistant attorney general and Chief of the homicide unit. John then joined the U.S. Department of Justice as a trial attorney in the Criminal Division in Washington, D.C. from 1999 to 2000. Before becoming U.S. Attorney, John spent the previous nine years in private criminal defense practice, having founded the firm of Kacavas Ramsdell & Howard in Manchester. John graduated with a B.A. in political science from St. Michael's College, an M.A. in international affairs from the American University School of International Service in Washington, D.C., and a J.D. from Boston College Law School. *(As submitted in 2014 at the initiation of NCFS. Service ended May, 2015.)*

Ryant Washington

Sheriff Ryant L. Washington has served law enforcement since 1990. Prior to his election in 1999, he had served as a Fluvanna County Deputy Sheriff and as a Virginia State Trooper. His educational background consists of a diploma in Business Administration from National Business College; Graduate of Executive Management Training at the National Sheriffs Institute; classes on leadership at the University of Virginia's Weldon Cooper Center for Public Service; and classes in the management of law enforcement

agencies at the Southern Police Institute at the University of Louisville. Sheriff Washington's background also includes a variety of leadership positions on local and statewide boards, committees and commissions. He has served as the Virginia Sheriffs Association representative on the Governor's Substance Abuse Service Council; The State Interoperability Committee; Virginia State Police Records Management System study; Foundation of Virginia; Crimes Commission Protective Order Task Force; Supreme Court of Virginia Magistrate study representative; and the Racial Profiling Committee. In 2009 Sheriff Washington was nominated by Senator Mark Warner and Senator Jim Webb to President Barack Obama as a nominee to be appointed as United States Marshal for the Eastern District of Virginia. He is Past President of the Virginia Sheriff's Association, currently Legislative Chairman of the Virginia Sheriff's Association, on the Board of Directors for the National Sheriff's Association representing Virginia Sheriffs, currently serves on the Boards of the Central Virginia Regional Jail Authority, and Piedmont Community College Police Science Advisory Board. He was also appointed by Governor Terry McAuliffe to serve on his administrations transition committee. In addition, Ryant's community involvement is shown as a former Board of Directors member of the Fluvanna Chamber of Commerce, associate member of the Fluvanna Ruritan Club, member of the National Organization of Black Law Enforcement Officers and a former charter member of the Fluvanna Rotary Club. *(As submitted in 2014 at the initiation of NCFCS. Service ended May, 2015.)*

Former Ex-Officio Members

Mark Weiss, Ph.D.

Mark Weiss is Director of the Behavioral and Cognitive Sciences Division at the National Science Foundation. He received his doctorate in anthropology from the University of California, Berkeley in 1969 after which he became a member of the Anthropology Faculty at Wayne State University. There, his research focused on application of DNA methodologies to questions of anthropological significance. He left the university in 2000 for the US National Science Foundation. Until 2005 Weiss was program director of physical anthropology at NSF when he was seconded to the Office of Science and Technology Policy at the White House where he served as Assistant Director for Social, Behavioral and Economic Sciences. Upon returning to NSF in 2006 he was Senior Science Advisor in the Directorate for Social, Behavioral and Economic Sciences until becoming Division Director the following year. He has represented NSF on a number of interagency committees including the NSTC's Human Subjects Research Subcommittee, the Social, Behavioral and Economic Sciences Subcommittee and the Subcommittee on Forensic Sciences (SoFS). While serving on SoFS, he also co-chaired the Research, Development, Testing and Evaluation Working Group. At NSF he has been instrumental in seeking to improve communication between academic researchers and the forensic science community and to strengthening support of basic science that has downstream applications in forensic science. *(As submitted in 2014 at the initiation of NCFCS. Service ended April, 2016.)*

Appendix B. National Commission on Forensic Science Subcommittees

National Commission on Forensic Science’s (NCFS) Subcommittees develop work products—Recommendation and Views documents—for the NCFS. They are chaired by Commissioners and have approximately 20 members composed of both Commissioners and the subject matter experts from the public.

There are seven NCFS Subcommittees: 1) Accreditation and Proficiency Testing, 2) Human Factors, 3) Interim Solutions, 4) Medicolegal Death Investigation, 5) Reporting and Testimony, 6) Scientific Inquiry and Research, and 7) Training on Science and the Law. Subcommittee membership and descriptions are provided below.

Accreditation and Proficiency Testing Subcommittee

Accreditation is a process by which an independent third party verifies compliance with established standards. In forensic science, accreditation standards include criteria for laboratories performing specific types of testing and/or examination, measurement, or calibration activities. Additionally, the implementation of a robust and standardized proficiency testing program, used in conjunction with or independent of accreditation, is a key element of an effective quality management system. Professional certification is the recognition by an independent body that an individual has acquired and demonstrated specialized knowledge, skills, and abilities in the standard practices necessary to execute the duties of his or her profession. The Accreditation and Proficiency Testing Subcommittee will consider the role of accreditation and proficiency test programs as part of a quality management system and forensic science personnel certification, and will explore issues such as consistency of existing standards and programs, application to technological innovations, and challenges associated with implementation.

Members

Co-Chairs	
Linda Jackson <i>Laboratory Director</i> <i>Virginia Department of Forensic Science</i>	Patricia Manzollilo <i>Laboratory Director</i> <i>United States Postal Inspection Service</i>
Commission Members	
Cecelia Crouse, Ph.D. <i>Director</i> <i>Palm Beach County Sheriff's Office Crime Laboratory</i>	Julia Leighton <i>General Counsel</i> <i>District of Columbia Public Defender Service</i>
Gregory Czarnopys <i>Deputy Assistant Director, Forensic Services</i> <i>Bureau of Alcohol, Tobacco, Firearms and Explosives</i>	Nelson Santos <i>Deputy Assistant Administrator</i> <i>Drug Enforcement Administration</i>
Sgt. Troy Lawrence <i>Director, Digital Forensics Laboratory</i> <i>Fort Worth Police Department</i>	Frances Schrotter <i>Senior Vice President and Chief Operating Officer</i> <i>American National Standards Institute</i>
Marc LeBeau, Ph.D. <i>Scientific Forensic Scientist</i> <i>Federal Bureau of Investigation</i>	

Additional Members	
<p>Karin Athanas <i>Forensics Program Manager</i> <i>A2LA</i></p>	<p>Captain Greg Michaud <i>Forensic Science Division Director</i> <i>Michigan State Police</i></p>
<p>Bicka Barlow <i>Attorney and Forensic Consultant</i></p>	<p>Brady Mills <i>Deputy Assistant Director</i> <i>Texas Department of Public Safety</i></p>
<p>Pam Bordner <i>Senior Accreditation Program Manager</i> <i>American Society of Crime Laboratory</i> <i>Directors/Laboratory Accreditation Board</i></p>	<p>Roger Muse <i>Director, Business Development</i> <i>ANSI-ASQ National Accreditation Board</i></p>
<p>Loralie Langman <i>Director of Toxicology</i> <i>Mayo Clinic College of Medicine</i></p>	<p>Anjali Ranadive <i>President and Chief Executive Officer</i> <i>SciLawForensics, Ltd.</i></p>
<p>Deborah Leben <i>Laboratory Director</i> <i>US Secret Service</i></p>	<p>Marvin Schechter <i>Criminal Defense Attorney</i></p>
<p>Pete Marone <i>Retired Director</i> <i>Virginia Department of Forensic Science</i></p>	<p>Christopher Taylor <i>Supervisor Chemist & Branch Chief</i> <i>United States Army Criminal Investigation Laboratory</i></p>
Former Members	
<p>Cassandra Burke <i>Quality and Technical Services Manager</i> <i>Supervisor, Trace Analysis and Evidence Processing</i> <i>Units</i> <i>Baltimore County Police Department</i> <i>Forensic Services Section</i></p>	<p>Lorie Gottesman <i>Supervisory Forensic Document Examiner, QD Unit</i> <i>Federal Bureau of Investigation</i></p>
<p>Andrea Ferreira-Gonzalez <i>Professor and Chair</i> <i>Division of Molecular Diagnostics</i> <i>Department of Pathology</i> <i>Virginia Commonwealth University</i></p>	<p>Jennifer Limoges <i>Associate Director of Forensic Science/Toxicology</i> <i>NYSP Forensic Investigation Center</i></p>

Human Factors Subcommittee

Human factors is a multidisciplinary field that examines ways in which human performance (e.g., the judgments of experts) can be influenced by cognitive, perceptual, organizational, social, and cultural factors, and other human tendencies. The Human Factors Subcommittee will examine factors that influence the performance of forensic scientists as they draw conclusions from physical evidence and communicate their findings in the legal system, and will recommend policies and procedures to improve the performance of forensic laboratories and their personnel in the various roles they perform. Specific areas of focus will include minimizing cognitive bias, reducing the risk of human error, testing and evaluating human performance, and improving communication of scientific findings.

Members

Co-Chairs	
<p>The Honorable Bridget Mary McCormack Justice Michigan State Supreme Court</p>	<p>Jules Epstein Professor of Law and Director of Advocacy Programs Temple Beasley School of Law</p>
Commission Members	
<p>Thomas Albright, Ph.D. Professor and Conrad T. Prebys Chair Salk Institute for Biological Studies</p>	<p>Phil Pulaski Chief of Police Muttontown Police Department</p>
<p>Gregory Champagne Elected Sheriff St. Charles Parish, Louisiana</p>	<p>Sunita Sah, Ph.D. Assistant Professor Cornell University</p>
<p>Rebecca Ferrell, Ph.D. Program Director, Biological Anthropology Program National Science Foundation</p>	
Additional Members	
<p>Michael Ambrosino Special Counsel for DNA and Forensic Evidence Litigation United States Attorney's Office U.S. Department of Justice</p>	<p>Michael Nerheim Lake County State's Attorney Waukegan, Illinois</p>
<p>Simon Cole, Ph.D. Professor Department of Criminology, Law & Society School of Social Ecology, University of California, Irvine</p>	<p>Kate Philpott Forensic Consultant Former Forensic Staff Attorney DC Public Defender Service</p>
<p>Itiel Dror, Ph.D. Cognitive Neuroscientist University College London and Cognitive Consultants International</p>	<p>Michael Risinger Professor of Law Seton Hall University School of Law</p>
<p>Hany Farid, Ph.D. Professor, Computer Science Dartmouth University</p>	<p>Barry Scheck Co-Director Innocence Project</p>
<p>John Hollway Executive Director Quattrone Center for the Fair Administration of Justice</p>	<p>Laura Sudkamp Laboratory System Director Kentucky State Police Forensic Services Division</p>
<p>Jerome Kassirer, M.D. Distinguished Professor Tufts University School of Medicine</p>	<p>Melissa Taylor Management and Program Analyst NIST</p>
<p>Deborah Leben Laboratory Director United States Secret Service Department of Homeland Security</p>	<p>William Thompson, Ph.D. Professor School of Social Ecology University of California, Irvine</p>

<p>Christian Meissner, Ph.D. <i>Professor</i> <i>Department of Psychology</i> <i>Iowa State University</i></p>	<p>Dustin Yeatman <i>Toxicology/Chemistry Manager</i> <i>Palm Beach County Sheriff's Office</i></p>
<p>Former Members</p>	
<p>Cassandra Burke <i>Quality and Technical Services Manager</i> <i>Supervisor, Trace Analysis and Evidence Processing Units</i> <i>Baltimore County Police Department</i> <i>Forensic Services Section</i></p>	<p>Troy Duster, Ph.D. <i>Chancellor's Professor and Senior Fellow</i> <i>Warren Institute on Law and Social Policy</i> <i>University of California, Berkeley</i></p>
<p>William Crane <i>Retired Special Agent</i> <i>U.S. Department of State</i></p>	<p>Stephen Fienberg , Ph.D. <i>Maurice Falk Professor of Statistics and Social Science</i> <i>Emeritus</i> <i>Carnegie Mellon University</i></p>

Interim Solutions Subcommittee

There are many factors that can improve the quality of forensic science, such as research, accreditation, and standards implementation. Independent of these long-term initiatives, there are a number of interim improvements that can be accomplished that further enhance scientific practices and support quality assurance measures for forensic service providers and stakeholders who rely on their work. The Interim Solutions Subcommittee will develop near-term recommendations that are consistent with fundamental forensic science examination, scientific practice, and quality management principles, which may include reporting requirements for all work performed, root cause analysis, defining terminology, and devising language for expressing the limitations of results of analyses.

Members

Co-Chairs

<p>Dean Gialamas <i>Division Director, Technical and Support Division</i> <i>Los Angeles County Sheriff's Department</i></p>	<p>Peter Neufeld <i>Co-Director</i> <i>Innocence Project</i></p>
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Commission Members

<p>S. James (Jim) Gates, Jr. , Ph.D. <i>Regents and John S. Toll Professor of Physics</i> <i>University of Maryland</i></p>	<p>Marc LeBeau, Ph.D. <i>Senior Forensic Scientist</i> <i>Federal Bureau of Investigation Laboratory</i></p>
<p>Paul Giannelli <i>Distinguished University Professor</i> <i>Case Western Reserve University</i></p>	<p>Julia Leighton <i>General Counsel</i> <i>District of Columbia Public Defender Service</i></p>
<p>Susan Howley <i>Director of Public Policy</i> <i>National Center for Victims of Crime</i></p>	<p>Patricia Manzolillo <i>Laboratory Director</i> <i>United States Postal Inspection Service</i></p>
<p>Marilyn Huestis, Ph.D. <i>Adjunct Professor Dr. Dr. (h.c.)</i> <i>University of Maryland School of Medicine</i></p>	<p>Michael "Jeff" Salyards, Ph.D. <i>Executive Director</i> <i>Defense Forensic Science Center</i></p>

Ted Hunt <i>Chief Trial Attorney Jackson County (MO) Prosecutor's Office</i>	
Additional Members	
Adam Becnel <i>Crime Laboratory Manager Louisiana State Police Crime Laboratory</i>	John Hollway <i>Executive Director Quattrone Center for the Fair Administration of Justice</i>
Former Members	
Troy Duster, Ph.D. <i>Chancellor's Professor and Senior Fellow Warren Institute on Law and Social Policy University of California, Berkeley</i>	

Medicolegal Death Investigation Subcommittee

In the United States, the medicolegal death investigation profession is generally composed of three major personnel categories: medicolegal death investigators, coroners, and medical examiners. The Medicolegal Death Investigation Subcommittee will examine ways to enhance services being provided by this array of practitioners and develop solutions that ensure that our nation is provided the highest quality services related to the determination of cause and manner of death.

Members

Co-Chairs	
John Fudenberg <i>Assistant Coroner Clark County (NV) Office of the Coroner/Medical Examiner</i>	Randy Hanzlick, M.D. <i>Consultant Retired Chief Medical Examiner, Fulton County, Georgia Retired Professor of Forensic Pathology, Emory University School of Medicine, Atlanta</i>
Commission Members	
Frederick Bieber, Ph.D. <i>Medical Geneticist Brigham and Women's Hospital</i>	Matt Redle <i>Sheridan County (WY) County and Prosecuting Attorney Sheridan County Prosecuting Attorney's Office</i>
Gregory Champagne <i>Elected Sheriff St. Charles Parish, Louisiana</i>	Kathryn Turman <i>Program Director, Office of Victim Assistance United States Department of Justice</i>
Phil Pulaski <i>Chief of Police Muttontown Police Department</i>	
Additional Members	
Laura Crandall <i>Assistant Executive Director for Advocacy The Sudden Unexplained Death in Childhood Program</i>	Elias Kontanis <i>Coordinator for Medicolegal Operations National Transportation Safety Board</i>

Captain Brian Elias <i>Los Angeles County Coroner's Office</i>	Kurt Nolte, M.D. <i>Professor of Pathology & Radiology University of New Mexico</i>
Frank DePaolo <i>Assistant Commissioner New York City Office of Chief Medical Examiner</i>	
Former Members	
Steven Clark <i>Director Occupational Research & Assessment, Inc.</i>	Victor Weedn, M.D. <i>Professor George Washington University</i>
Vincent DiMaio, M.D. <i>Consultant in Forensic Pathology</i>	

Reporting and Testimony Subcommittee

Results of forensic analyses have a wide audience: law enforcement officers, lawyers, judges, juries, and victims. Significant variability exists as to the scope, contents, and disclosure of forensic science reports and the accompanying standards and terminology used by the author-experts to describe their results and conclusions in their reports and in their testimony. The Reporting and Testimony Subcommittee will consider ways to address current inconsistencies and insufficiencies and to enhance adequacy, accuracy, and uniformity in such reports and testimony as well as in the underlying documentation and processes.

Members

Co-Chairs

The Honorable Jed Rakoff <i>Senior Federal District Judge Southern District of New York</i>	Matt Redle <i>Sheridan County and Prosecuting Attorney Sheridan County (WY) Prosecuting Attorney's Office</i>
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Commission Members

Jules Epstein <i>Professor of Law and Director of Advocacy Programs Temple Beasley School of Law</i>	Gerald LaPorte <i>Director, Office of Investigative and Forensic Science National Institute of Justice</i>
Paul Giannelli <i>Distinguished University Professor Case Western Reserve University</i>	Sgt. Troy Lawrence <i>Director, Digital Forensics Laboratory Fort Worth Police Department</i>
The Honorable Barbara Hervey <i>Texas Court of Criminal Appeals</i>	Julia Leighton <i>General Counsel DC Public Defender Service</i>
Susan Howley <i>Director of Public Policy National Center for Victims of Crime</i>	Peter Neufeld <i>Co-Director Innocence Project</i>
Linda Jackson <i>Laboratory Director Virginia Department of Forensic Science</i>	Phil Pulaski <i>Chief of Police Muttontown Police Department</i>

Hon. Pam King <i>Judge</i> <i>Minnesota District Court</i>	
Additional Members	
Mike Cariola <i>President & CEO</i> <i>Bode Technology Group</i>	Thomas McShane <i>President of Investigations and Monitoring</i> <i>Guidepost Solutions, LLC</i>
Alicia Carriquiry, Ph.D. <i>Distinguished Professor of Statistics</i> <i>Iowa State University</i>	Ray Miller, Ph.D. <i>Chief, National Security and Major Crimes Unit</i> <i>U.S. Attorney's Office, District of Connecticut</i>
Jamie Downs <i>Consultant Forensic Pathologist</i> <i>forensX LLC</i>	Jill Spriggs <i>Private Consultant</i>
Larry Kobilinsky, Ph.D. <i>Professor & Chair</i> <i>John Jay College of Criminal Justice</i>	Charlotte Word, Ph.D. <i>Private Consultant</i>
David Kaye <i>Distinguished Professor of Law</i> <i>Penn State University</i>	Paula Wulff <i>Assistant General Counsel</i> <i>FBI Laboratory</i>
Former Members	
Stephen Fienberg, Ph.D. <i>Maurice Falk University Professor of Statistics and</i> <i>Social Science Emeritus</i> <i>Carnegie Mellon University</i>	John Kacavas <i>United States Attorney</i> <i>District of New Hampshire</i>

Scientific Inquiry and Research Subcommittee

There is considerable debate regarding the strength of the foundational science underpinning some forensic science disciplines. Additionally, fragmentation of research efforts hinders the development and deployment of advanced technologies for forensic science. The Scientific Inquiry and Research Subcommittee will consider ways to examine existing foundational research and recommend research priorities for technological investments that can improve the quality and timeliness of forensic analyses.

Members

Co-Chairs	
Suzanne Bell, Ph.D. <i>Professor of Chemistry</i> <i>West Virginia University</i>	Michael “Jeff” Salyards, Ph.D. <i>Executive Director</i> <i>Defense Forensic Science Center</i>
Commission Members	
John Butler, Ph.D. <i>NIST Fellow & Special Assistant to the Director for</i> <i>Forensic Science</i> <i>National Institute of Standards and Technology</i>	Marilyn Huestis, Ph.D. <i>Adjunct Professor Dr. Dr. (h.c.)</i> <i>University of Maryland School of Medicine</i>

Arturo Casadevall, Ph.D. <i>Bloomberg Distinguished Professor and Chair Johns Hopkins Bloomberg School of Public Health</i>	Gerry LaPorte <i>Director, Office of Investigative and Forensic Sciences National Institute of Justice</i>
Cecelia Crouse, Ph.D. <i>Laboratory Director Palm Beach County (FL) Sheriff's Office Crime Laboratory</i>	Marc LeBeau, Ph.D. <i>Senior Forensic Scientist Federal Bureau of Investigation Laboratory</i>
M. Bonner Denton, Ph.D. <i>Professor University of Arizona</i>	Peter Neufeld <i>Co-Director Innocence Project</i>
Rebecca Ferrell, Ph.D. <i>Program Director, Biological Anthropology Program National Science Foundation</i>	
Additional Members	
Sarah Chu <i>Senior Forensic Policy Advocate Innocence Project</i>	Kurt Nolte, M.D. <i>Professor Office of the Medical Investigator</i>
Karen Kafadar, Ph.D. <i>Commonwealth Professor and Chair Department of Statistics University of Virginia</i>	Jeffery Tomberlin, Ph.D. <i>Associate Professor of Chemistry Department of Entomology Texas A&M University</i>
Former Members	
Thomas Cech, Ph.D. <i>Distinguished Professor Department of Chemistry and Biochemistry University of Colorado Boulder</i>	Jeremy Triplett <i>Laboratory Supervisor Kentucky State Police</i>
Stephen Fienberg <i>Maurice Falk University Professor of Statistics and Social Science Emeritus Carnegie Mellon University</i>	Mark Weiss <i>Director, Behavioral and Cognitive Sciences Division, National Science Foundation</i>

Training on Science and the Law Subcommittee

There are limited uniform national programs for educating lawyers and judges on forensic science and educating forensic scientists on relevant laws. The Training on Science and Law Subcommittee will explore mechanisms for judges, lawyers, and forensic scientists to engage in collaborative training to ensure that legal professionals understand the probative value and limitations of forensic science and forensic practitioners understand legal procedure and issues associated with the presentation of scientific evidence in court.

Members

Co-Chairs

The Honorable Barbara Hervey <i>Texas Court of Criminal Appeals</i>	S. James (Jim) Gates, Jr., Ph.D. <i>Regents and John S. Toll Professor of Physics University of Maryland</i>
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Commission Members	
<p>Gregory Czarnopys <i>Deputy Assistant Director, Forensic Services Bureau of Alcohol, Tobacco, Firearms, and Explosives</i></p>	<p>Hon. Pam King <i>Judge Minnesota District Court</i></p>
<p>Jules Epstein <i>Professor of Law and Director of Advocacy Programs Temple Beasley School of Law</i></p>	<p>The Honorable Bridget Mary McCormack <i>Justice Michigan State Supreme Court</i></p>
<p>Ted Hunt <i>Chief Trial Attorney Jackson County (MO) Prosecutor's Office</i></p>	
Additional Members	
<p>The Honorable Sid Harle <i>Bexar County District Court Judge</i></p>	<p>General Michael Marchand <i>President The Center for American and International Law</i></p>
<p>The Honorable Bob Humphreys <i>Judge Court of Appeals of Virginia</i></p>	<p>Barry Scheck <i>Co-Director Innocence Project</i></p>
<p>D. Pat Johnson <i>Deputy Assistant Director (Ret.) Crime Laboratory Service Texas Department of Public Safety</i></p>	
Former Members	
<p>Ryant Washington Sheriff, Fluvanna, VA</p>	<p>Alan Leshner, Ph.D. <i>Chief Executive Officer, Emeritus American Association for the Advancement of Science</i></p>

Appendix C. National Commission on Forensic Science Recommendations and Views Work Products

Foundational Recommendations

Recommendation on Survey of Forensic Capabilities	
Recommendation	On August 27, 2014, the Commission recommended that the Attorney General direct the Bureau of Justice Statistics to create a proposal for the development of a nationally representative survey to determine forensic capabilities for those who write reports and offer testimony within Federal, state, and local law-enforcement agencies and for medical examiner and coroner offices.
Attorney General Response	DOJ responded on September 8, 2014, by adopting the recommendation. To date, this survey has not been completed.
Recommendation to Fund Post-Doctoral Projects to Facilitate Translation for Research into Forensic Science Practice	
Recommendation	On March 22, 2016, the Commission recommended that DOJ develop and implement a grant program specifically directed toward funding multiyear post-doctoral fellowships at Federal, state, and local forensic science service providers (FSSPs) and forensic medicine service providers (FMSPs).
Attorney General Response	DOJ responded on September 6, 2016, directing the National Institute of Justice (NIJ) to explore the possibility of implementing a grant program to fund multiyear post-doctoral fellowships at federal, state, and local FSSPs and FMSPs.
Recommendation on Technical Merit Evaluation of Forensic Science Methods and Practices	
Recommendation	On September 12, 2016, the Commission set forth three recommendations for the Attorney General. First, the Attorney General should encourage NIST to establish an in-house entity to evaluate the technical merit of test methods and practices used in forensic science disciplines. Second, the results of NIST’s evaluations should be made publicly available. Third, OSAC leadership should share consensus documentary standards for only those forensic science test methods and practices where NIST has established technical merit.
Attorney General Response	As of the April 2017 meeting, DOJ is in the process of reviewing this recommendation and will issue a public response regarding DOJ’s decisions when available.
Recommendation on Formation of a National Office for Medicolegal Death Investigation	
Recommendation	On September 13, 2016, the Commission recommended that the Attorney General work with the White House Office of Science and Technology Policy to develop a permanent National Office of Medicolegal Death Investigation to improve quality and consistency, and to meet criminal justice and public health needs. The Commission also recommended that the Attorney General, through the proposed National Office and the NIJ, provide ongoing funding and support to improve the recruitment of forensic pathologists, modernization of facilities, accreditation of medicolegal offices and certification of its personnel, and the establishment of a national information network for the nation’s medical examiner and coroner offices.

Attorney General Response	As of the April 2017 meeting, DOJ is in the process of reviewing this recommendation and will issue a public response regarding DOJ’s decisions when available.
Recommendation on Model Legislation for Medicolegal Death Investigation Systems	
Recommendation	On January 9, 2017, the Commission recommended that the Attorney General advocate and provide financial support for the drafting of model medicolegal death investigation legislation by the Uniform Law Commission.
Attorney General Response	As of the April 2017 meeting, DOJ is in the process of reviewing this recommendation and will issue a public response regarding DOJ’s decisions when available.

Foundational Views

View on Scientific Literature in Support of Forensic Science and Practice	
View	On January 30, 2015, the Commission adopted a Views document proposing criteria by which scientific literature in support of forensic science can be assessed for consistency with principles of scientific validity.
View on Ensuring that Forensic Analysis Is Based upon Task-Relevant Information	
View	On December 8, 2015, the Commission adopted a Views document proposing that forensic analysis be based upon task-relevant information.
View on Identifying and Evaluating Literature that Supports the Basic Principles of a Forensic Science Method or Forensic Science Discipline	
View	On March 22, 2016, the Commission adopted a Views document suggesting that scientific literature be evaluated and vetted through an objective and critical review process using tenets based on general scientific principles and practice.
View on Technical Merit Evaluation of Forensic Science Methods and Practice	
View	On June 21, 2016, the Commission adopted a Views document proposing that all forensic science methodologies should be evaluated by an independent scientific body that will characterize the methodology’s capabilities and limitations; that NIST should assume the role of independent scientific evaluator within the justice system; and that additional resources should be made available to support this new capacity.
View on Facilitating Research on Laboratory Performance	
View	On September 13, 2016, the Commission adopted a Views document that outlined steps FSSPs should take to assure the accuracy and reliability of their analysis and the overall quality of their work.

Operational Recommendations on Accreditation and Certification

Recommendation on Accreditation of Medicolegal Death Investigation Offices	
Recommendation	On January 30, 2015, the Commission recommended that all offices, facilities, or institutions performing government-funded, official MDI activities for a medical examiner or coroner system become accredited by 2020.

Attorney General Response	DOJ responded on November 23, 2015, to refer the recommendation to the Office of Science and Technology Policy at the White House to establish an interagency working group aimed at bringing higher levels of scientific rigor and reliability to the field of medicolegal death investigation.
Recommendation on Certification of Medicolegal Death Investigators	
Recommendation	On January 30, 2015, the Commission recommended that all medicolegal death investigators and coroners obtain professional certification by 2020.
Attorney General Response	DOJ responded on November 23, 2015, to refer the recommendation to the Office of Science and Technology Policy at the White House to establish an interagency working group aimed at bringing higher levels of scientific rigor and reliability to the field of medicolegal death investigation.
Recommendation on Universal Accreditation	
Recommendation	On April 30, 2015, the Commission recommended that all FSSPs become accredited.
Attorney General Response	DOJ responded on November 23, 2015, by: requiring its non-digital DOJ-run forensic labs to obtain and maintain accreditation; requiring DOJ prosecutors to use accredited labs to process forensic evidence when practicable; and announcing that DOJ will use its grant-funding mechanisms to encourage other labs around the country to pursue accreditation.
Recommendation on Proficiency Testing	
Recommendation	On September 13, 2016, the Commission recommended that the Attorney General require all DOJ FSSPs to participate in a proficiency testing program that provides rigorous samples within 3 years, encourage all FSSPs to participate in proficiency testing programs by providing grant funding and training, and encourage external vendors that provide proficiency tests to DOJ to share their aggregate data with entities doing research and analysis.
Attorney General Response	As of the April 2017 meeting, DOJ is in the process of reviewing this recommendation and will issue a public response regarding DOJ's decisions when available.
Recommendation on Root Cause Analysis in Forensic Science	
Recommendation	On August 11, 2015, the Commission recommended that the Attorney General direct the adoption of appropriate root cause analysis protocols for all FSSPs or FSMPs who are part of the Federal government or are receiving federal funds, and to establish policy for restoration procedures that comply with the recommended root cause analysis process.
Attorney General Response	DOJ responded on March 17, 2016 by requiring Department entities that provide non-digital forensic science services to establish or maintain protocols and policies to address when a mistake or non-conforming event occurs. Department entities that provide forensic science services should review their policies in light of the NCFS's research to determine if any change to them might be appropriate to create even more robust protocols and policies.
Recommendation on National Code of Professional Responsibility for Forensic Science and Forensic Medicine Service Providers	
Recommendation	On March 22, 2016, the Commission recommended that DOJ adopt the National Code of Professional Responsibility for Forensic Science and Forensic Medicine Service Providers developed by the Commission (set forth within the Recommendation).

Attorney General Response	On September 16, 2016, DOJ adopted a new code of professional responsibility for DOJ forensic laboratories based on the recommendation.
Recommendation on Accreditation of Digital and Multimedia Evidence Forensic Science Service Providers (DME FSSP)	
Recommendation	On January 9, 2017, the Commission recommended that the Attorney General should direct the DOJ DME FSSPs to maintain accreditation, or if not accredited, to prepare for accreditation using accrediting bodies that submit to and are in compliance with ISO/IEC 17011 and are signatory to the ILAC MRA. Additionally, the Attorney General should direct DOJ DME FSSPs to implement Critical Steps to accreditation as best practices until accreditation can be achieved; require Federal prosecutors to contract with accredited DME FSSPs where practicable; solicit the Scientific Working Group on Digital Evidence, the Organization of Scientific Area Committees for Forensic Science and NIST’s involvement in establishing best standards and supplemental requirements for accreditation of DME service providers; provide education to the DME community on accreditation, applicability, requirements, and benefits for the digital evidence discipline; and encourage accreditation for all DME FSSPs to include the immediate implementation of the Critical Steps.
Attorney General Response	As of the April 2017 meeting, DOJ is in the process of reviewing this recommendation and will issue a public response regarding DOJ’s decisions when available.

Operational Views on Accreditation and Certification

View on Critical Steps to Accreditation	
View	On March 22, 2016, the Commission adopted a Views document suggesting that the creation of quality management systems not only improves the quality and reliability of forensic work but also facilitates the Commission’s ultimate goal of universal accreditation.
View on Proficiency Testing in Forensic Science	
View	On March 22, 2016, the Commission adopted a Views document proposing that proficiency testing be implemented by non-accredited FSSPs.
View on Accreditation of Medicolegal Death Investigation Offices	
View	On June 21, 2016, the Commission adopted a Views document supporting its earlier recommendation on the accreditation of MDI offices.
View on Certification of Medicolegal Death Investigators	
View	On June 21, 2016, the Commission adopted a Views document supporting its earlier certification of MDI personnel recommendation.
View on Accreditation Program Requirements	
View	On September 12, 2016, the Commission adopted a Views document proposing that strengthening the accreditation programs, in addition to the universal accreditation recommendations to the Attorney General, will improve the quality of FSSPs and promote standardization across forensic science.
View on Certification of Forensic Science Practitioners	
View	On September 12, 2016, the Commission adopted a Views document proposing that FSSPs should encourage certification of practitioners through specific means and that practitioners should become and maintain certification.

View on Accreditation of Forensic Science Certification Bodies

View	On September 12, 2016 the Commission adopted a Views document proposing that certification bodies should seek to comply with conformity assessment standards and requirements, gain accreditation from a third-party accreditation body, collaborate with other certification bodies to develop uniform certification requirements, and ensure that certification examinations are continually reviewed to incorporate new technologies.
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Operational Recommendations on Improving Infrastructure and Increasing Capacity

Recommendation on Automated Fingerprint Information Systems Interoperability

Recommendation	On August 11, 2015, the Commission recommended that the Attorney General support, recommend, and fund interoperability of Automated Fingerprint Identification Systems (AFIS) to improve public safety.
Attorney General Response	On March 17, 2016, DOJ announced its intention to continue to work with federal, state, local, and tribal law enforcement agencies to reduce barriers to widely accessing fingerprint systems.

Recommendation on Electronic Networking of Medical Examiner and Coroner Offices in the United States

Recommendation	On August 11, 2015, the Commission recommended that the Attorney General establish an electronic communication network for all medical examiner and coroner offices in the United States by 2017.
Attorney General Response	DOJ responded on March 17, 2016, announcing its belief that communication among medical examiners and coroners is critical to advance the practice of medicolegal death investigation and expressing its willingness to work with other Federal agencies to support it.

Recommendation on National Disaster Call Center

Recommendation	On June 21, 2016, the Commission recommended that the Attorney General develop, establish, and maintain a National Disaster Call Center.
Attorney General Response	DOJ responded on January 6, 2017, announcing its support of the principal goals of the Commission’s National Disaster Call Center proposal and has directed Department staff to share the recommendation with the Departments of Homeland Security and Health and Human Services. A liaison was appointed to work with these agencies to consider this recommendation and determine how agencies can coordinate efforts.

Recommendation on Documentation, Case Record, and Report Contents

Recommendation	On September 13, 2016, the Commission recommended that the Attorney General require DOJ FSSPs to develop written policies for documenting the examination, testing, and interpretation of evidence and for reporting results. These policies should require that: records be created contemporaneously with the examination of evidence; reports accurately and clearly convey a statement of the purpose, testing methods, and interpretation of evidence; and the case record be organized and made available in a manner consistent with the Commission’s discovery recommendations.
Attorney General Response	As of the April 2017 meeting, DOJ is in the process of reviewing this recommendation and will issue a public response regarding DOJ’s decisions when available.

Recommendation on Transparency of Quality Management System Documents

Recommendation	On March 22, 2016, the Commission recommended that the Attorney General direct all DOJ FSSPs to make quality management system documents readily accessible to the public in an electronic format upon request and available on the Department’s website within one year of the passage of this directive. Furthermore, the Attorney General should require that federal prosecutions, in cases in which federal prosecutors request forensic testing, shall only use FSSPs and FMSPs that make quality management system documents available in an electronic format upon request by either the defense or the prosecution. The Attorney General should encourage the universal publication of quality management system documents from all non-DOJ FSSPs and FMSPs through any means available including providing funding or information technology support and infrastructure where possible to state and local FSSPs and FMSPs.
Attorney General Response	DOJ responded on September 6, 2016, announcing that the Department’s forensic laboratories that support criminal investigation and prosecution will post current quality management system (QMS) documents and existing summaries of internal validation studies online within 18 months. QMS documents and existing summaries of internal validation studies may be posted in a format of each laboratory’s choice and redacted for security, investigative, intelligence, and other statutory exemption reasons. This mandate does not alter existing discovery obligations.

Operational Views on Improving Infrastructure and Increasing Capacity

View on Increasing the Number, Retention, and Quality of Board-Certified Forensic Pathologists

View	On August 11, 2015, the Commission adopted a Views document discussing the need to raise awareness of the shortage of forensic pathologists and to consider mechanisms that will ensure an adequate supply of forensic pathologists.
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View on Documentation, Case Record, and Report Contents

View	On December 7, 2015, the Commission adopted a Views document regarding written policies for documenting the examination, testing, and interpretation of evidence, and for reporting results.
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Views on Communication with Next of Kin and Other Family Members

View	On September 13, 2016, the Commission adopted a Views document regarding the lack of policies and procedures relating to the communication and interactions MDI offices have with next of kin and other family members during death investigations.
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Views on Use of Checklists in Forensic Science

View	On January 9, 2017, the Commission adopted a Views document discussing the importance of ensuring the precise performance of repetitive activities and avoid bias in all forensic activities.
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Views on Report and Case Record Contents

View	On April 10, 2017, this Views document did not receive the required 2/3 majority vote, and therefore was not adopted by the Commission.
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Relational Recommendations

Recommendation on Forensic Science Curriculum Development

Recommendation	On December 8, 2015, the Commission recommended that the Attorney General fund the creation of a national curriculum on forensic science issues expected to be brought before courts. The Commission recommended that the curriculum be completed within 1 year and developed initially for judges and lawyers but with a design permitting future adaptability to other audiences.
Attorney General Response	DOJ responded on June 7, 2016, by instructing litigating entities to review the forensic science training available to DOJ prosecutors to determine if new training should be developed or if training protocols should be instituted. DOJ also stated that it would share the recommendation broadly with various legal and scientific entities.

Recommendation on Use of the Term “Reasonable Scientific Certainty”

Recommendation	On March 22, 2016, the Commission recommended the Attorney General ensure that DOJ employees do not use the phrases “to a reasonable degree of scientific certainty” or “to a reasonable degree of [discipline] certainty.”
Attorney General Response	On September 6, 2016, the Attorney General instructed DOJ forensic laboratories to review their policies and procedures to ensure that forensic examiners are not using the expressions “reasonable scientific certainty” or similar terms in their reports or testimony and instructed DOJ prosecutors to abstain from use of these expressions when presenting forensic reports or questioning forensic experts in court unless required by a judge or applicable law.

Recommendation on Pretrial Discovery

Recommendation	On June 21, 2016, the Commission recommended that the Attorney General should (1) direct federal prosecutors, when they intend to offer expert testimony, to provide the court and defense counsel a report prepared by the expert containing a summary of all opinions the expert will express, the facts or data considered by the expert, any exhibits, and the expert’s qualifications and past cases; (2) direct federal prosecutors to allow the defendant full access to the expert’s case record; and (3) authorize Federal prosecutors to condition these disclosures on the defense’s agreeing to provide the same disclosures if the defense intends to offer forensic expert testimony.
Attorney General Response	DOJ responded on January 6, 2017, by issuing a memorandum to Department personnel, entitled <i>Supplemental Guidance for Prosecutors Regarding Criminal Discovery Involving Forensic Evidence and Experts</i> .

Relational Views

View on Inconsistent Terminology

View	On April 30, 2015, the Commission adopted a Views document suggesting that the forensic science community should strive to make terminology more consistent within a particular discipline and across disciplines.
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View on Defining Forensic Science and Related Terms

View	On May 1, 2015, the Commission adopted a Views document defining terms (such as “forensic science,” “forensic medicine,” and “forensic science agency”) for the purposes of its work. To facilitate implementation, the Commission required all subcommittees to adopt these definitions, cite them as footnotes in their work products, and take the scope of the definition into account when developing their own recommendations.
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View on Judicial Vouching

View	On June 21, 2016, the Commission adopted a Views document proposing that the practice of judicial vouching (i.e., requesting trial judges to declare a witness to be an expert in the presence of the jury) be discontinued.
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View on Notice and Demand Provisions

View	On June 21, 2016, the Commission adopted a Views document proposing that jurisdictions should adopt notice-and-demand provisions for securing the presence of FSSPs at trial.
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Views on Use of the Term “Reasonable Scientific Certainty”

View	On March 22, 2016, the Commission adopted a Views document proposing that legal professionals should not require that forensic discipline testimony be admitted conditioned upon the expert witness testifying that a conclusion is held to a “reasonable scientific certainty”, a “reasonable degree of scientific certainty,” or a “reasonable degree of [discipline] certainty.”
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Views on Use of Pretrial Discovery of Forensic Material

View	On August 11, 2015, the Commission adopted a Views document proposing that when a party gives notice of the use of forensic evidence in a criminal case, the adversary party should be provided with access to the underlying items examined (if reasonably available) as well as detailed information about the kinds of analyses conducted and methods used to evaluate those items; the testing conducted on those items; the observations made; the opinions, interpretations, and conclusions reached; and the bases for those observations, opinions, interpretations, and conclusions.
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Views on Recognizing the Autonomy and Neutrality of Forensic Pathologists

View	On January 9, 2017, the Commission adopted a Views document regarding the need to recognize that forensic pathologists operate as autonomous and neutral scientists, and that forensic pathologists must be available and encouraged to routinely consult with prosecuting, plaintiff, and/or defense attorneys and investigators in both criminal and civil law cases arising from their official death investigation duties as well as on private, independent consultations.
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Views on Statistical Statements in Forensic Testimony

View	On April 10, 2017, this Views document did not receive the required 2/3 majority vote, and therefore was not adopted by the Commission.
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Appendix D: National Commission on Forensic Science Public Comments

The National Commission on Forensic Science (NCFS) welcomes feedback from the public on NCFS agenda items, meeting materials, and draft work products developed by NCFS staff, Commissioners, and subcommittees. Public Comments are submitted in three ways: during oral public comment periods held at the quarterly NCFS public meetings, during the 30-day public comment periods that request written public comments on draft work products and submitted via www.regulations.gov, or through the NCFS website at <https://www.justice.gov/ncfs/contact-commission>. Oral comments can be found in the Meeting Summaries listed under the respective meetings at <https://www.justice.gov/ncfs/meetings>. Submitted written comments are available on the NCFS website at <https://www.justice.gov/ncfs/written-public-comments>, and the comments submitted through, and posted on, www.regulations.gov can be found at the links identified below.

Meeting 1 (Written Public Comments)

<https://www.justice.gov/ncfs/written-public-comments>

Meeting 2 (Written Public Comments)

<https://www.justice.gov/ncfs/written-public-comments#m2>

Meeting 3 (Written Public Comments)

<https://www.justice.gov/ncfs/written-public-comments#m3>

Meeting 4 (ODAG 151, Docket ID: DOJ-LA-2014-0006)

<https://www.regulations.gov/docket?D=DOJ-LA-2014-0006>

Meeting 5 (ODAG 152; Docket ID: DOJ-LA-2015-0001)

<https://www.regulations.gov/docket?D=DOJ-LA-2015-0001>

Meeting 6 (ODAG 153; Docket ID: DOJ-LA-2015-0004)

<https://www.regulations.gov/docket?D=DOJ-LA-2015-0004>

Meeting 7 (ODAG 155; Docket ID: DOJ-LA-2015-0007)

<https://www.regulations.gov/docket?D=DOJ-LA-2015-0007>

Meeting 8 (ODAG 156; Docket ID: DOJ-LA-2015-0009)

<https://www.regulations.gov/docket?D=DOJ-LA-2015-0009>

Interim Public Comment Period (ODAG 157; Docket ID: DOJ-LA-2016-0001)

<https://www.regulations.gov/docket?D=DOJ-LA-2016-0001>

Meeting 9 (ODAG 159; Docket ID: DOJ-LA-2016-0002)

<https://www.regulations.gov/docket?D=DOJ-LA-2016-0002>

Meeting 10 (ODAG 162; Docket ID: DOJ-LA-2016-0011)

<https://www.regulations.gov/docket?D=DOJ-LA-2016-0011>

Interim Public Comment Period (ODAG 163; Docket ID: DOJ-LA-2016-0016)

<https://www.regulations.gov/docket?D=DOJ-LA-2016-0016>

Meeting 11 (ODAG 164; Docket ID: DOJ-LA-2016-0018)

<https://www.regulations.gov/docket?D=DOJ-LA-2016-0018>

Meeting 12 (ODAG 166; Docket ID: DOJ-LA-2016-0025)

<https://www.regulations.gov/docket?D=DOJ-LA-2016-0025>

Interim Public Comment Period (ODAG 169; Docket ID: DOJ-LA-2017-0004)

<https://www.regulations.gov/docket?D=DOJ-LA-2017-0004>

Meeting 13 (ODAG 170; Docket ID: DOJ-LA-2017-0005)

<https://www.regulations.gov/docket?D=DOJ-LA-2017-0005>