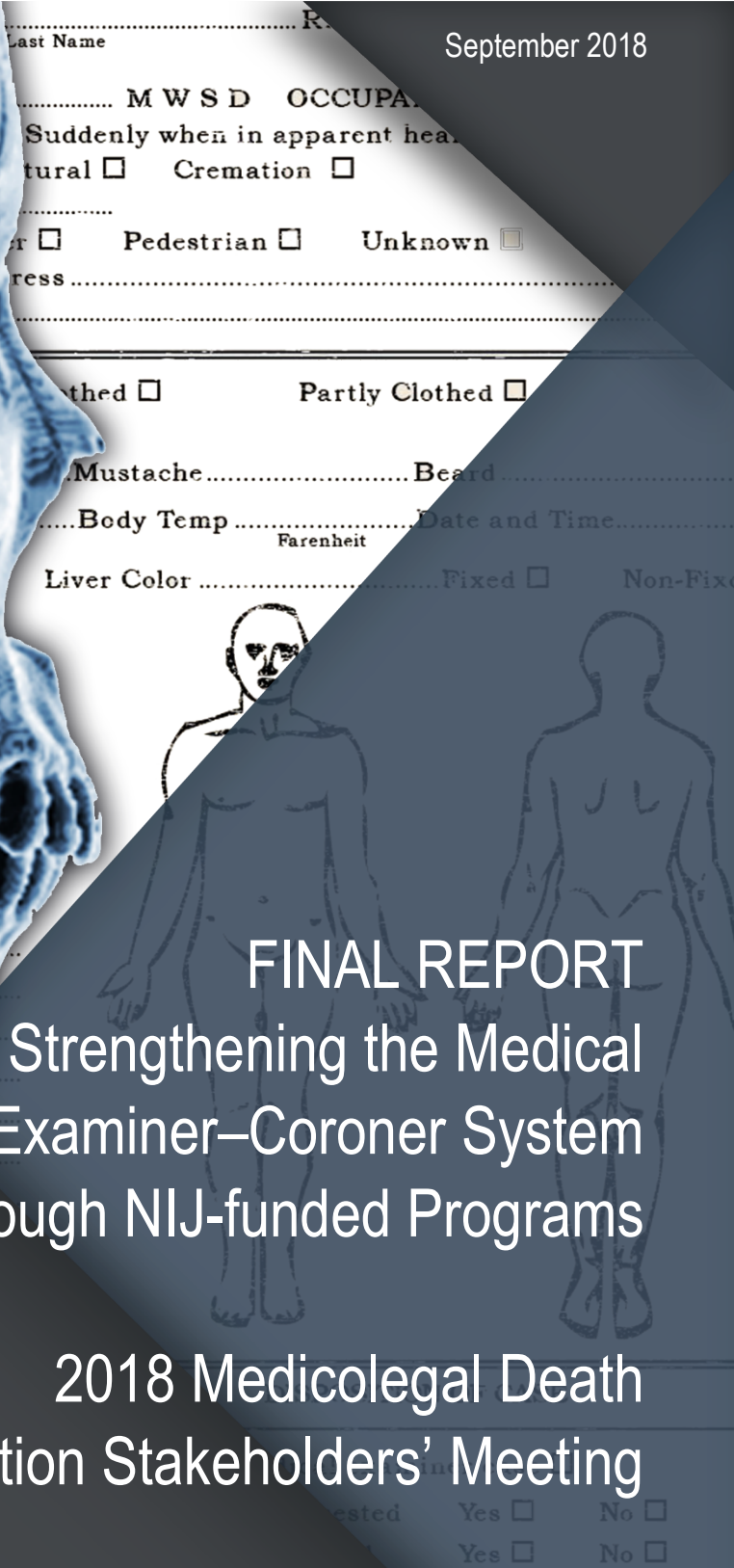
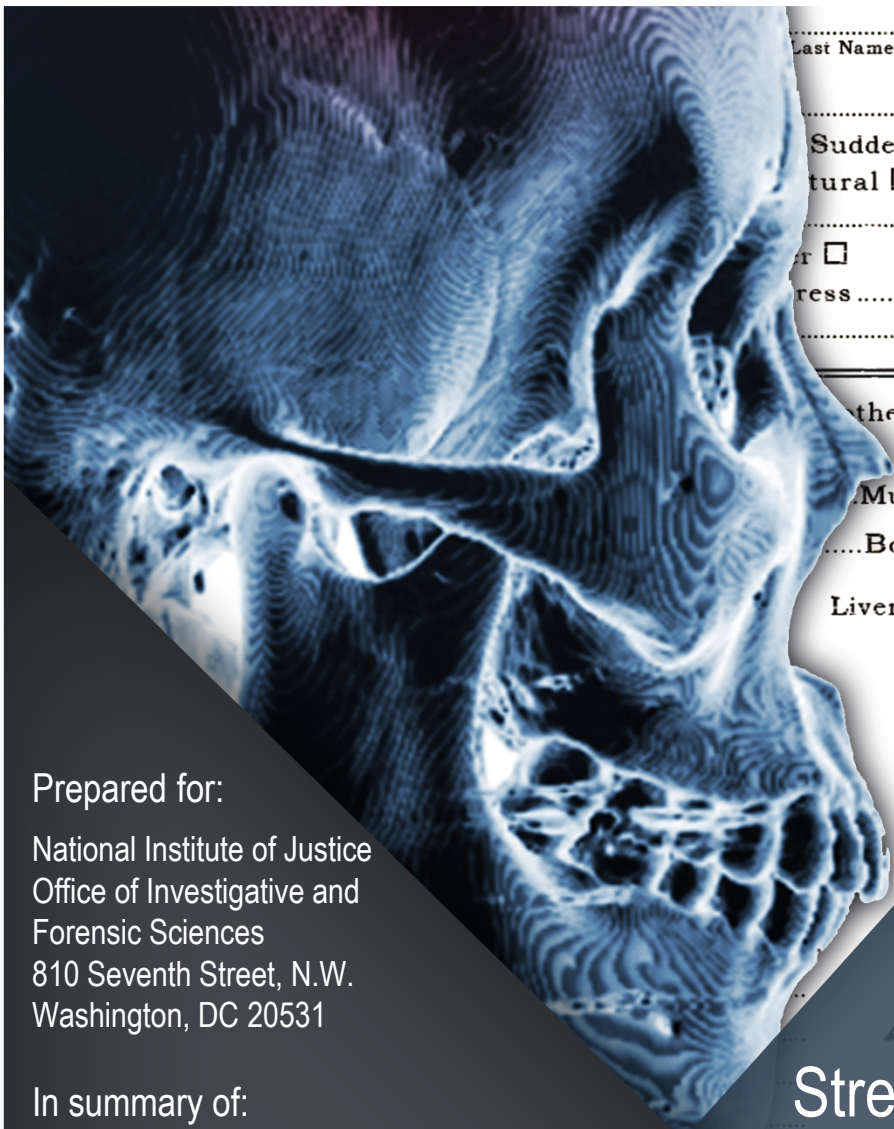


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National Institute of Justice
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FINAL REPORT

Strengthening the Medical Examiner–Coroner System Through NIJ-funded Programs

2018 Medicolegal Death Investigation Stakeholders’ Meeting



Forensic Technology
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STRENGTHEN SCIENCE. ADVANCE JUSTICE.

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1. Overview

On February 5–6, 2018, the National Institute of Justice (NIJ), the research and evaluation agency of the United States Department of Justice (DOJ), convened a diverse group of stakeholders from across the United States to gather information on strengthening medicolegal death investigations (MDI) nationally. Appendix A contains the

Mission of NIJ’s Office of Investigative and Forensic Sciences

To improve the quality and practice of forensic science through innovative solutions that support R&D, testing and evaluation, technology, and information exchange for the criminal justice community.

meeting agenda. The MDI system, which includes Medical Examiner and Coroner (MEC) offices, serves a fundamental role for supporting public safety by conducting death scene investigations, performing forensic autopsies, providing cause and manner of death determinations, and completing death certificates (i.e., records of death). The MDI system also supports the criminal justice system by providing investigation services for suspected homicides and violent deaths, sudden and unexpected deaths, and deaths due to suspicious

circumstances, as well as deaths related to drugs, drug overdoses, terrorism, and mass fatality incidents. MEC offices provide additional forensic science services, such as toxicology, DNA testing, histology, odontology, and anthropology. Through its Office of Investigative and Forensic Sciences (OIFS), NIJ is the federal government’s lead agency for forensic science research and development (R&D), and OIFS has the distinct role of leading efforts to address the needs of our nation’s forensic science community, which includes MDI. OIFS administers programs to improve crime laboratory efficiency and reduce the amount of evidence awaiting testing. In addition, OIFS provides technical assistance for critical stakeholders through workshops, symposia, best practices, and other means of information dissemination. OIFS programs support:

- Increasing crime laboratory and MDI capacity to help reduce evidence backlogs.
- Strengthening the accuracy, reliability, and validity of the forensic sciences.
- Translating R&D into practice and transitioning new technology into the nation’s crime laboratories and MEC offices.
- Enabling laboratories and MEC offices to hire, train, and maintain qualified forensic scientists.

Programs that further these areas are listed in **Table 1**, including funding sources that can be used to support MDI services and forensic pathology R&D.¹ Many of these programs were discussed during the meeting, which sought to engage the MDI community to clarify NIJ’s understanding of high-priority needs and thereby identify solutions to help overcome challenges encountered by MDI stakeholders. NIJ reviewed program changes implemented in the past year and discussed potential strategies to enhance existing programs. NIJ collaborated with the Forensic Technology Center of Excellence (FTCoE) at RTI International, the National Association of Medical Examiners (NAME),² and the International Association of Coroners and Medical Examiners (IACME)³ to select a diverse and representative group of MDI stakeholders. The 60 meeting attendees represented the MDI community from 21 states and the District of Columbia. Participants included coroners, medical examiners, death scene investigators, toxicologists, researchers, and federal agency representatives.⁴

¹ Solicitation Title: Research and Development in Forensic Science for Criminal Justice Purposes, Fiscal Year 2018. <https://www.nij.gov/funding/pages/funding-detail.aspx?solicitationid=5280>

² National Association of Medical Examiners Website. <https://netforum.avectra.com/eweb/StartPage.aspx?Site=NAME&WebCode=HomePage>

³ International Association of Coroners & Medical Examiners. <https://www.theiacme.com/>

⁴ It is important to note that different agencies operate under their own jurisdictional requirements and may have varying policies and procedures related to the administration of grant funds. Therefore, the challenges identified in this document may not represent the views of all participants or the agencies that are not represented.

Table 1. NIJ-OIFS Grant Programs and Cooperative Agreements⁵

DNA Capacity Enhancement and Backlog Reduction Grants Program ⁶
Forensic DNA Laboratory Efficiency Improvement and Capacity Enhancement Program ⁷
Forensic Technology Center of Excellence (FTCoE) ⁸
National Missing and Unidentified Persons System (NamUs)⁹
Paul Coverdell Forensic Science Improvement Grants Program (Coverdell)¹⁰
Postconviction Testing of DNA Evidence ¹¹
Research and Development in Forensic Science for Criminal Justice Purposes¹²
Research and Evaluation on Drugs and Crime ¹³
Graduate Research Fellowship – Science, Technology, Engineering and Mathematics¹⁴
Research and Evaluation for the Testing and Interpretation of Physical Evidence in Publicly Funded Forensic Laboratories Grants¹⁵
Sexual Assault Forensic Evidence – Inventory, Tracking and Reporting Program ¹⁶
Strengthening the Medical Examiner-Coroner System Program¹⁷

2. Objectives

This meeting sought to (1) begin a formal dialogue and engage with the MDI community to better understand how NIJ can assist with high-priority needs, (2) identify solutions to help with challenges encountered by MDI stakeholders, and (3) inform NIJ’s programs and initiatives based on the needs of the MDI community.

3. Topics Discussed

The topics outlined below were discussed at the meeting.

3.1 NIJ’s Programs and Strategic Approach to Address Forensic Science Community Needs

The meeting began with an overview of the forensic science programs administered by OIFS. From 2009 to 2014, NIJ supported the forensic science community with more than \$825 million in grant funding to assist with DNA evidence processing and analysis in addition to other forensic science disciplines, as well as laboratory capacity

⁵ Bolded NIJ-funded programs were discussed in detail during NIJ’s 2018 MDI Stakeholders’ Meeting.

⁶ DNA Capacity Enhancement and Backlog Reduction Program. <https://www.nij.gov/topics/forensics/lab-operations/evidence-backlogs/pages/backlog-reduction-program.aspx>

⁷ Forensic DNA Laboratory Efficiency Improvement and Capacity Enhancement Program. <https://www.nij.gov/topics/forensics/lab-operations/evidence-backlogs/Pages/forensic-dna-laboratory-efficiency-improvement-capacity-enhancement-program.aspx>

⁸ Forensic Technology Center of Excellence (FTCoE). <https://forensiccoe.org/>

⁹ National Missing and Unidentified Persons System (NamUs). <https://www.namus.gov/>

¹⁰ Paul Coverdell Forensic Science Improvement Grants Program (Coverdell). <https://www.nij.gov/topics/forensics/lab-operations/capacity/nfsia/pages/welcome.aspx>

¹¹ Postconviction Testing of DNA Evidence. <https://www.nij.gov/topics/justice-system/wrongful-convictions/Pages/postconviction-dna-funding-program.aspx>

¹² Research and Development in Forensic Science for Criminal Justice Purposes. <https://www.nij.gov/funding/pages/funding-detail.aspx?solicitationid=5280>

¹³ Research and Evaluation on Drugs and Crime. <https://www.nij.gov/topics/drugs/pages/welcome.aspx>

¹⁴ Graduate Research Fellowship – Science, Technology, Engineering and Mathematics. <https://www.nij.gov/funding/fellowships/graduate-research-fellowship/Pages/grf-stem.aspx>

¹⁵ Research and Evaluation for the Testing and Interpretation of Physical Evidence in Publicly Funded Forensic Laboratories Grants. <https://www.nij.gov/topics/forensics/lab-operations/Pages/public-labs-research-solicitation.aspx>

¹⁶ Sexual Assault Forensic Evidence – Inventory, Tracking and Reporting Program. <https://www.nij.gov/topics/forensics/lab-operations/Pages/safe-ittr.aspx>

¹⁷ Strengthening the Medical Examiner-Coroner System Program. <https://www.nij.gov/funding/pages/funding-detail.aspx?solicitationid=5339-5340-5341>

enhancement, and research, development, and evaluation studies. OIFS Director, Gerald LaPorte, explained NIJ’s strategic approach to annual fund allocation, which is also discussed in detail in the NIJ Report titled, *Fiscal Year 2016 Funding for DNA Analysis, Crime Laboratory Capacity Enhancement and Other Forensic Activities*.¹⁸ NIJ remains committed to strengthening forensic science and MDI through research, development, and evaluation.

3.1.1 Strengthening the Medical Examiner-Coroner System Program

According to the 2009 National Academies of Science (NAS) Report, greater than 1,000 forensic pathologists are needed in the United States; however, it is estimated that only 400 to 500 forensic pathologists currently practice.¹⁹ Although no estimates have been reported for other types of MDI professionals (e.g., death scene investigators), similar shortages exist for those functions.²⁰ Because of the shortage of forensic pathologists, many organizations exceed the maximum recommended number of annual autopsies per forensic pathologist (250 autopsies per year, as recommended by NAME accreditation standards).²¹ Currently, 92 NAME and 24 IACME accredited organizations are in operation.²² Approximately one-third of NAME-accredited agencies are in danger of being placed on provisional status for exceeding the recommended autopsy caseload because of a lack of staffing, the burden of the current opioid crisis, and the increasingly high number of suspected drug-related deaths in the United States. In FY2017, NIJ initiated the Strengthening the Medical Examiner-Coroner System Program²³ in response to this national shortage of forensic pathologists and the recommendations of NAS, the National Commission on Forensic Science (NCFS),²⁴ and the Office of Science and Technology Policy’s National Science and Technology Council.²⁵ Additionally, NIJ continues to investigate ways to support efforts to reinforce the MDI professional workforce. Under this competitive solicitation, funds are awarded in two purpose areas: (1) forensic pathology fellowships and (2) activities to achieve accreditation of MEC offices.

Forensic Pathology Fellowships

Any institution with an established Accreditation Council for Graduate Medical Education or equivalent program may apply for funding for 1-year forensic pathology fellowship awards of \$100,000 each. Agencies may opt to provide matching funds to cover additional expenses. Fellowships are for forensic pathology fellows and are aimed at promoting greater interest in forensic pathology, ultimately increasing the number of forensic pathologists in the pipeline. Specialties beyond forensic pathology are not included in this program.

Funds allocated under this program may be used toward a salary or stipend for a forensic pathology fellow and related costs at the applicant institution’s discretion. Up to \$25,000 of the \$100,000 may be used for other related direct or indirect costs. Related costs may include any combination of the fellow’s fees, fringe benefits, project

¹⁸ LaPorte, G., Waltke, H., Heurich, C., & Chase, R. J. (2017). National Institute of Justice report: Forensic science. Fiscal year 2016 funding for DNA analysis, capacity enhancement, and other forensic activities. Retrieved from <https://www.ncjrs.gov/pdffiles1/nij/250552.pdf>

¹⁹ National Research Council. (2009). *Strengthening forensic science in the United States: A path forward*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/12589>. <https://www.ncjrs.gov/pdffiles1/nij/grants/228091.pdf>

²⁰ U.S. Bureau of Justice Statistics Special Report (2007). *Medical Examiners and Coroners’ Offices, 2004*. Washington, DC. <https://www.bjs.gov/content/pub/pdf/meco04.pdf>

²¹ National Research Council. (2009). *Strengthening forensic science in the United States: A path forward*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/12589>. <https://www.ncjrs.gov/pdffiles1/nij/grants/228091.pdf>

²² These numbers are based on data accessed on February 15, 2018, at <https://netforum.avectra.com/eweb/DynamicPage.aspx?Site=NAME&WebCode=OrgResult&FromSearchControl=Yes> and <http://theiacme.com/accreditation>

²³ National Institute of Justice. (2017). *Strengthening the Medical Examiner-Coroner System Program*. <https://www.nij.gov/funding/pages/funding-detail.aspx?solicitationid=4936-5045-5046>

²⁴ DOJ Archives. National Commission on Forensic Science. *Medicolegal Death Investigation Work Products Adopted by the Commission*. <https://www.justice.gov/archives/ncfs/medicolegal-death-investigation>

²⁵ National Science and Technology Council. (2016). *Strengthening the Medicolegal Death Investigation System: Improving Data Systems*. <https://www.ncjrs.gov/app/publications/abstract.aspx?id=273603>

costs, professional society membership fees, or conference travel, among other allowable expenses incurred during the period of performance of the award.²⁶

Accreditation of MEC Offices

Any MEC office in the United States actively seeking accreditation can apply for funds to support activities that would help the agency achieve accreditation. NIJ does not dictate which accrediting body the MEC office uses as its accrediting agency; however, the accreditation organization must be an entity external to the applicant MEC office.

Through this new program, in FY2017, NIJ awarded seven grants for eight forensic pathology fellowships, for a total allocated amount of \$795,184, and awarded seven grants to fund accreditation activities, for a total amount of \$1,536,896. NIJ expects to award up to \$4 million under the FY2018 program, including up to 10 forensic pathology fellowship awards and up to \$3 million in awards to support MEC office accreditation.^{26,27}

3.1.2 Paul Coverdell Forensic Science Improvement Grant Program

NIJ provides funding through the Paul Coverdell Forensic Science Improvement Grants (Coverdell) program to improve the quality and timeliness of forensic science and medical examiner and coroner services, including services provided by laboratories operated by the state and those operated by units of local government within the state. In addition, Coverdell program funds may be used to: implement new technologies; educate and train forensic pathologists; fund MDI systems to facilitate accreditation of medical examiner and coroner offices and certification of medicolegal death investigators; and train, assist, and employ forensic scientists as needed to eliminate backlogs in the analysis of forensic science evidence. Notably, Coverdell funds are not restricted to DNA analysis but may be used for other forensic sciences, including firearms examination, latent prints, digital evidence, fire evidence, toxicology, controlled substances, forensic pathology, questioned documents, and trace evidence. MDI activities may qualify for Coverdell funding; however, the amount of funding is not specifically dedicated to MDI activities.

State administering agencies²⁸ may apply for both “base” (formula) and competitive funds. Units of local government may apply for competitive funds.²⁹ Approximately 85 percent of Coverdell grant funds is allocated among eligible states and territories, based on population. The remaining 15 percent is allocated to states and local governments through a competitive peer review process. The agencies eligible to compete for these funds include the (1) estimated 18,000 law enforcement agencies nationwide, (2) 409 publicly funded forensic crime laboratories,³⁰ and (3) estimated 2,400 MEC jurisdictions. This peer review process uses an independent panel composed of subject matter experts from the forensic science community. Peer reviewers evaluate the competitive applications based on the criteria specified in the solicitation, including the average annual number of violent crimes reported to the Federal Bureau of Investigation’s (FBI’s) Uniform Crime Reporting Program, existing resources, and the current needs of the applicant.

²⁶ National Science and Technology Council (2016) *Strengthening the Medicolegal Death Investigation System: Accreditation and Certification*. <https://www.ncjrs.gov/app/publications/abstract.aspx?id=273604>

²⁷ National Science and Technology Council. (2016). *Strengthening the Medicolegal Death Investigation System: Improving Data Systems*. <https://www.ncjrs.gov/app/publications/abstract.aspx?id=273603>

²⁸ The state administering agency is the agency within the state or territory government’s executive branch that is designated to accept, plan, and distribute criminal justice funds by leveraging both state and federal grant funding to fulfill the needs of the state and local criminal justice systems. See the Office of Justice Programs State Administering Agencies webpage for more information and points of contact for each state. <https://ojp.gov/saa/>

²⁹ National Institute of Justice. (2016, January 6). *Fiscal year 2015 report on the Coverdell Forensic Science Improvement Grants Program*. Retrieved from <http://www.nij.gov/topics/forensics/lab-operations/capacity/nfsia/Pages/2015-report.aspx#text>

³⁰ Durose, M., Burch, A. M., Walsh, K., & Tiry, E. (2014). *Publicly funded forensic crime laboratories: Resources and services*, 2014. Washington, DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. <https://www.bjs.gov/content/pub/pdf/pffclrs14.pdf>

As of the date of this meeting, since its inception in 2002, the Coverdell grant program has awarded 1,281 grants totaling more than \$228 million to states and local governments.³¹ Examples of FY2015–2016 Coverdell funding utilized by MEC jurisdictions include 47 awards to support new accreditation or maintenance fees for accreditation and 83 awards to support certification fees. Coverdell funding can also be utilized to outsource autopsies and toxicological testing or to contract a pathologist to assist with caseloads, laboratory information management systems, and case and records management systems. Following this meeting, NIJ announced plans to allocate approximately half of the estimated \$27 million in available FY2018 Coverdell program funds to specifically target the challenges that the opioid abuse crisis has brought to the forensic science community.³²

Facilitated Discussion and Program Overviews

Forensic Pathology Fellowship Program

During the open discussion session, the attendees expressed some concern regarding the Forensic Pathology Fellowship Purpose Area of the Strengthening the Medical Examiner-Coroner System Program and its effectiveness at increasing the number of board-certified forensic pathologists (BC-FPs) nationwide. According to the NCFS view statement regarding increasing the number, retention, and quality of BC-FPs, the lack of forensic pathologists nationwide is influenced by factors that come into play earlier in the medical career “pipeline” than the point at which a forensic fellowship program would be relevant.³³ The NCFS determined that 1,100 to 1,200 BC-FPs are needed to conduct forensic autopsies; however, currently, only an estimated 500 full-time BC-FPs practice nationwide, and the pipeline produces an estimated 21 additional BC-FPs annually (**Figure 1**). The attendees expressed the opinion that NIJ funding could be more effective if it focused on exposing medical students to quality experiences early and throughout the approximately 10-year timetable for medical training, to steer them toward a forensic pathology career. Targeted outreach to medical school graduates in pathology residencies may be beneficial. Several attendees discussed incentivizing grant applicants to include an outreach component in their grant applications to promote early medical student engagement in forensic science. Attendees supported funding programs for medicolegal death investigators in addition to funding BC-FPs.

³¹ In 2017, NIJ awarded 52 Coverdell Formula grants with an average award amount of \$177,080, a median of \$108,332, a maximum of \$934,978, and a minimum of \$71,135. NIJ also made 10 Coverdell discretionary (competitive) awards with an average award amount of \$139,788, a median of \$141,170, a maximum of \$250,000, and a minimum of \$20,451.

³² NIJ Paul Coverdell Forensic Science Improvement Grants Program – Formula FY2018 Solicitation. <https://www.nij.gov/funding/Documents/solicitations/NIJ-2018-13760.pdf>; NIJ Paul Coverdell Forensic Science Improvement Grants Program – Competitive FY2018 Solicitation. <https://www.nij.gov/funding/Documents/solicitations/NIJ-2018-13740.pdf>

³³ National Commission on Forensic Science. (2015). *Views of the Commission: Increasing the number, retention and quality of Board-certified forensic pathologists*. Retrieved from <https://www.justice.gov/archives/ncfs/file/787356/download>

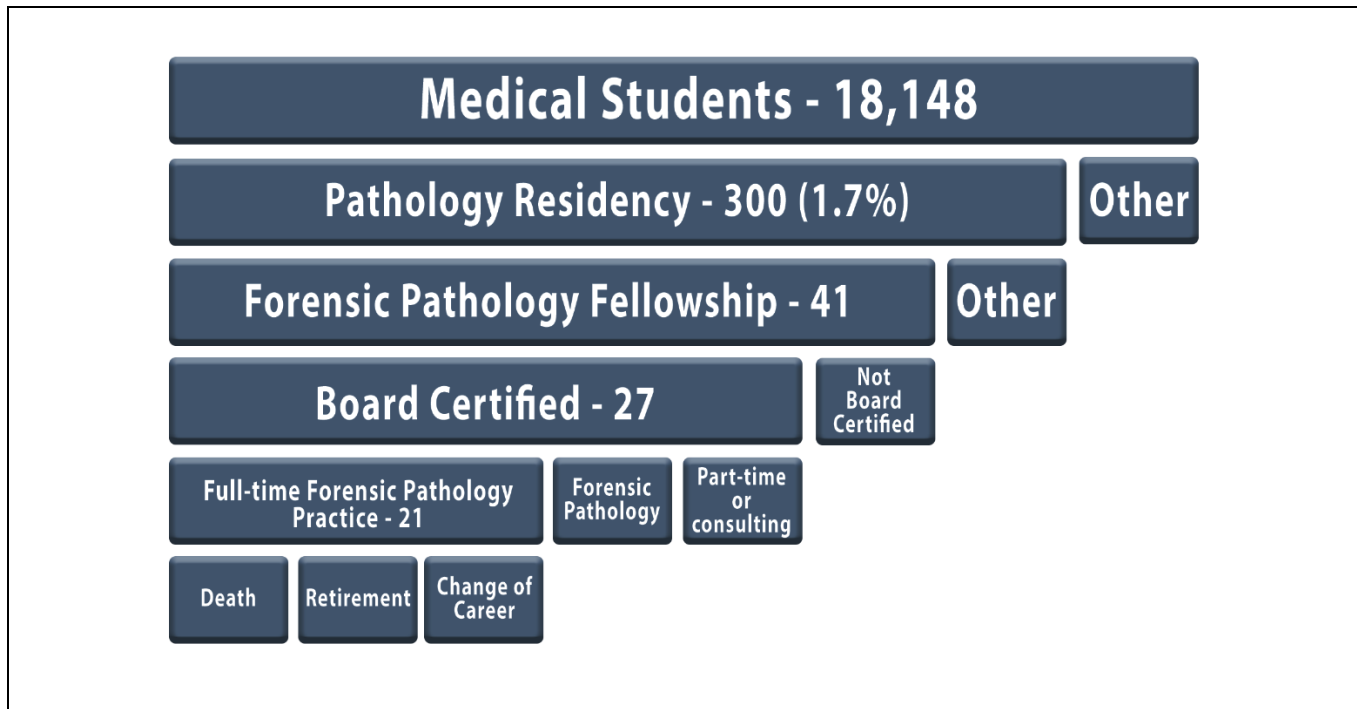


Figure 1. Nationwide pipeline for board-certified forensic pathologists³⁴

In addition, stakeholders supported moving toward a fellowship program that is longer than the annual grant funding cycle, to improve stability and sustainability. The attendees also noted that the shortage of BC-FPs is compounded by the lack of organization and infrastructure for forensic pathology fellowships which, unlike other medical fellowships, are only funded through hospitals, which are not affiliated with pathology labs.

Discussion included tuition reimbursement programs like those offered by the military or to primary care physicians to incentivize recruitment for medical specialties or locations in need. For example, the Public Service Loan Forgiveness (PSLF) program provides student loan forgiveness for those who work in qualifying public service positions.³⁵ Other examples include military programs such as the Army Active Duty Health Professions Loan Repayment Program (ADHPLRP); the Navy Health Professions Loan Repayment Program (HPLRP); the Air Force Health Professions Scholarship Program (HPSP); and the Air Force Financial Assistance Program (FAP).^{36,37,38} The Indian Health Services (IHS) Loan Repayment Program for American Indians and Alaskan Natives offers repayment of up to \$40,000 for a 2-year service commitment, and the National Institute of Health also offers repayment programs in exchange for a 2-year contract to perform research.^{39,40} Several attendees concurred that a tuition reimbursement or loan forgiveness program would help to make the field more attractive to medical students who

³⁴ See Appendix A of NCFS (2015). Increasing the number, retention, and quality of board-certified forensic pathologists. <https://www.justice.gov/archives/ncfs/page/file/641646/download>

³⁵ Association of American Medical Colleges Program Summary on Public Service Loan Forgiveness. <https://students-residents.aamc.org/financial-aid/article/public-service-loan-forgiveness-pslf/>

³⁶ Army Medicine. <https://www.goarmy.com/amedd/physician/benefits.html>

³⁷ Medical Accessions. <http://www.med.navy.mil/Accessions/Pages/Health-Professions-Loan-Repayment-Program-%28HPLRP%29.aspx>

³⁸ Healthcare Professionals/Frequently Asked Questions. <https://www.airforce.com/careers/specialty-careers/healthcare/frequently-asked-questions>

³⁹ Indian Health Service/Loan Repayment Program. <https://www.ihs.gov/loanrepayment/>

⁴⁰ National Institutes of Health/Loan Repayment Program. <https://www.lrp.nih.gov/>

have daunting student loans, and would rationally choose medical fields with substantially higher salaries over the traditionally less lucrative field of forensic pathology.

The attendees also discussed ways of easing forensic pathologists' burden and workload, for example, by adding medical or scientifically trained staff, such as nurses or physicians' assistants, to conduct death scene investigations or assist in autopsies, or by utilizing imaging technologies to reduce the number of autopsies conducted. Several jurisdictions reported success using certified American Board of Medicolegal Death Investigator (ABMDI) nurses to conduct scene investigations and triage cases. However, many also experienced difficulty in attracting registered nurses to the field of forensics, which offers much lower pay than general practices and less appealing working conditions and schedules. Other agencies have achieved success by employing graduates with Master's of Science in Forensic Science (MSFS) degrees earned from local universities, because these individuals have the scientific knowledge necessary to help triage cases. The landscape of MSFS students is more competitive, which has been beneficial for the recruitment of graduates into the MDI field.

In addition to using scientific staff to triage cases, one jurisdiction reported successfully using imaging technology to reduce the forensic pathologist's workload. Although the use of technology can be very beneficial, many attendees expressed difficulty in accessing, affording, and maintaining advanced imaging technology. Participants also discussed ways to ease the burden and workload, such as establishing a support system and resources (e.g., grief counselors or family services) to help decedents' families cope with the grieving process and, thereby, removing that responsibility from the forensic pathologist when possible.

Coverdell Program

The attendees expressed concern regarding the level of effort and grantsmanship necessary to apply for grant funding. A solution might be, for example, that grant proposals could be more like Department of Defense QUAD proposals⁴¹ or short white papers to address a specific funding category, which would provide a more simplistic proposal process with less burden and would greatly benefit the requesting MECs. Many of the MEC offices with the greatest need for funding are small and lack the personnel and resources necessary to write and manage grants. The attendees expressed interest in using Coverdell funding in ways that best suit their individual jurisdictions, such as for graduate or medical school internships to conduct research, outreach, certification, and accreditation.

3.2 NIJ's Program to Fund R&D in Forensic Science

The NIJ OIFS has two programs to fund R&D in the forensic sciences. The first is the Research and Development in Forensic Science for Criminal Justice Purposes. The second is Research and Evaluation for Publicly Funded Forensic Laboratories. These programs improve how law enforcement, death investigation offices, and the forensic laboratories that serve them gather and use evidence. It supports the enhancement and creation of tools and techniques for criminal justice purposes.⁴²

3.2.1 Research and Development in Forensic Science for Criminal Justice Purposes

The goal of NIJ's Research and Development in Forensic Science for Criminal Justice Purposes program is to direct the findings of research toward the development of highly discriminating, accurate, reliable, cost-effective, and

⁴¹ A quad chart (QC) is a brief 1-page document divided into specified four quadrant areas. It conveys a proposed solution to meet the specific criteria of the requirement, and brief description of the proposed technology, cost, and schedule. The QC format and sample are provided at the CTTSO BIDS website under Downloads, Reference Materials, Document Format.
[https://bids.cttso.gov/TSWG/bids.nsf/2422C51627F813FE85256E40006DD4AA/\\$FILE/2010+Sample+QuadChart.pdf](https://bids.cttso.gov/TSWG/bids.nsf/2422C51627F813FE85256E40006DD4AA/$FILE/2010+Sample+QuadChart.pdf)

⁴² Forensic Science Research and Development Projects. <https://www.nij.gov/topics/forensics/Pages/research-development-projects.aspx>

rapid methods of identifying, analyzing, and interpreting physical evidence for criminal justice purposes.⁴³ The R&D program increases knowledge to guide forensic science policy and practice, and serves to identify limitations of the science, educate the public, solve cases faster, remove serial offenders, and help decrease evidence backlogs, all while increasing the methods' quality, objectivity, sensitivity, and discriminatory power (**Figure 2**).

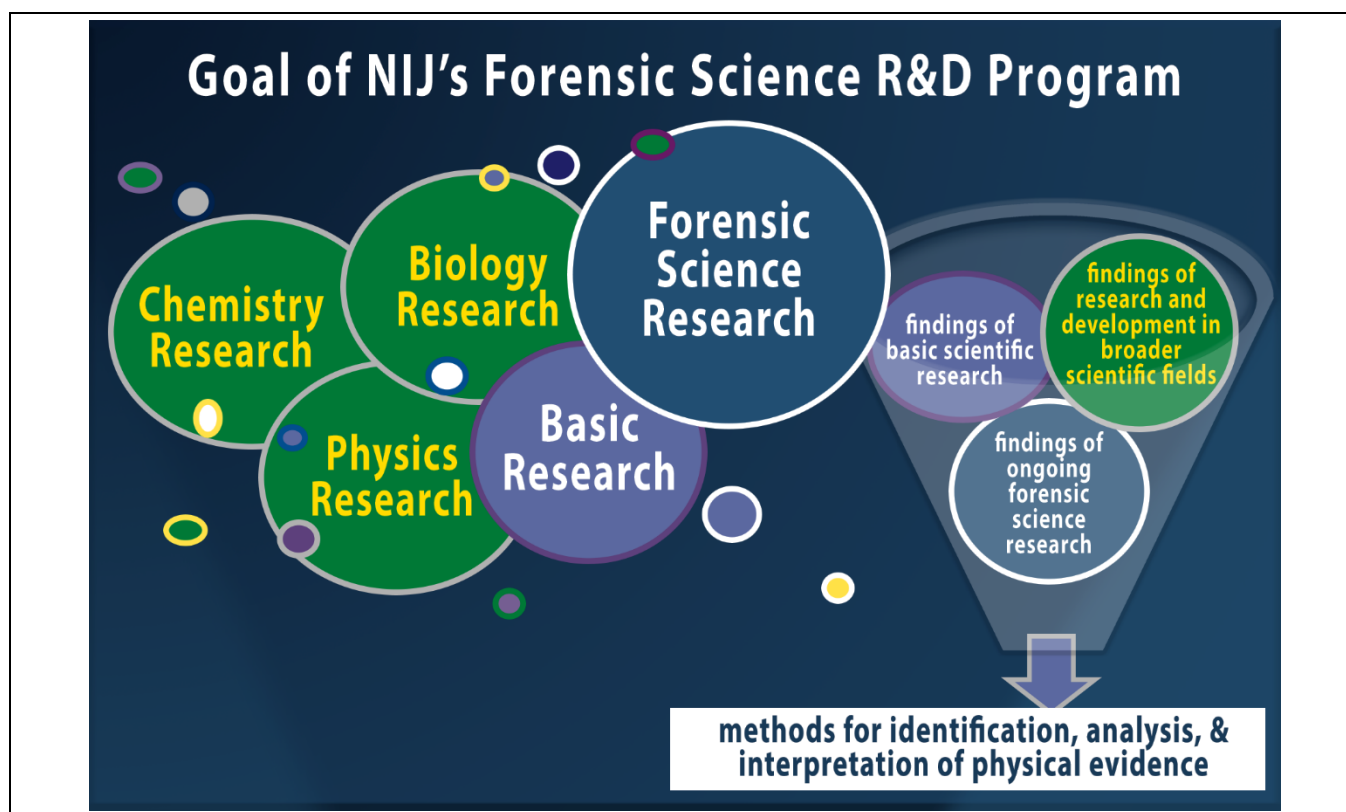


Figure 2. NIJ's Forensic Science Research and Development Program⁴³

The forensic R&D program follows the NIJ-wide R&D process depicted in **Figure 3**, which starts with identifying the needs of the stakeholder community. NIJ does this through the Forensic Science Technology Working Group (TWG), which meets annually to discuss operational needs and issues at the bench level both in the laboratory and at the crime scene. The TWG membership includes forensic scientists across the disciplines who are practicing at operational laboratories across the United States. When making funding decisions, NIJ uses the practitioner needs of the community identified by the TWG⁴⁴ and the research and development needs identified by the Organization of Scientific Area Committees for Forensic Science (OSAC),⁴⁵ administered by the National Institute of Standards and

⁴³ National Institute of Justice. (2018). *Research and development in forensic science for criminal justice purposes*. Retrieved from <https://nij.gov/funding/Documents/solicitations/NIJ-2018-13600.pdf>

⁴⁴ The research needs identified by the TWG are posted on the NIJ website for reference at <https://www.nij.gov/topics/forensics/pages/forensic-operational-requirements.aspx>

⁴⁵ OSAC Research and Development Needs. <https://www.nist.gov/topics/forensic-science/organization-scientific-area-committees-osac/osac-research-and-development>

Technology. NIJ has funded forensic science R&D since the 1990s and, from 2011 to 2016, NIJ supplied more than \$120 million to fund forensic science R&D.^{46,47}

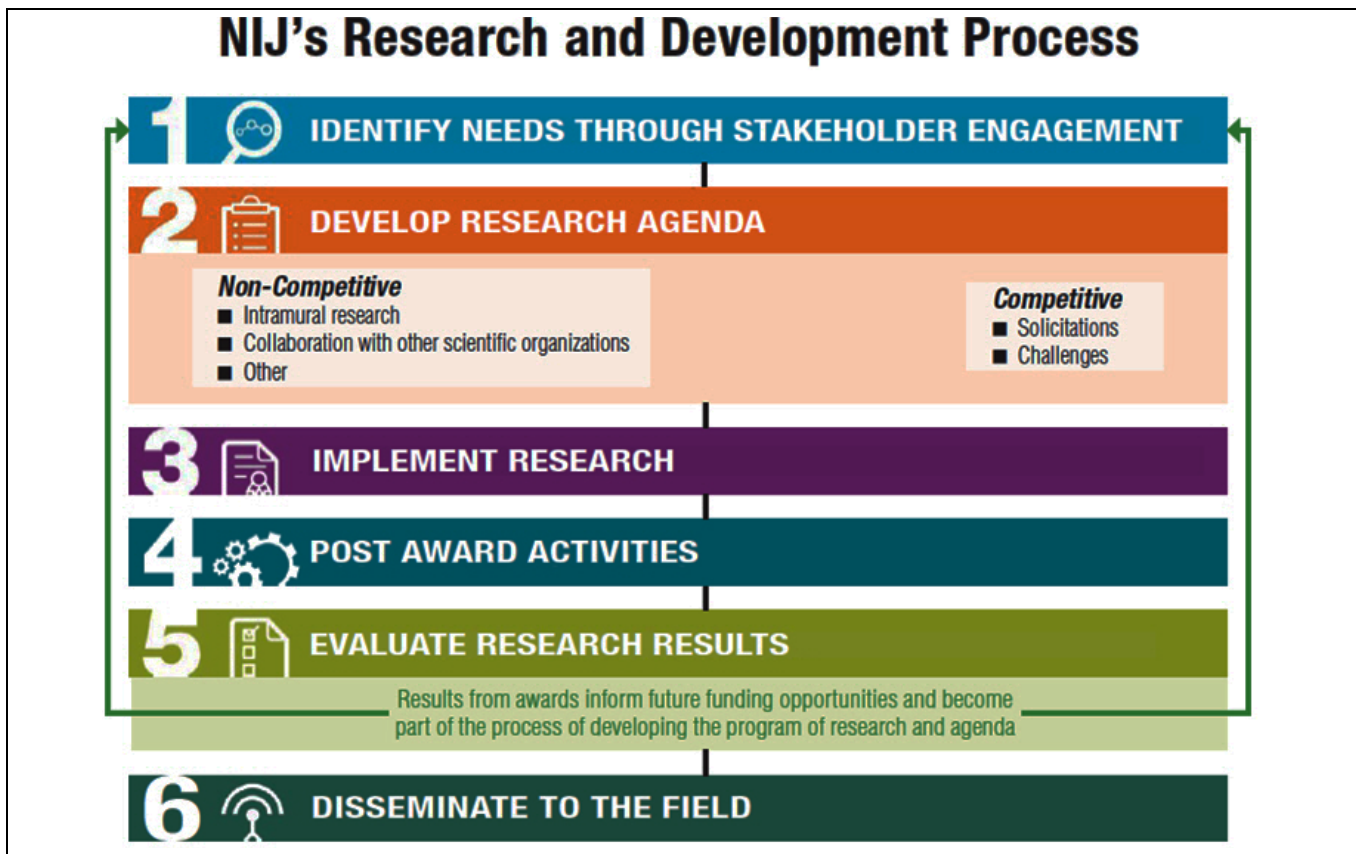


Figure 3. NIJ's Research and Development Process⁴⁸

Meeting attendees noted that the MEC and MDI communities largely comprise practitioners who are not associated with a medical school or university, which limits their access to certain resources that support and sustain research programs, such as grant support offices and research centers. To be successful, attendees expressed that MECs would need access to a variety of support offices, including pre-award and post-award assistance, auditors, internal review boards, and human subjects review. The attendees recognized that their organizations have access to a vast amount of valuable data. For example, MEC offices have begun working with the Centers for Disease Control and Prevention (CDC), the Office of National Drug Control Policy (ONDCP), the Drug Enforcement Administration (DEA) Office of Diversion Control, and the Substance Abuse and Mental Health Services Administration (SAMHSA) to gain access to drug-related fatalities data. To help disseminate this information and foster a research culture among MEC and MDI organizations, the attendees discussed partnering with universities and graduate students to help pull the data together, write publications, and present the results at national meetings.

⁴⁶ NIJ Forensic Science R&D for Criminal Justice Purposes Program. January 11, 2017 webinar. <https://www.nij.gov/funding/Documents/fy17-forensic-research-and-development-webinar-slides.pdf>

⁴⁷ National Institute of Justice. (n.d.). NIJ's research and development process. Retrieved from <http://www.nij.gov/Documents/nij-research-and-development-process-high-level.pdf>

⁴⁸ National Institute of Justice. (n.d.). NIJ's research and development process. Retrieved from <http://www.nij.gov/Documents/nij-research-and-development-process-high-level.pdf>

3.2.2 NIJ’s Program to Fund Research and Evaluation for the Testing and Interpretation of Physical Evidence in Publicly Funded Forensic Laboratories

In 2015, NIJ initiated a new program to provide funding through its solicitation, Research and Development for the Testing and Interpretation of Physical Evidence in Publicly Funded Forensic Laboratories.⁴⁹ With this solicitation, NIJ sought proposals from accredited state and local crime laboratories describing research, evaluation, and validation projects that would (1) identify and inform the forensic community of best practices through the evaluation of existing laboratory protocols, (2) result in the production of a validated method(s) that may be replicated by other forensic laboratories, and (3) have a direct and immediate impact on laboratory efficiency and assist in making laboratory policy decisions.⁵⁰ NIJ encouraged attendees representing publicly funded laboratories to explore, pursue, and disseminate news of this research opportunity.

This program seeks to identify the most efficient, accurate, reliable, and cost-effective methods for identifying, analyzing, and interpreting physical evidence. By assessing existing laboratory protocols, NIJ seeks to understand their scientific rationale and underpinnings. NIJ also aims to evaluate emerging laboratory processes. Awardees are expected to publish technical research reports to inform the forensic community of best practices that could have a direct and immediate impact on laboratory efficiency and that inform laboratory policy decisions.

NIJ strongly encourages laboratories to support postgraduate (master’s or doctoral) fellowship opportunities through this program.⁵¹ Collaborations with universities and academic researchers complement the application of this research to existing casework to bridge the gap between emerging forensic science researchers and forensic science laboratories. This model encourages new research scientists to pursue careers in forensic science, allows laboratories to benefit from fellows’ research skills, and reduces the time spent by current laboratory forensic staff on the proposed research project. NIJ is facilitating the connections between prospective postgraduates and forensic laboratories by posting anticipated research opportunities and contact information provided by laboratories that have expressed an interest in connecting with postgraduate researchers under this program.⁵²

Although this NIJ program is designed to foster forensic research, it is aimed at directing research toward practical issues faced by laboratories when processing evidence. The target audience is forensic laboratories. These facilities are often chronically understaffed and under-resourced, which is a barrier to completing their primary work (i.e., processing casework), and only a small proportion have the capacity and resources to conduct research. Many attendees mentioned that these challenges are especially problematic for small offices that lack the ability to redistribute casework to allow for additional research work, making collaborations a critical component. Several attendees also discussed reducing the proposal process burden and providing smaller grants that would be more attainable and actionable for the execution of smaller projects, such as the publication of a series of case studies.

3.3 National Missing and Unidentified Persons System

NIJ established the National Missing and Unidentified Persons System, or NamUs, in 2007, to offer law enforcement agencies, medical examiners, coroners, family members, and victim advocates a powerful tool for resolving missing

⁴⁹ In FY2015, NIJ received 22 applications and made seven awards totaling \$928,900. In FY2016, NIJ received 20 applications and made six awards totaling \$2,075,248. In FY2017, NIJ received 10 applications, but none were funded.

⁵⁰ National Institute of Justice. (2014). Research and development for publicly funded forensic science laboratories to assess the testing and processing of physical evidence. Retrieved from <https://www.ncjrs.gov/pdffiles1/nij/SL001113.pdf>

⁵¹ NIJ Research and Evaluation for the Testing and Interpretation of Physical Evidence in Publicly Funded Forensic Laboratories solicitation (2018). <https://nij.gov/funding/Documents/solicitations/NIJ-2018-13900.pdf>

⁵² NIJ Connecting Postgraduate Researchers with Publicly-Funded Forensic Laboratories. <https://www.nij.gov/topics/forensics/lab-operations/Pages/connecting-postgraduate-researchers-with-publicly-funded-forensic-laboratories.aspx>

and unidentified persons (UPs) cases.⁵³ In the United States, there are from 80,000 to 90,000 active missing persons cases. Each year, 4,400 new deceased UPs are discovered—1,000 remain unsolved and 600 are disposed without identification. NamUs has provided one central, national repository for all missing and unidentified case information. As of July 31, 2017, NamUs has captured 45,233 missing and unidentified case reports, of which 15,767 have been successfully resolved.

NamUs is more than a central repository—it also provides forensic services by coordinating with local, state, and federal laboratories across the country in fingerprint examination, forensic odontology, forensic anthropology, and DNA analyses. In February 2017, NamUs and the FBI Laboratory Latent Print Unit (LPU) began a special initiative to search the more than 1,400 NamUs fingerprint cards from UPs against the FBI’s fingerprint database, Next Generation Identification (NGI). Released in 2013, the NGI includes both fingerprint and latent prints records of civil, criminal, and unsolved latent files. This effort assessed 2,184 individual fingerprint images (both fully rolled 10-print card and individual finger images) representing 1,465 unique UPs cases submitted to the FBI for NGI searching. Searching began in March 1, 2017, and the first hit was identified the day searching began. As of February 2018, 211 fingerprint associations to UPs entered into NamUs have been made. These NamUs cases characterize UPs in 26 states and the District of Columbia. These cases also represent fingerprint associations as early as the 1970s based on the year the decedent’s remains were recovered; the greatest number of cases are associated with 77 UPs from the 2000 to 2009 period. New UPs fingerprint images are submitted to the FBI weekly as they are received by NamUs users.⁵⁴

4. Summary

This report summarizes NIJ’s programs administered through OIFS that support the MDI community and specifies the generalized comments and opinions of a diverse group of medical examiners, coroners, medicolegal death investigators, forensic pathologists, forensic toxicologists, researchers, and radiologists. It does not represent the views of all recipients of NIJ grant programs applicable to the MDI community.

Based on the discussions, NIJ programs are critical resources that strengthen the quality of forensic science in the U.S. MEC offices, which continue to be challenged by the lack of forensic pathologists and other professionals entering the field. This problem is compounded by challenges in promoting forensic science among the medical student body. For example, currently, because there is no dedicated student loan forgiveness or tuition reimbursement program, graduates may reject lower-paying forensic science careers and opt for better-paying fields given their large loan burdens.

NIJ will continue to develop and evaluate programs focusing on the needs of the MDI community and stakeholders, including addressing gaps and enhancing capacity, accuracy, reliability, and efficiency. NIJ is thankful to the invited practitioners for providing information and feedback that can be used to develop strategies to strengthen NIJ-funded programs and ensure that taxpayer funds are used effectively to strengthen forensic science and MEC services.

⁵³ National Missing and Unidentified Persons System. <https://www.namus.gov/>

⁵⁴ LaPorte, G. M., Johnson, B., & Schaeffer, L. S. (2018). The National Institute of Justice’s (NIJ’s) National Missing and Unidentified Persons System NamUs and the Federal Bureau of Investigation (FBI) Laboratory Collaboration: Using Next Generation Identification (NGI) to Solve Unidentified Persons Cases. American Academy of Forensic Sciences 70th Annual Symposium. February 19-24, 2018. Seattle, Washington.

The Forensic Technology Center of Excellence

RTI International (RTI) and its academic and community based-consortium of partnerships, including its Forensic Science Education Programs Accreditation Commission partners, work to meet all tasks and objectives put forward under the National Institute of Justice (NIJ) Forensic Technology Center of Excellence (FTCoE) Cooperative Agreement (award number 2016-MU-BX-K110). These efforts include determining technology needs; developing technology program plans to address those needs; developing solutions; demonstrating, testing, evaluating, and adopting potential solutions into practice; developing and updating technology guidelines; and building capacity and conducting outreach. The FTCoE is led by RTI, a global research institute dedicated to improving the human condition by turning knowledge into practice. The FTCoE builds on RTI's expertise in forensic science, innovation, technology application, economics, data analytics, statistics, program evaluation, public health and information science.



**Appendix A:
NIJ MDI Stakeholders Agenda**



**NIJ Medicolegal Death Investigation
Stakeholders Meeting** OJP Building, 810
Seventh St NW, Washington, DC 20531 Main
Conference Room, 3rd Floor

February 5-6, 2018

DAY 1 – February 5, 2018

8:00-8:45 Welcome Remarks and Overview

Howard Spivak, Principal Deputy Director, National Institute of Justice
Gerald LaPorte, *Director, Office of Investigative
and Forensic Sciences, NIJ*

- Strategy for allocation of funds
- Issues and challenges
- Importance of Research, Technology, and Innovation

Jeri Roper-Miller, Facilitator, RTI

- *Overview of meeting and expectations*
- “Parking lot”
- Housekeeping

**8:45-9:45 Presentation: Strengthening the Medical Examiner-
Coroner System Program**

Luther Schaeffer and Danielle McLeod-Henning, Physical Scientists, NIJ

Overview: Goals and Objectives

- *Overview of the MDI program and facilitated discussion*
- Gather information on how to improve the programs and better meet the needs of the forensic science community

**9:45-10:15 Presentation: Paul Coverdell Forensic Science
Improvement Grants Program**

Luther Schaeffer, Physical Scientist, NIJ

Overview: Goals and Objectives

- *Overview of the Paul Coverdell program and facilitated discussion*

10:15-10:30 Break



- 10:30-11:00 Presentation: Research & Development Program**
Danielle McLeod-Henning, Physical Scientist, NIJ
- *Overview of the R&D program and facilitated discussion*
- 11:00-11:30 Presentation: Research and Evaluation for the Testing and Interpretation of Physical Evidence in Publicly Funded Forensic Laboratories**
Frances Scott, Program Manager, NIJ
- *Overview of the Publicly Funded Labs program and facilitated discussion*
- 11:30-1:00 Lunch on your own**
- 1:00-1:30 Presentation: National Missing and Unidentified Persons System (NamUs) and FBI Collaboration**
Gerald LaPorte, Director, Office of Investigative and Forensic Sciences, NIJ
- Overview of NamUs and facilitated discussion
 - Emergency and National Disaster Call Center
- 1:30-3:30 Facilitated Discussion**
Topics for consideration:
- MDI Research
 - Pathology Fellowships
 - Missing Persons and Unidentified Remains
 - Cold Case
 - Research on the Abuse, Neglect, and Exploitation of Elderly Individuals
- 3:30-3:45 Break**
- 3:45-4:45 Facilitated Discussion Continued**
- 4:45-5:00 End of Day 1: Remarks and Reminders**



**NIJ Medicolegal Death Investigation
Stakeholders Meeting** OJP Building, 810
Seventh St NW, Washington, DC 20531 Main
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February 5-6, 2018

DAY 2 – February 6, 2018

**8:00-10:00 DOJ Needs Assessment of Forensic Laboratories, Medical
Examiner and Coroner Offices, Facilitated Discussion**

Ted Hunt, Senior Advisor to the Attorney General on Forensic Science, DOJ

Kira Antell, Office of Legal Policy, DOJ

Jonathan McGrath, Office of Investigative and Forensic Sciences, NIJ

- *Status and needs related to Workload, Backlog, Equipment, Personnel*
- Quality of Services, Accreditation, and Certification
- Academic resources and Training
- Identification of Best Practices
- Needs related to Opioid Crisis

10:00-10:15 Break

**10:15-12:15 DOJ Needs Assessment of Forensic Laboratories, Medical
Examiner and Coroner Offices**

Facilitated Discussion, *Continued*

12:15-1:30 Lunch on your Own



1:30-3:30 Facilitated Discussion

Topics for consideration:

- Surveillance Programs
 - a. Public Health (Disease, Mortality Statistics)
 - b. Drug-related Deaths- The Epidemic Nature
 - c. Violent Crimes
- Missing Persons and Unidentified Remains
- Rapid DNA
- Electronic Networking/Information Sharing of ME/C Offices [Medical Examiner and Coroner Information Network (MECIN)]
- Improved access to data gathering tools and information sharing
- Cross-Agency Investigations
 - a. Communications with Law Enforcement Agencies & Legal Community (considerations for the Tribal communities)
- International & Southern Borders (migrants and human trafficking)
- Disaster Victim Identification

3:30-3:45 Break

3:45-4:45 Facilitated Discussion, *Continued*

4:45-5:00 End of Day 2: Remarks