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Fiscal Year 2012 Funding for DNA Analysis, Crime Laboratory Capacity Enhancement and Other Forensic Activities

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The National Institute of Justice (NIJ) — the research, development and evaluation arm of the U.S. Department of Justice — is dedicated to improving the understanding of crime and justice issues through science. Since 2008, NIJ has received annual appropriations to be used for various DNA and other forensic science activities, including DNA analysis and laboratory capacity enhancement, as well as other forensic activities such as research, development and evaluation that directly support NIJ's efforts to provide knowledge and tools to reduce crime and improve public safety by improving the quality and practice of forensic science.

In fiscal year (FY) 2012, NIJ allocated the largest share of appropriated funds directly to public DNA laboratories to process, record, screen and analyze forensic DNA or DNA database samples, and to increase the capacity of laboratories to process more DNA samples, thereby helping to reduce the number of samples awaiting analysis. Crime laboratories' capacity to process DNA evidence continues to grow due to increased automation, hiring of more personnel, use of overtime, and improved testing procedures and methods; however, the demand for DNA testing continues to rise, resulting in persistent backlogs. It is important to note that not only does the demand for DNA analysis continue to increase, but the Bureau of Justice Statistics published results from the *Census of Publicly Funded Forensic Crime Laboratories, 2009* showing that 66 percent of requests for forensic services are for activities not related to DNA.[1] The vast majority of requests submitted to public forensic laboratories are for evidence related to controlled substances, toxicology, latent prints, firearms, trace evidence and crime scenes.[2]

In 2009, the National Academy of Sciences (NAS) released *Strengthening Forensic Science in the United States: A Path Forward.*[3] One of the report's recommendations was to support research to address issues of accuracy, reliability and validity in forensic science. Indeed, NIJ's most valuable and enduring contribution has been research on high-priority needs in the forensic sciences. NIJ has received the support of many respected leaders in the scientific community, including members of the American Academy of Forensic Sciences (AAFS). Douglas H. Ubelaker, president of the AAFS, wrote in an article to the membership, "A recent major boon to research in forensic science has been the National Institute of Justice's Office of Investigative and Forensic Sciences (OIFS), whose sole goal is to strengthen the quality and practice of forensic science."[4]

Each year, NIJ determines how to allocate funds based on the needs of the forensic science community. These needs, which include the demand to increase laboratory capacity and reduce DNA backlogs, are also identified through studies such as the NAS report and recommendations from the NIJ technology working groups. (For more on how NIJ's technology working groups are used to identify high-priority needs in the forensic sciences, see http://nij.gov/topics/technology/pages/working-groups.aspx.) In FY 2011, for example, under the DNA Backlog Reduction Program, NIJ awarded $87.8 million to DNA laboratories to help them increase their analyzing capacity and decrease DNA backlogs. To determine funding allocations for FY 2012, NIJ assessed the unexpended funds in DNA laboratories from FY 2011

and previous years; based on its analysis, NIJ slightly reduced FY 2012 allocations for the program. However, NIJ continued to support the other needs of the forensic science community through basic research and innovations in new technology.

Research and innovation are major contributors to reducing backlogs, and NIJ is committed to alleviating persistent backlogs by using a holistic, evidence-based approach to assist eligible states and units of local government both in reducing the number of forensic DNA and DNA database samples awaiting analysis and in improving access to cutting-edge forensic tools and technologies. At the same time, NIJ will continue to support research and development that builds on the foundations of the many forensic disciplines that are routinely used to help convict the guilty and exonerate the innocent. This approach can be summarized as follows:

- **Research and development** to create cheaper, faster and more effective forensic technologies. NIJ has been involved in funding forensic science research and development since the earliest use of DNA evidence in 1987. Since 1999, NIJ has had a forensic DNA research and development program to enhance the use of DNA technology, including methods to reduce the time, funds and labor needed for DNA analysis; improve the extraction of degraded or compromised DNA; and improve methods for separating mixtures of DNA, especially from sexual assault evidence. These research efforts are leading the nation toward more effective solutions for reducing the backlogs of DNA evidence awaiting analysis in crime laboratories. Research and development are also crucial to providing objective, independent, evidence-based information and tools to increase the knowledge base underlying the forensic science used in the criminal justice system. Since 2009, NIJ has helped fund fundamental research to improve the understanding of the accuracy, reliability and measurement validity of forensic science. Many of these studies, which have focused on methods used by forensic scientists to provide a more complete understanding of the physical, chemical, biological and mathematical understanding of forensic evidence, are now coming to fruition. NIJ studies seeking quantifiable measures of the reliability and accuracy of forensic analyses and potential human or systemic errors in forensic practice are also being published in the scientific literature.

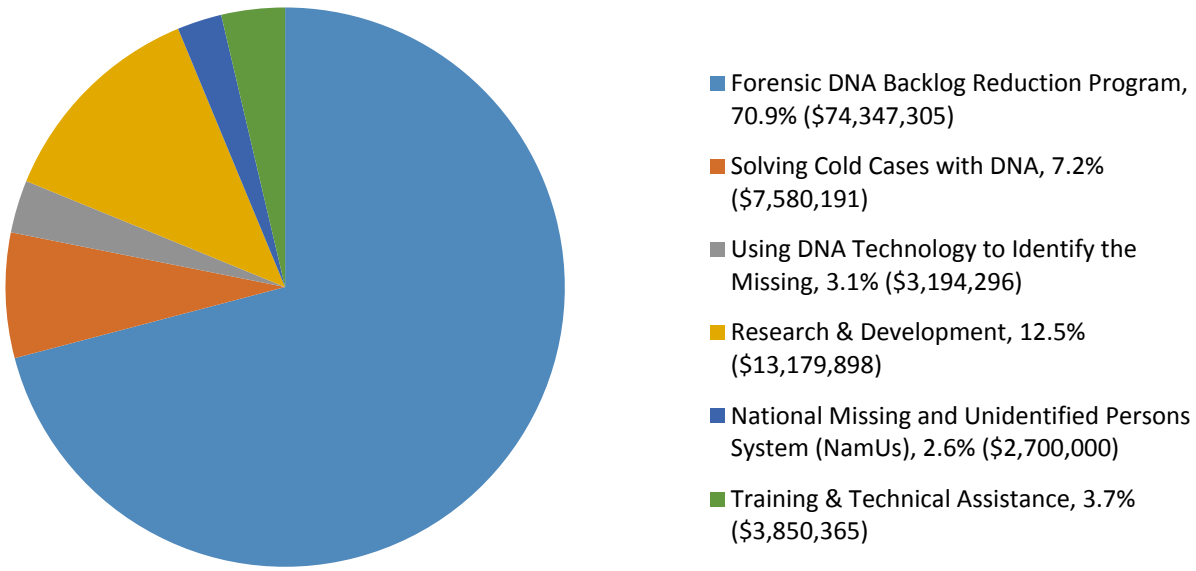
- **Implementation** to help agencies put new technologies to work by facilitating technology transfer, training and communication. The implementation of new technologies is crucial for building crime laboratories' capacity to reduce the number of forensic DNA and DNA database samples awaiting analysis. Implementation programs help the technological transfer of newly developed forensic technologies into laboratories and provide assistance for training personnel. One of NIJ's most significant contributions is its funding of programs that provide immediate impact, including the DNA Backlog Reduction Program, the Solving Cold Cases with DNA program, the Using DNA Technology to Identify the Missing program, and the National Missing and Unidentified Persons System (NamUs), a national centralized repository and resource center to help locate and identify missing persons and unidentified decedents.

- **Testing and evaluation** to make sure that forensic technologies and programs work in the field. This step is crucial to ensuring that new, more efficient forensic technologies and processes operate as intended. For example, in FY 2011, the Forensic Technology Center of Excellence (FTCoE) was awarded to RTI International. In partnership with Virginia Commonwealth University, the University of North Texas Health Science Center (UNTHSC) and Duquesne University, the FTCoE provides testing, evaluation, technology transition assistance and other services for crime laboratories, forensic service providers, law enforcement and other criminal justice agencies. Although no additional funding that used the DNA and other forensic sciences appropriation was provided in FY 2012, the FTCoE has helped establish a framework for collecting, analyzing, and maintaining performance metrics on NIJ forensic research and development projects and for assessing opportunities to effectively transition forensic technologies to forensic and criminal justice practitioners. The assessment provides a decision tool to highlight technologies for maximizing the technology transition impact of specific research and development projects.

In FY 2012, NIJ received $117 million in appropriations for a DNA analysis and capacity enhancement program and for other local, state and federal forensic activities, including those authorized under Section 2 of the DNA Analysis Backlog Elimination Act of 2000 (the Debbie Smith DNA Backlog Grant Program). NIJ allocated almost $105 million of this amount toward grant awards and contracts in three broad categories:[5]

- Building lab capacity and reducing the number of forensic DNA and DNA database samples awaiting analysis (distributed to states and units of local government)
- Research and development for DNA and other forensic sciences
- Training and technical assistance

Exhibit 1. FY 2012 program funds administered by NIJ as grants and contracts



Grants and Contracts Awarded with FY 2012 Funds

Three of the components in the pie chart represent the $86,121,792 in funding that NIJ provided as direct assistance to state and local police departments and crime labs:

- Forensic DNA Backlog Reduction Program: $74,387,305
- Solving Cold Cases with DNA: $7,580,191
- Using DNA Technology to Identify the Missing: $3,194,296

This means that approximately 81 percent of the funds available for grants and contracts went directly to, or in support of, crime laboratories and police departments to reduce the number of forensic DNA and DNA database samples awaiting analysis, solve cold cases and identify missing persons.

Approximately 13 percent ($13,179,898) of funds went to DNA and other forensics research and development.

Finally, two of the components in the pie chart represent $6,550,365 in funding for training and technical assistance:

- National Missing and Unidentified Persons System (NamUs): $2,700,000
- Training and Technical Assistance:[6] $3,850,365.

This means that approximately 6 percent of funds were used for training and technical assistance to increase the use of DNA and other forensics in the criminal justice system.

Programs Funded in FY 2012

DNA Backlog Reduction Program

This program provides grants to states and units of local government to increase their existing crime laboratories' capacity and reduce the number of forensic DNA and DNA database samples awaiting analysis using DNA technologies. The funding allows states and units of local government with existing crime laboratories to process, record, screen and analyze forensic DNA or DNA database samples and to increase the laboratories' capacity to process more DNA samples. NIJ's support thereby helps reduce the number of forensic DNA and DNA database samples awaiting analysis for potential inclusion in the Combined DNA Index System (CODIS) database. Agencies also use the funding to improve the infrastructure and analytical capabilities of their laboratories in order to process DNA samples more efficiently and cost effectively.

In FY 2012, NIJ made 117 awards through this program, totaling $74,347,305, to states and units of local government for DNA capacity building and backlog reduction.

- DNA Backlog Reduction Program solicitation (PDF, 26 pages)
- DNA Backlog Reduction Program grant awards
- DNA Backlog Reduction Program abstracts (PDF, 89 pages)

Solving Cold Cases with DNA

This program provides grants to states and units of local government to identify, review and investigate Uniform Crime Report Part 1 Violent Crime cold cases that might be solved through DNA analysis. NIJ released the FY 2012 solicitation for the program on March 20, 2012, and made 22 awards totaling $7,580,191.

- Solving Cold Cases with DNA solicitation (PDF, 18 pages)
- Solving Cold Cases with DNA grant awards
- Solving Cold Cases with DNA abstracts (PDF, 7 pages)

Using DNA Technology to Identify the Missing

This program provides grants to support DNA analysis on unidentified human remains and reference samples in an effort to identify missing persons, enter the resulting DNA profiles into the FBI's National DNA Index System using CODIS, and enter relevant case information related to unidentified remains into NamUs.

NIJ made four awards totaling $3,194,296. Two of the awards were made to private fee-for-service labs: one to Orchid Cellmark to perform work solely for the California Department of Justice, and another to the Bode Technology Group to perform missing-persons casework for any eligible state or local unit of government that requests it.

- Using DNA Technology to Identify the Missing solicitation (PDF, 18 pages)
- Using DNA Technology to Identify the Missing grant awards
- Using DNA Technology to Identify the Missing abstracts (PDF, 2 pages)

Awards for Research and Development

Although 81 percent of NIJ's DNA and other forensic sciences appropriation went directly to crime laboratories for case processing and improving case processing infrastructure, scientific advancements and technological breakthroughs will be essential to continuing to strengthen the forensic sciences. Therefore, 12.5 percent of FY 2012 funding was allocated to awards under NIJ's basic and applied forensic science research and development programs.

Basic Scientific Research to Support Forensic Science for Criminal Justice Purposes

This program, which encompasses the physical, life and cognitive sciences, is designed to increase the knowledge base underlying forensic science disciplines that are used in the U.S. criminal justice system. The objective is to develop subsequent applied research and advanced technology developments in forensic science-related technologies, as well as new and improved crime laboratory functional capabilities that result in faster, more robust, more informative, less costly or less labor-intensive identification, collection, preservation or analysis of evidence.

NIJ released the Basic Scientific Research to Support Forensic Science for Criminal Justice Purposes solicitation on January 31, 2012, and awarded 11 grants totaling $4,165,280.

- Basic Scientific Research to Support Forensic Science for Criminal Justice Purposes solicitation (PDF, 21 pages)
- Basic Scientific Research to Support Forensic Science for Criminal Justice Purposes grant awards
- Basic Scientific Research to Support Forensic Science for Criminal Justice Purposes abstracts (PDF, 6 pages)

Applied Research and Development in Forensic Science for Criminal Justice Purposes

This program is dedicated to increasing knowledge or understanding necessary to guide forensic science policy and practice and to producing useful materials, devices, systems or methods that have the potential for forensic application. The goal is to develop highly discriminating, accurate, reliable, cost-effective and rapid methods for identifying, analyzing and interpreting physical evidence.

NIJ released the Applied Research and Development in Forensic Science for Criminal Justice Purposes solicitation on January 31, 2012, and awarded 21 grants totaling $8,864,618.

- Applied Research and Development in Forensic Science for Criminal Justice Purposes solicitation (PDF, 24 pages)
- Applied Research and Development in Forensic Science for Criminal Justice Purposes grant awards
- Applied Research and Development in Forensic Science for Criminal Justice Purposes abstracts (PDF, 12 pages)

Strategic Approaches to Sexual Assault Kit (SAK) Evidence: An Action Research Project

These awards support applied research regarding untested evidence in sexual assault cases. In FY 2012, NIJ awarded $150,000 to continue and expand ongoing projects in two jurisdictions: Houston, Texas, and Wayne County (Detroit), Mich. The goals of these projects are to determine the underlying nature of the problem of untested SAK evidence and to identify effective and sustainable solutions for prioritizing and testing the kits. These projects are designed to answer important research questions about when and whether untested SAK evidence should be submitted to the laboratory for processing regardless of case status and, once at the laboratory, how to prioritize these kits for processing.

- Strategic Approaches to Sexual Assault Kit (SAK) Evidence solicitation (PDF, 19 pages)
- Strategic Approaches to Sexual Assault Kit (SAK) Evidence grant awards and abstracts (PDF, 2 pages)

National Missing and Unidentified Persons System

NamUs is funded through a training and technical assistance grant award. NamUs is a free online system that can be searched by medical examiners, coroners, law enforcement officials and members of the

general public who are trying to resolve missing persons and unidentified decedent cases. In FY 2012, NIJ awarded $2,700,000 to the UNTHSC to run NamUs.

- NamUs solicitation (issued in FY 2011) (PDF, 18 pages)
- NamUs project details (PDF, 1 page)

ENDNOTES

1. Burch, Andrea M., Matthew R. Durose, and Kelly A. Walsh. *Census of Publicly Funded Forensic Crime Laboratories, 2009,* Washington, D.C.: Bureau of Justice Statistics, August 2012, NCJ 238252, available at http://www.bjs.gov/index.cfm?ty=pbdetail&iid=4412.

2. Ibid.

3. National Academy of Sciences. *Strengthening Forensic Science in the United States: A Path Forward.* Washington, D.C.: The National Academies Press, 2009, available at https://www.ncjrs.gov/pdffiles1/nij/grants/228091.pdf.

4. Ubelaker, Douglas H., "President-Elect's Message," *Academy News* 40 (July 2010): 4, 30, available at http://aafs.org/sites/default/files/pdf/July10Rev6-28-10v3.pdf.

5. The other $12,035,541 was used for program support costs (including peer review) and operational costs (e.g., management and administrative expenses).

6. This $3,850,365 was used to support technical assistance for other DNA and forensic science, such as the cost of printing and distributing forensic reports and handbooks, hosting and maintaining the DNA.gov website, supporting the National Criminal Justice Reference Service, and providing technical assistance to ensure grantees comply with the National Environmental Policy Act, and to cover the Scientific, Engineering, and Technical Assistance contract. For details, see http://nij.gov/topics/forensics/documents/dissemination-outreach-and-program-support-awards-2012.pdf.