



FEBRUARY 2015

NATIONAL INSTITUTE OF JUSTICE

REPORT FORENSIC SCIENCE

A photograph of several test tubes containing a blue liquid, with a pipette dispensing more of the liquid into one of them. The scene is lit with a blue light, creating a scientific and forensic atmosphere.

Funding for
Fiscal Year 2013

DNA Analysis, Capacity Enhancement
and Other Forensic Activities

By Gerald LaPorte

NIJ

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DNA ANALYSIS, CAPACITY ENHANCEMENT AND OTHER FORENSIC ACTIVITIES

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Findings and conclusions of the research reported here are those of the author and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

NCJ 248473

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FUNDING FOR FISCAL YEAR 2013: DNA ANALYSIS, CAPACITY ENHANCEMENT AND OTHER FORENSIC ACTIVITIES

BY GERALD LAPORTE

Overview

Science and technology are essential to the pursuit of justice and are critical to the appropriate collection, assessment, and application of evidence in the criminal justice system.¹

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 for the purposes of various DNA and other forensic science activities. These purposes include support for DNA analysis and laboratory capacity enhancement and support for the forensic science research, development and evaluation that provides knowledge and tools to improve the quality and practice of forensic science and therefore reduce crime and improve public safety.

Each year NIJ considers how to allocate DNA and other forensic activity funds based on needs such as the demand to increase capacity and reduce DNA backlog, NIJ technology working group recommendations, results from studies and new findings, and strategic priorities and perspectives for each of the programs.² This report summarizes the funding decisions.

Strengthening Forensic Science: A Progress Report.

NIJ plays a leading role in directing efforts to address the needs of the forensic science community. In February 2014, the White House Office of Science and Technology Policy (OSTP) issued *Strengthening Forensic Science: A Progress Report*.³ The report highlights a number of accomplishments specifically related to the breadth of NIJ support for research and development in the forensic sciences. “Since 2009, NIJ has provided more than \$100 million to fund more than 250 research and development projects related to forensic science, resulting in more than 600 scientific publications, presentations, and final technical reports listed in the National Criminal Justice Reference Service [NCJRS].”⁴

NIJ’s core team of scientists with expertise in a diverse array of scientific fields, including chemistry, biology, genetics, and anthropology, oversees NIJ-supported forensic science research and development.

Peer-Reviewed Publications. NIJ strongly encourages grantees to disseminate their work through the peer-reviewed scientific literature. From 2009 to 2012, the number of publications and presentations based on NIJ-supported research increased dramatically: 240 percent for publications and 270 percent for presentations.⁵ NIJ-supported studies contribute to the underlying foundations of many forensic disciplines and further

strengthen confidence in the accuracy, reliability and validity of forensic sciences.

Innovation through research and development is a driving force behind reducing DNA backlogs and enhancing laboratory capacity, and NIJ is committed to a strategic approach that facilitates increased capacity and backlog reduction.

Increasing Laboratory Capacity. The DNA Capacity Enhancement and Backlog Reduction Program continues to be a critical resource for laboratories. Laboratory capacity is enhanced with increased and improved automation, hiring of more personnel, use of overtime, and improved testing procedures and methods, all of which this NIJ program supports.

At the same time, however, demand for DNA testing continues to outpace enhancements in capacity. In December 2013, NIJ published the special report *Making Sense of DNA Backlogs, 2012 — Myths vs. Realities*.⁶ This special report highlights the challenges laboratories face in addressing backlogs and demonstrates that though laboratories processed 10 percent more forensic DNA cases in 2011 than in 2009, forensic DNA casework services in 2011 increased by 16.4 percent over 2009 demands.^{7,8} Laboratories funded under this program reported processing more than 369,000 cases since 2009. Of those cases, nearly 156,000 DNA profiles were uploaded to the Combined DNA Index System (CODIS), resulting in more than 60,000 CODIS hits.⁹ Since 2011, funded laboratories have uploaded more than 525,000 samples to CODIS from arrestees and convicted offenders, resulting in 9,745 hits.¹⁰

Grants, Contracts and Interagency Agreements

In FY 2013, NIJ received \$117 million in appropriations for DNA analysis and capacity enhancement and for other local, state, and federal forensic activities, including the purposes authorized under section 2 of the DNA Analysis Backlog Elimination Act of 2000 (the Debbie Smith DNA Backlog Grant Program). Of this amount, \$97 million was made available to NIJ to award grants, contracts and interagency agreements in three broad categories to support:¹¹

1. Direct funding for, or in support of, state and local police departments and crime laboratories
 - DNA Capacity Enhancement and Backlog Reduction Program
 - Using DNA Technology to Identify the Missing
2. DNA and other forensic sciences research and development
3. Training and technical assistance
 - National Missing and Unidentified Persons System
 - NIJ-FBI Sexual Assault Kit Partnership

Of the available funds, 78.6 percent went directly to, or was in support of, crime laboratories and police departments to reduce the number of forensic DNA and DNA database samples awaiting analysis, and to support the identification of missing persons. Approximately 13 percent supported DNA and other forensic sciences research and development, and 8 percent funded training and technical assistance to enhance the use of DNA and other forensic sciences in the criminal justice system. (See Figure 1, Distribution of Funds.)

1. Direct Funding for, or in Support of, State and Local Police Departments and Crime Laboratories

More than three-quarters of DNA and other forensic appropriations went to police departments and crime labs in FY 2013. Two programs are involved: (1) The DNA Capacity Enhancement and Backlog Reduction Program and (2) Using DNA Technology to Identify the Missing.

DNA Capacity Enhancement and Backlog Reduction Program. This program makes awards to states and units of local government with existing crime laboratories to enhance crime laboratory capacity and to reduce the number of forensic DNA and DNA database samples awaiting analysis using DNA technologies. States and units of local government may use this funding to process, record, screen and analyze forensic DNA or DNA database samples, as well as to improve the infrastructure and analytical capabilities of their laboratories in order to process DNA samples more efficiently and cost effectively. This program contributes

to these agencies' capacity to reduce the number of forensic DNA and DNA database samples awaiting analysis for potential inclusion in CODIS. NIJ made 125 awards totaling \$74,495,175.

- DNA Backlog Reduction Program solicitation, <https://ncjrs.gov/pdffiles1/nij/si001062.pdf> (PDF, 33 pages)
- DNA Backlog Reduction Program grant awards (go to www.NIJ.gov and search keywords "DNA Evidence Backlog Program Awards")

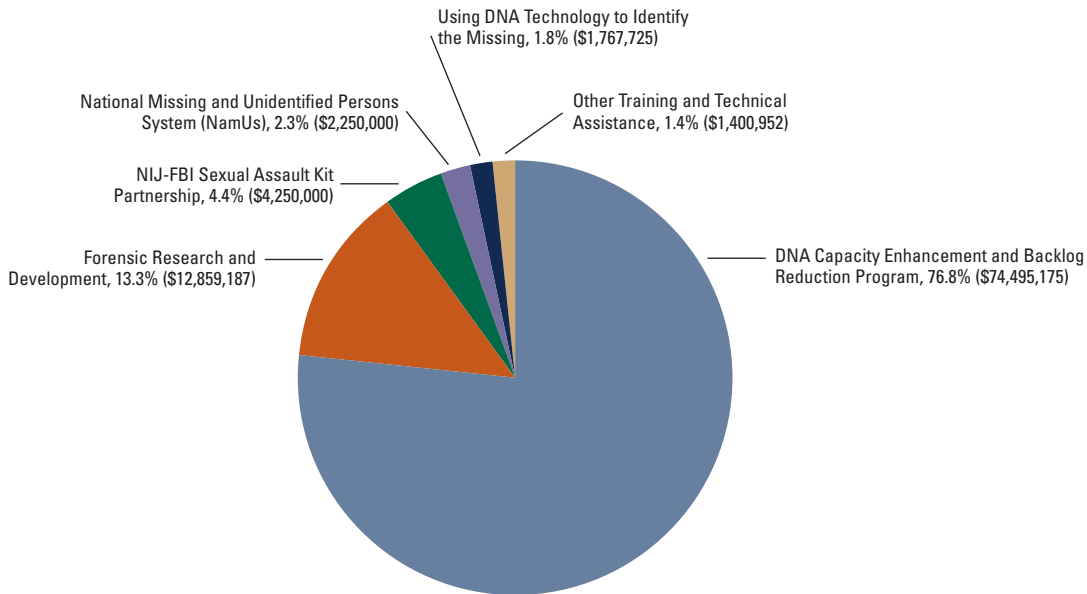
Using DNA Technology to Identify the Missing. This program makes awards to eligible entities, including but not limited to states and units of local government, seeking to offer assistance in performing DNA analysis

on unidentified human remains and family reference samples to support the efforts of states and units of local government to identify missing persons, enter the resulting DNA profiles into CODIS, and enter relevant case information related to unidentified remains into the National Missing and Unidentified Persons System (NamUs).

NIJ made four awards totaling \$1,767,725.

- Using DNA Technology to Identify the Missing solicitation, <https://ncjrs.gov/pdffiles1/nij/si001064.pdf> (PDF, 22 pages)
- Using DNA Technology to Identify the Missing grant awards (go to www.NIJ.gov and search keywords "FY13 missing persons funding")

Figure 1. Distribution of Funds



Categories of support

78.6% Direct Funding to Police and Laboratories

- DNA Capacity Enhancement and Backlog Reduction Program
- Using DNA Technology to Identify the Missing

13.3% Forensic Research and Development

8.1% Training and Technical Assistance

- National Missing and Unidentified Persons System
- NIJ-FBI Sexual Assault Kit Partnership
- Other Training and Technical Assistance

2. DNA and Other Forensic Sciences Research and Development

More than three-quarters of the DNA and other forensic sciences appropriations went directly to crime laboratories for case processing and improving case processing infrastructure, but NIJ affirms that scientific advancements and technological breakthroughs are essential to the continued growth and strengthening of the forensic sciences. NIJ made investments to further develop and advance forensic science knowledge and innovations under two programs:

Basic Scientific Research to Support Forensic Science for Criminal Justice Purposes. This program supports basic scientific research in the physical, life and cognitive sciences. The program is designed to increase the knowledge underlying forensic science as it is used in criminal justice. Projects are funded because of their potential to lead to subsequent applied research and advanced technology developments. The overarching goal is to find forensic-science-related technologies that result in faster, more robust, more informative, less costly or less labor-intensive identification, collection, preservation or analysis of evidence. NIJ made 10 awards totaling \$4,569,917.*

- Basic Scientific Research to Support Forensic Science solicitation, <https://ncjrs.gov/pdffiles1/nij/sI001058.pdf> (PDF, 22 pages)
- Basic Scientific Research to Support Forensic Science grant awards (go to www.NIJ.gov and search keywords “FY13 basic forensic research”)

Applied Research and Development in Forensic Science for Criminal Justice Purposes. This program supports projects that increase the knowledge or understanding necessary to guide forensic science policy and practice or result in the production of useful materials, devices, systems or methods that have the potential for forensic application. Through this program, NIJ intends to direct the findings of basic scientific research, research and development in broader scientific fields applicable to forensic science, and ongoing forensic

science research. The goal is the development of highly discriminating, accurate, reliable, cost-effective and rapid methods for the identification, analysis and interpretation of physical evidence for criminal justice purposes. NIJ made 30 awards totaling \$10,018,073.*

- Applied Research and Development in Forensic Science solicitation, <https://ncjrs.gov/pdffiles1/nij/sI001059.pdf> (PDF, 24 pages)
- Applied Research and Development in Forensic Science grant awards (go to www.NIJ.gov and search keywords “FY13 applied forensic research”)

3. Training and Technical Assistance

In addition to the 78 percent of funding that goes directly to state and local police departments and crime labs and the 13 percent for research and development, NIJ also allocates almost 7 percent for training and technical assistance to law enforcement and laboratory personnel.

National Missing and Unidentified Persons System (NamUs). NamUs is a free online system that medical examiners, coroners, law enforcement officials and the general public who are trying to resolve missing persons and unidentified decedent cases may search. NIJ awarded \$2,250,000 to the University of North Texas Health Science Center to administer and manage NamUs.

- NamUs solicitation (issued in FY 2011), <https://ncjrs.gov/pdffiles1/nij/sI000951.pdf> (PDF, 18 pages)
- NamUs.gov

NIJ-FBI Sexual Assault Kit Partnership. NIJ and the Federal Bureau of Investigation Laboratory have formed a partnership to help address one of the most difficult and complex issues facing our nation’s criminal justice system: unsubmitted sexual assault kits (frequently referred to as untested). The NIJ-FBI partnership will address some major needs in our nation’s forensic science and criminal justice communities. It will, for example, support state and local

*Funding for research and development was supplemented from other NIJ resources in addition to the appropriation for DNA and other forensics.

law enforcement agencies in their efforts to reduce the number of unsubmitted sexual assault kits. It will also help develop tools and strategies to evaluate current methodologies and procedures, improve practice and inform future policies. NIJ invested \$4,250,000 in the partnership. Learn more at <http://www.nij.gov/topics/law-enforcement/investigations/sexual-assault/Pages/nij-fbi-sak-initiative.aspx>.

Other. Approximately \$1.4 million was used in support of DNA and other forensic science training and technical assistance, including activities such as the cost of printing and distributing forensic reports and handbooks, hosting and maintaining of websites, support for NCJRS and providing technical assistance to ensure awardee compliance with the National Environmental Policy Act, among others.

Endnotes

1. Executive Office of the President of the United States, *Strengthening Forensic Science: A Progress Report*, White House Office of Science and Technology Policy: Washington, D.C., February 2014, 1, http://www.whitehouse.gov/sites/default/files/microsites/ostp/forensicscience_progressreport_feb-2014.pdf.
2. Learn more about NIJ Technology Working Groups at <http://www.nij.gov/topics/technology/Pages/working-groups.aspx>.
3. Executive Office of the President, *Strengthening Forensic Science*.
4. *Ibid.*, 1.
5. Forensic Technology Center of Excellence, *Project Update to the National Institute of Justice: NIJ R&D Portfolio Management and Technology Transition Support*, Research Triangle Institute: Washington, D.C., July 2014, <https://rti.connectsolutions.com/p9gbz920bwc/>.
6. Nelson, Mark, Ruby Chase, and Lindsay DePalma, *Making Sense of DNA Backlogs, 2012 — Myths vs. Reality*, National Institute of Justice: Washington, D.C., December 2013, NCJ 243347, <https://www.ncjrs.gov/pdffiles1/nij/243347.pdf>.
7. *Ibid.*, 2.
8. In 2011, the backlogs reported on Jan. 1 and Dec. 31 were smaller than the backlogs reported on those dates in 2009, but it is difficult to determine if a trend is occurring because of the lack of a uniform definition for backlog. Until 2011, when NIJ standardized the definition of a backlogged case, many laboratories used their own definitions, some defining any case that had not been analyzed as a backlogged case.
9. These data are based on metrics reported in semiannual grant progress reports.
10. *Ibid.*
11. Of the \$117 million appropriated, \$20 million was allocated toward program support costs (including peer review of grant funding applications) and operational and other statutory expenses (e.g., OJP management and administration expenses).



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