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DNA Testing in Criminal Justice: Background, Current Law, and Grants

(name redacted)
Analyst in Crime Policy

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Summary

Deoxyribonucleic acid, or DNA, is the fundamental building block for an individual's entire genetic makeup. DNA is a powerful tool for law enforcement investigations because each person's DNA is different from that of every other individual (except for identical twins). DNA can be extracted from a number of sources, such as hair, bone, teeth, saliva, and blood. As early as the 1980s, states began enacting laws that required the collection of DNA samples from offenders convicted of certain sexual and other violent crimes. The samples are analyzed and their profiles entered into state databases. In the late 1980s, the Federal Bureau of Investigation (FBI) Laboratory convened a working group of federal, state, and local forensic scientists to establish guidelines for the use of forensic DNA analysis in laboratories. The group proposed guidelines that are the basis of current national quality assurance standards, and it urged the creation of a national DNA database. The criminal justice community began to utilize DNA analyses more often in criminal investigations and trials, and in 1994, Congress enacted legislation to authorize the creation of a national DNA database.

Federal law (34 U.S.C §12592(a)) authorizes the FBI to operate and maintain a national DNA database where DNA profiles generated from samples collected from people under applicable legal authority and samples collected at crime scenes can be compared to generate leads in criminal investigations. Statutory provisions also authorize the collection of DNA samples from federal offenders and arrestees, District of Columbia offenders, and military offenders. State laws dictate which convicted offenders, and in some states arrestees, will have profiles entered into state DNA databases, while federal law dictates the scope of the national database. Increasing awareness of the power of DNA to solve crimes has resulted in increased demand for DNA analysis, which has resulted in a backlog of casework. Some jurisdictions have started to use their DNA databases for familial searching, which involves using offender profiles to identify relatives who might be perpetrators of crimes. In addition to solving crimes, DNA analysis can also help exonerate people incarcerated for crimes they did not commit.

Congress has authorized several grant programs to provide assistance to state and local governments for forensic sciences. Many of the programs focus on providing state and local governments with funding to reduce the backlog of forensic and convicted offender DNA samples waiting to be processed and entered into the national database. Other grant programs provide funding for related purposes, such as offsetting the cost of providing postconviction DNA testing.

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Introduction

Deoxyribonucleic acid, or DNA, is the fundamental building block for an individual's entire genetic makeup. DNA is a powerful tool for law enforcement investigations because each person's DNA is different from that of every other individual (except for identical twins). By analyzing selected DNA sequences (called loci), a crime laboratory can develop a profile to be used in identifying a suspect.

DNA can be extracted from a number of sources, such as hair, bone, teeth, saliva, and blood. Because the human body contains so many copies of DNA, even a minuscule amount of bodily fluid or tissue can yield useful information. Obtaining a DNA sample is not complicated; it can be as simple as a swab of the inside of the mouth to obtain cheek cells and white blood cells in saliva.

State and federal DNA databases have proved instrumental in solving crimes, reducing the risk of convicting the wrong person, and establishing the innocence of those wrongly convicted. DNA evidence is used to solve crimes in two ways:

- In cases where a suspect is known, a sample of that person's DNA can be compared to biological evidence found at a crime scene. The results of this comparison may then help establish whether the suspect was at the crime scene or whether he/she committed the crime.
- In cases where a suspect is not known, biological evidence from the crime scene can be analyzed and compared to offender profiles contained in existing DNA databases to assist in identifying the perpetrator. Through the use of DNA databases, biological evidence found at one crime scene can also be connected to other crime scenes, linking them to the same perpetrator or perpetrators.

This report provides an overview of how DNA is used to investigate crimes and help protect the innocent.[1] It also reviews current statutory law on collecting DNA samples, sharing DNA profiles generated from those samples, and providing access to postconviction DNA testing. The report also includes a summary of grant programs authorized by Congress to assist state and local governments with reducing DNA backlogs, provide postconviction DNA testing, and promote new technology in the field.

Background

Federal law authorizes the Federal Bureau of Investigation (FBI) to operate and maintain a national DNA database where DNA profiles generated from samples collected from people under applicable legal authority and samples collected at crime scenes can be compared to generate leads in criminal investigations. Statutory provisions also authorize the collection of DNA samples from federal offenders and arrestees, District of Columbia offenders, and military offenders. State law dictates which arrestees and convicted offenders will have profiles entered into state DNA databases, but federal law dictates which profiles entered into state databases can be uploaded into the national DNA database.

[1] This report does not include a discussion of the use of DNA to identify missing persons and unidentified human remains, nor does it include an overview of grant programs to state and local governments for developing DNA profiles from samples from missing persons, close relatives of missing persons, or unidentified human remains. For more on this issue, see CRS Report RL34616, *Missing Adults: Background, Federal Programs, and Issues for Congress*.

Increased awareness of the power of DNA testing to solve crimes has led to increased demand for DNA analysis, which has resulted in a backlog of casework for laboratory personnel. In addition to solving crimes, DNA analysis can also help exonerate people incarcerated for crimes they did not commit.

The National DNA Index System (NDIS) and the Combined DNA Index System (CODIS)

As early as the 1980s, states began enacting laws that required DNA samples from offenders convicted of certain sexual offenses and other violent crimes. The samples were then analyzed and their profiles entered into state databases. In the late 1980s, the FBI Laboratory convened a working group of federal, state, and local forensic scientists to establish guidelines for the use of forensic DNA analysis in laboratories. The group proposed guidelines that are the basis of current national quality assurance standards, and it urged the creation of a national DNA database.[2] In 1994, Congress authorized the FBI to establish and oversee the National DNA Index System (NDIS). When the NDIS launched in 1998, nine states participated.[3] Currently, laboratories in all 50 states, the District of Columbia, the federal government, Puerto Rico, and the U.S. Army Criminal Investigation Laboratory participate in the NDIS.[4] The NDIS contains the DNA profiles provided by federal, state, and participating local crime laboratories.[5]

DNA profiles generated by laboratories operated by local law enforcement agencies are stored in Local DNA Index Systems (LDIS). DNA profiles generated by state laboratories, along with authorized profiles stored in participating LDIS, are uploaded into State DNA Index Systems (SDIS). Each state has its own laws specifying which profiles can be included in the SDIS.[6] DNA profiles generated by federal laboratories, along with authorized DNA profiles in participating SDIS, are uploaded into the NDIS.[7] Federal law dictates which DNA profiles can be stored in the NDIS (see below). The NDIS allows participating laboratories to compare DNA on the national level while the SDIS allows each state to compare DNA profiles stored at the state level. Federal, state, and local laboratories upload and compare DNA profiles using the Combined DNA Index System (CODIS) software produced and distributed by the FBI.[8]

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[2] Statement of Dwight E. Adams, Deputy Assistant Director, Laboratory Division, Federal Bureau of Investigation, in U.S. Congress, House of Representatives, Government Reform Committee, Subcommittee on Government Efficiency, Financial Management and Intergovernmental Relations, *How Effective are State and Federal Agencies Working Together to Implement the Use of New DNA Technologies*?, hearing, 107th Cong., 1st sess., March 29, 2004, pp. 53-54.

[3] John M. Butler, *Fundamentals of Forensic DNA Typing* (Burlington, MA: Academic Press, 2010), p. 265 (hereinafter, *Fundamentals of Forensic DNA Typing*).

[4] Information on the number of participant laboratories and the number of profiles they have uploaded into the NDIS can be found on the FBI's website at https://www.fbi.gov/services/laboratory/biometric-analysis/codis/ndis-statistics.

[5] U.S. Department of Justice, Federal Bureau of Investigation, *Frequently Asked Questions (FAQs) on the CODIS Program and the National DNA Index System*, https://www.fbi.gov/services/laboratory/biometric-analysis/codis/codis-and-ndis-fact-sheet (hereinafter "CODIS FAQs").

[6] The National Conference of State Legislatures (NCSL) maintains a searchable database of state DNA laws, including laws related to which convicted offenders are required to submit a sample for inclusion in the state's DNA database and whether, and if so, from whom, collects DNA samples from individuals arrested for certain crimes. The NCSL's database is available online at http://www.ncsl.org/research/civil-and-criminal-justice/dna-laws-database.aspx.

[7] U.S. Department of Justice, Federal Bureau of Investigation, *CODIS—NDIS Statistics*, https://www.fbi.gov/services/laboratory/biometric-analysis/codis/ndis-statistics.

[8] CODIS FAQs.

CODIS searches three indexes (convicted offenders, arrestee, and forensic) to generate investigative leads. The convicted offender index contains DNA profiles developed from samples collected from convicted offenders; the arrestee index contains DNA profiles developed from samples collected from arrested but *not yet convicted* individuals; and the forensic index contains DNA profiles developed from samples collected at crime scenes. CODIS searches across these indexes to look for potential matches (also referred to as "hits").[9] Matches can occur between either the convicted offender or arrestee indexes and the forensic index, thereby providing law enforcement with the identity of one or more suspects.[10] Also, matches can occur between DNA profiles in the forensic index, thereby linking crime scenes to each other and identifying serial offenders.[11] Matches between multiple samples in the forensic index can allow law enforcement agencies in different jurisdictions to coordinate their efforts and share leads. No names or other personal identifiers for offender and arrestee DNA profiles are stored in the NDIS, so when a match is made in CODIS, the laboratories that submitted the DNA profiles to the NDIS are notified of the match and they contact each other to verify the match and coordinate their efforts.[12]

DNA Profiles

DNA profiles entered into CODIS are based on 13 core short tandem repeat (STR) loci selected by the FBI.[13] Currently, the 13 STR loci used by the FBI are non-coding, meaning that they have not been shown to be associated with human attributes such as height, eye or skin color, or susceptibility to a particular disease.[14] Each locus has two alleles, and it is these 13 pairs of alleles that are compared to match samples in the forensic index with profiles in either the offender or arrestee indexes. The 13 core loci chosen by the FBI provide a high level of discriminatory power. The probability that two unrelated individuals would share all 13 pairs of alleles is estimated to be one in several hundred billion.[15] Two random Americans will, on average, share two or three alleles.[16]

It is important to ensure the quality of the DNA profiles entered into the NDIS. If the profiles are not accurate, they are of little use for making matches between forensic and offender or arrestee profiles. The FBI helps ensure the quality of DNA profiles included in the NDIS by signing memorandums of understanding with state laboratories whereby the laboratory agrees to adhere to the FBI's Quality Assurance Standards (QAS, see below).[17] Laboratories submitting DNA profiles to the NDIS must be accredited and audited annually.[18] Annual audits can be conducted by either an internal or external auditor, but laboratories must be audited by an external agency at

[9] Ibid.

[10] Ibid. If an "offender hit" is obtained, that information typically is used as probable cause to obtain a new DNA sample from that suspect so the match can be confirmed by the crime laboratory before an arrest is made.

[11] Ibid.

[12] CODIS FAQs.

[13] Ibid.

[14] Jules Epstein, "Genetic Surveillance—The *Bogeyman* Response to Familial DNA Investigations," *University of Illinois Journal of Law, Technology and Policy*, vol. 2009, no. 1, (2009), p. 143.

[15] Henry T. Greely, Daniel P. Riordan, and Nanibaa' A. Garrison et al., "Family Ties: The Use of DNA Offender Databases to Catch Offenders' Kin," *Journal of Law, Medicine and Ethics*, vol. 34, no. 2 (Summer 2006), p. 250 (hereinafter, "Greely, Riordan, Garrison et al., 'Family Ties'").

[16] Ibid.

[17] *Fundamentals of Forensic DNA Typing*, p. 270.

[18] Ibid., p. 271.

least once every two years.[19] Laboratories that do not pass the annual audit can be prevented from entering DNA profiles in CODIS.[20] Currently, most labs in the United States are to be audited by the American Society of Crime Laboratory Directors and its Laboratory Accreditation Board (ASCLD/LAB) and Forensic Quality Services (FQS). In addition, DNA analysts must undergo semiannual proficiency testing.[21] DNA analysts who do not pass their semiannual proficiency tests are not to be allowed to enter profiles into CODIS.[22] Laboratories are also required to conduct two reviews of all DNA profiles before they are entered into CODIS.[23]

Currently, as prescribed by federal law (see below), only public laboratories that comply with the QAS can submit DNA profiles to the NDIS. However, public laboratories are allowed to outsource casework to private laboratories. All private laboratories that conduct DNA testing for public laboratories must be accredited, be audited annually, and adhere to the requirements of the QAS.[24] Public laboratories are required to conduct an initial site visit to each private laboratory they contract with to conduct DNA analyses.[25] If the public laboratory signs a contract with a private laboratory that is longer than one year, the public laboratory must conduct an annual site visit.[26] Public laboratories are also required to review all outsourced DNA profiles generated by private laboratories.[27] The review by the public laboratory is in addition to the two reviews private laboratories are required to conduct per the QAS.

An offender or arrestee profile in a DNA database consists of 26 numbers representing each of the two alleles for the 13 STR loci, an agency identification number, a sample identification number, and an identifier for the analyst that entered the information.[28] However, most jurisdictions retain the DNA sample used to generate the profile placed in CODIS.[29] DNA samples are usually retained for quality assurance purposes, such as confirming a hit made using the NDIS, and it allows jurisdictions to retest the sample if new technology is developed in the future.[30] Privacy advocates are concerned that stored DNA samples include a wealth of genetic information that could be misused.[31] States and the federal government have sought to prevent the unauthorized use of DNA samples. Some states have criminal penalties in place for individuals who misuse

[19] U.S. Department of Justice, Federal Bureau of Investigation, *Quality Assurance Standards for DNA Databasing Laboratories*, Standard 15, https://www.fbi.gov/file-repository/quality-assurance-standards-for-dna-databasing-laboratories.pdf/view. U.S. Department of Justice, Federal Bureau of Investigation, *Quality Assurance Standards for Forensic DNA Testing Laboratories*, Standard 15, https://www.fbi.gov/file-repository/quality-assurance-standards-for-forensic-dna-testing-laboratories.pdf/view (hereinafter "QAS").

[20] *Fundamentals of Forensic DNA Typing*, p. 271.

[21] Ibid.

[22] Ibid.

[23] U.S. Congress, House Committee on the Judiciary, Subcommittee on Crime, Terrorism, and Homeland Security, *Testimony of Jeffery S. Boschwitz, Ph.D.*, Hearing on "Rape Kit Backlogs: Failing the Test of Providing Justice to Sexual Assault Survivors", 111th Cong., 2nd sess., May 20, 2010, H.Hrg 111-115 (Washington: GPO, 2010), p. 81.

[24] QAS, Standard 17.

[25] CODIS FAQs.

[26] QAS, Standard 17.

[27] Ibid.

[28] *Fundamentals of Forensic DNA Typing*, p. 270.

[29] Ibid., p. 262.

[30] Ibid.

[31] Tania Simoncelli, "Dangerous Excursions: The Case Against Expanding Forensic DNA Databases to Innocent Persons," *Journal of Law, Medicine, and Ethics*, vol. 34, no. 2 (Summer 2006), p. 392.

DNA samples collected for law enforcement purposes.[32] Under current law, anyone who misuses a DNA sample collected under federal authority is subject to a fine of up to $250,000, or imprisonment for up to one year.[33]

The number of offender profiles included in the NDIS has increased as Congress has allowed states to include DNA profiles from a broader range of convicted offenders and persons arrested for certain crimes to be included in the database. States have also amended their DNA collection laws to reflect this expanded authority. Approximately 15.6 million new convicted offender and arrestee profiles have been added to NDIS since 2000.[34] In addition, approximately 795,000 new forensic profiles have been included in the NDIS since 2000. The additional offender and forensic profiles have increased the number of investigative leads generated by DNA databases. Since the creation of NIDS, hits generated by searches of the NDIS have aided in the investigation of nearly 381,000 crimes.[35]

DNA Backlog

Delays in processing DNA evidence can result in delays in apprehending or prosecuting violent or serial offenders, or they can result in wrongfully convicted individuals serving time in prison for crimes they did not commit. In addition, persistent backlogs can result in crime laboratories prioritizing DNA analysis for violent offenses, such as homicide or sexual assault, over other offenses, such as property crimes, or they can result in law enforcement agencies establishing policies stating that biological evidence is not to be collected for minor offenses.[36] Not analyzing or collecting DNA samples for minor offenses could prevent law enforcement from apprehending offenders who may go on to commit more serious crimes.

Context is important when evaluating data on DNA backlogs.[37] Backlogs are best considered in the context of each crime laboratory's capacity, size, and workload. For example, if there are two laboratories and the first laboratory has a backlog of casework that is three times the size of the casework backlog in the second laboratory, the backlog for the first laboratory might not be as daunting if the first laboratory's turnaround time is twice as fast as the second laboratory and the analysts in the first laboratory are more productive (i.e., each analyst analyzes more cases per month).

[32] Ibid., p. 392.

[33] 42 U.S.C. §14135e(c).

[34] The FBI reports data on the number of offender, arrestee, and forensic profiles in the NDIS in 2000 at http://www.fbi.gov/about-us/lab/biometric-analysis/codis/codis_brochure. The most recent data on the number of offender, arrestee, and forensics profiles in the NDIS can be found at https://www.fbi.gov/services/laboratory/biometric-analysis/codis/ndis-statistics. The figures on the number of profiles added since 2000 are based on the reported number of offender, arrestee, and forensic profiles in the NDIS as of November 2017.

[35] U.S. Department of Justice, Federal Bureau of Investigation, *CODIS—NDIS Statistics*, https://www.fbi.gov/services/laboratory/biometric-analysis/codis/ndis-statistics.

[36] Edwin Zedlewski and Mary B. Murphy, "DNA Analysis for 'Minor' Crimes: A Major Benefit for Law Enforcement," *NIJ Journal*, vol. 253 (January 2006) (hereinafter, "DNA Analysis for 'Minor' Crimes").

[37] Mark Nelson, Ruby Chase, and Lindsay DePalma, *Making Sense of DNA Backlog, 2012s—Myths vs. Reality*, U.S. Department of Justice, Office of Justice Programs, National Institute of Justice, NCJ 243347, Washington, DC, December 2013, p. 6.

Forensic Casework

The most recent data available on the size of DNA backlogs are from a November 2016 report published by the Bureau of Justice Statistics (BJS).[38] Data presented in the report come from BJS's 2014 Census of Publicly Funded Forensic Crime Laboratories (CPFCL). In the report, BJS compares data from the 2014 census to data taken from the 2009 CPFCL to show how requests for DNA analysis have changed.

In 2009, there were an estimated 103,500 backlogged forensic casework analyses, while in 2014 there were an estimated 107,800 backlogged analyses.[39] However, the estimated increase in backlogged forensic casework analyses is not statistically significant.[40] BJS data show that public crime laboratories completed more forensic casework samples in 2014 than 2009. In 2014, public crime laboratories completed an estimated 296,000 requests for forensic casework analysis, up from an estimated 239,000 in 2009.[41] While crime laboratories were able to process more cases, the requests received for forensics casework analysis increased from an estimated 260,000 in 2009 to an estimated 333,000 in 2014.[42]

Convicted Offender and Arrestee Samples

Data from BJS show that there was a significant decrease in the backlog of requests for analysis of convicted offender and arrestee samples. The backlog of these samples decreased from 502,500 in 2009 to 64,800 in 2014.[43] Public crime laboratories processed an estimated 1,027,000 convicted offender and arrestee samples in 2009 and an estimated 904,000 samples in 2014, but the difference in processed samples is not statistically significant.[44] However, there was a statistically significant decrease in requests for analysis of convicted offender and arrestee samples (1,053,000 requests were received in 2009 compared to 908,000 in 2014).[45]

Federal Law

While state law dictates which profiles will be included in each state's DNA database, federal law provides for the collection of DNA samples from certain federal offenders for analysis and inclusion in the NDIS. Federal law also dictates which profiles included in SDIS can be uploaded into the NDIS. Federal law also states that agencies participating in the NDIS must meet certain specified standards. In addition, federal law provides for postconviction DNA testing for federal

[38] Matthew R. Durose, Andrea M. Burch, and Kelly Walsh, et al., *Publicly Funded Forensic Crime Laboratories: Resources and Services, 2014*, U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics, NCJ 250151, Washington, DC, November 2016.

[39] Ibid., Table 6. A request for analysis was considered to be backlogged if it was not examined and reported to the submitting agency within 30 days.

[40] The difference between two estimated figures is considered to be statistically significant if the 95% confidence interval for the difference between the two figures does not contain zero. The confidence interval for the difference between two figures is equal to the difference plus and minus the pooled standard error (SE) multiplied by 1.96 (i.e., difference ± 1.96 * SE). BJS provides standard errors for the estimated figures in their report in the report's appendix.

[41] Ibid., Table 4.

[42] Ibid.

[43] Ibid., Table 6.

[44] Ibid., Table 4.

[45] Ibid.

offenders. The following section summarizes current federal law as it pertains to DNA used in a criminal justice capacity.

Quality Assurance and Proficiency Testing Standards

Under current law,[46] the FBI is required to issue (and revise from time to time) Quality Assurance Standards (QAS), including standards for testing the proficiency of forensic laboratories and forensic analysts in conducting DNA analyses.[47] By law, the QAS must specify the criteria for quality assurance and proficiency tests to be applied to the various types of DNA analyses conducted by forensic laboratories.[48] The Rapid DNA Act of 2017 (Rapid DNA Act, P.L. 115-50) also requires the FBI to issue standards and procedures for the use of rapid DNA instruments and the resulting analyses.[49] The QAS must include a system for grading proficiency testing performance to determine whether a laboratory is performing acceptably.[50] Under current law, FBI personnel who perform DNA analyses must undergo semiannual external proficiency testing by a DNA proficiency testing program that meets the standards set in the QAS.[51]

According to the FBI, the QAS describe the minimum standards for a laboratory's quality assurance program if it is performing forensic DNA analysis and/or databasing.[52] The minimum standards cover the following areas: organization, personnel, facilities, evidence or sample control, validation, analytical procedures, equipment calibration and maintenance, reports, review, proficiency testing, corrective action, audits, safety, and outsourcing.[53]

Index to Facilitate Law Enforcement Exchange of DNA Identification Information

The Violent Crime Control and Law Enforcement Act of 1994 (P.L. 103-322) authorized the FBI to establish an index of DNA profiles (i.e., NDIS). Under current law,[54] the NDIS can contain the DNA profiles of samples

- taken from individuals convicted of or charged with a crime, or collected under applicable legal authorities (e.g., people arrested for crimes), except for DNA samples that are voluntarily submitted solely for elimination purposes;
- recovered from crime scenes;
- recovered from unidentified human remains; and
- voluntarily contributed from relatives of missing persons.[55]

[46] 34 U.S.C. §12591(a)(2).

[47] The most recent QAS took effect on September 1, 2011.

[48] 34 U.S.C. §12591(a)(3).

[49] Rapid DNA, or rapid DNA analysis, is a term used to describe the fully automated process of developing a DNA profile from a cheek swab without human intervention.

[50] Ibid.

[51] 34 U.S.C. §12593(a)(1)(A).

[52] CODIS FAQs.

[53] Ibid.

[54] 34 U.S.C. §12592(a).

[55] Under the Violent Crime Control and Law Enforcement Act of 1994 (P.L. 103-322), the NDIS was only to include analyses of DNA samples collected from (1) individuals convicted of crimes, (2) crime scenes, and (3) unidentified human remains. The Justice for All Act of 2004 (P.L. 108-405) amended the authorizing legislation for the NDIS to

The NDIS can only include DNA profiles

- based on analyses performed by or on behalf of a criminal justice agency or the Department of Defense (DOD) in accordance with available standards that satisfy or exceed the FBI's published QAS;
- that are prepared by laboratories that (1) have been accredited by a nonprofit professional organization of persons actively involved in forensic science and nationally recognized within the forensic science community, and (2) undergo external audits, not less than once every other year, that demonstrate compliance with the FBI's QAS;[56]
- that are prepared by criminal justice agencies using rapid DNA instruments approved by the FBI in compliance with the standards and procedures the FBI is required to publish per the Rapid DNA Act; and
- that are maintained by federal, state, and local criminal justice agencies or the DOD pursuant to rules that allow the disclosure of profiles only to other criminal justice agencies for identification purposes, judicial proceedings, criminal defense purposes, and, if personally identifiable information is removed, for research and quality control purposes.[57]

Under current law, the FBI is required to expunge the DNA profile of an individual who had a DNA profile entered into the NDIS on the basis of being convicted for a qualifying federal offense (see below) if the individual provides a certified copy of a final court order showing that the conviction was overturned.[58] Also, the FBI is required to expunge the DNA profile of an individual who had a DNA profile entered into the NDIS on the basis of being arrested under the authority of the United States if the individual provides a certified copy of a final court order that establishes that the charge was dismissed or resulted in an acquittal, or that no charge was filed within the applicable time period.[59] As a condition of having access to the NDIS, states must also have in place a procedure whereby the state will expunge a profile from the state's database based on the same conditions applicable to a profile being expunged from the NDIS.[60] Also, under current law the Department of Defense is required to expunge the DNA profile of an individual who had a DNA profile entered into the NDIS on the basis of being convicted of a qualifying military offense (see below) if the individual provides a certified copy of a final court order showing that the conviction was overturned.[61]

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allow analyses of DNA samples collected from persons who have been charged in an indictment or information with a crime and other persons whose DNA samples are collected under applicable legal authorities to be included in the NDIS, provided that profiles from arrestees who have not been charged with a crime and samples that are voluntarily submitted solely for elimination purposes are not included in the NDIS. The Violence Against Women and Department of Justice Reauthorization Act of 2005 (P.L. 109-162) amended the authorizing legislation for the NDIS to allow analyses of samples collected from arrestees to be included in the NDIS.

[56] According to the FBI, American Association for Laboratory Accreditation (A2LA), and ANSI-ASQ National Accreditation Board (ANAB: The American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) and Forensic Quality Services (FQS), approved separately as accrediting agencies are now part of ANAB) are recognized as accrediting agencies. See CODIS FAQs.

[57] 34 U.S.C. §12592(b).

[58] 34 U.S.C. §12592(d)(1)(A)(i).

[59] 34 U.S.C. §12592(d)(1)(A)(ii).

[60] 34 U.S.C. §12592(d)(2)(A)(i).

[61] 10 U.S.C. §1565(e).

Collection of DNA Samples from Certain Federal, District of Columbia, and Military Offenders

Under current law,[62] the Attorney General is permitted to collect DNA samples from "individuals who are arrested, facing charges, or convicted of a crime or from non-United States citizens who are detained under the authority of the United States."[63] In addition, the Bureau of Prisons (BOP) is required to collect a DNA sample from each federal prisoner who is, or has been, convicted of a felony, a sexual abuse crime under chapter 109A of title 18 of the U.S. Code, a crime of violence,[64] or any attempt or conspiracy to commit any of these crimes.[65] Federal probation offices responsible for supervising individuals on probation, parole, or supervised release are required to collect DNA samples from individuals who are, or have been, convicted of any of the crimes outlined above.[66] Collected samples are required to be submitted to the FBI for analysis and their resulting DNA profiles are included in the NDIS.[67] The Rapid DNA Act allows the FBI to waive the requirement that DNA samples be submitted to the FBI for analysis if the analysis is conducted with a rapid DNA instrument and the results are included in the NDIS.

Current law contains similar provisions regarding the collection of DNA samples from District of Columbia offenders. BOP is required to collect a DNA sample from each prisoner who is, or has been, convicted of a qualifying District of Columbia offense.[68] In addition, the Court Services and Offender Supervision Agency for the District of Columbia is required to collect DNA samples from individuals on probation, parole, or supervised release, who are, or have been, convicted of any qualifying District of Columbia offense.[69] The government of the District of Columbia may determine which offenses under the District of Columbia Code are considered qualifying offenses for the purposes of supplying a DNA sample.[70] Collected samples must be submitted to the FBI for analysis and their resulting DNA profiles are included in the NDIS.[71] The Rapid DNA Act also

[62] 34 U.S.C. §40702(a)(1)(A).

[63] The DNA Analysis Backlog Elimination Act of 2000 (P.L. 106-546) required BOP and U.S. probation offices to collect DNA samples from anyone in their custody who was convicted of qualifying federal offenses. The act defined a "qualifying federal offense" as murder, voluntary manslaughter, or other offenses relating to homicide; an offense relating to sexual abuse, sexual exploitation or other abuse of children, or transportation for illegal sexual activity; an offense relating to peonage or slavery; kidnapping; an offense relating to robbery or burglary; any offense committed in Indian country relating to murder, manslaughter, kidnapping, maiming, a felony sexual abuse offense, incest, arson, robbery, or burglary; or any attempt or conspiracy to commit any of these crimes. The Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism (USA PATRIOT) Act of 2001 (P.L. 107-56) expanded the definition of "qualifying federal offense" to include crimes of terrorism, crimes of violence, or any attempt or conspiracy to commit either crime. The Justice for All Act of 2004 (P.L. 108-405) amended the definition of "qualifying federal offense" to include any felony, sexual abuse offense, crime of violence, or attempt or conspiracy to commit any of these crimes. The Violence Against Women and Department of Justice Reauthorization Act of 2005 (P.L. 109-162) authorized DOJ to collect DNA samples from arrestees and non-citizens who are detained under the authority of the United States. The Adam Walsh Child Protection and Safety Act of 2006 (P.L. 109-248) authorized DOJ to also collect DNA samples from individuals facing charges in addition to those who have been arrested or convicted.

[64] As defined at 18 U.S.C. §16.

[65] 34 U.S.C. §40702(a)(1)(B).

[66] 34 U.S.C. §40702(a)(2).

[67] 34 U.S.C. §40702(b).

[68] 34 U.S.C. §40703(a)(1).

[69] 34 U.S.C. §40703(a)(2).

[70] 34 U.S.C. §40703(d).

[71] 34 U.S.C. §40703(b). The following are considered qualifying offenses under the D.C. Code: (1) any felony; (2) any offense for which the penalty is greater than one year imprisonment; (3) lewd, indecent, or obscene acts knowingly

allows the FBI to waive the requirement that DNA samples be submitted to the FBI for analysis if the analysis is conducted with a rapid DNA instrument and the results are included in the NDIS for District of Columbia offenders.

Under current law,[72] the DOD is required to collect DNA samples from each member of the Armed Forces who is, or has been, convicted of an offense under the Uniform Code of Military Justice for which a sentence of confinement of more than one year can be imposed, or of any other offense under the Uniform Code of Military Justice that is comparable to the offenses for which a DNA sample can be collected from a federal offender (see above).[73] DOD is required to conduct an analysis of the collected sample and submit the results to the FBI for inclusion in the NDIS.[74]

Postconviction DNA Testing

The Justice for All Act of 2004 (P.L. 108-405, as amended) established procedures for postconviction DNA testing in federal courts. Under current law,[75] upon a written motion from an individual sentenced for a federal offense (hereinafter, "applicant"), the court must order DNA testing of evidence if all of the following apply:

- The applicant asserts, under penalty of perjury, that the applicant is actually innocent of the federal crime for which the applicant was sentenced, or another federal or state offense, if (1) "the evidence was entered during a federal death sentence hearing and exoneration for the offense would entitle the applicant to a reduced sentence or a new sentencing hearing"; or (2) "in the case of a [s]tate offense, the applicant demonstrates that there is no adequate remedy under [s]tate law to permit DNA testing of the … evidence … and, to the extent available, the applicant has exhausted all remedies available under [s]tate law for requesting DNA testing of … evidence."
- The specified evidence to be tested was secured in relation to the investigation or prosecution of the federal or state crime for which the applicant claims to be innocent.
- The evidence to be tested (1) "was not previously subjected to DNA testing and the applicant did not knowingly fail to request DNA testing of that evidence in a prior motion for postconviction DNA testing"; or (2) "was previously subjected to DNA testing and the applicant requests DNA testing using a new method or technology that is substantially more probative that prior testing."
- The evidence to be tested "is in the possession of the [g]overnment and has been subject to a chain of custody and retained under conditions sufficient to ensure

committed in the presence of a child under 16 years of age (D.C. Code §22-1312(b)); (4) certain obscene activities involving minors (D.C. Code §22-2201); (5) sexual performances using a minor (D.C. Code §22-3102); (6) misdemeanor sexual abuse (D.C. Code §22-3006); (7) misdemeanor sexual abuse of child or a minor (D.C. Code §22-3010.01); or (8) any attempt or conspiracy to commit any of these crimes. D.C. Code §22-4151.

[72] 10 U.S.C. §1565(a)(1).

[73] The requirement to collect DNA samples for people convicted of certain offenses under the Uniform Code of Military Justice is separate from the DNA samples the Department of Defense collects to aid in the identification of human remains.

[74] 10 U.S.C. §1565(b).

[75] 18 U.S.C. §3600(a).

that such evidence has not been substituted, contaminated, tampered with, replaced, or altered in any respect" that would affect the DNA testing.

- The proposed DNA testing is "reasonable in scope, uses scientifically sound methods, and is consistent with accepted forensic practices."
- The applicant "identifies a theory of defense that is not inconsistent with an affirmative defense presented at trial and would establish the actual innocence of the applicant."
- If the applicant was "convicted following a trial, the identity of the perpetrator was at issue in the trial."
- The proposed DNA testing may produce new material evidence that would support the affirmative defense theory presented at trial and raise a reasonable probability that the applicant did not commit the crime.
- The applicant certifies that he or she will provide a DNA sample for comparison purposes.
- The motion is made in a timely fashion.[76]

If the court orders DNA testing, the testing is carried out by the FBI.[77] However, the court can order DNA testing to be conducted by another "qualified laboratory if the court makes all necessary orders to ensure the integrity of the … evidence and the reliability of the testing process and results."[78] The cost of any DNA testing is borne by the applicant, unless the applicant is indigent; in that case, the cost of the DNA testing is borne by the government.[79]

The results of any DNA test must be simultaneously provided to the court, applicant, and U.S. Attorney's office.[80] If the DNA test excludes the applicant as the source of the biological evidence, the DNA profile is required to be run through CODIS, assuming that the analysis was conducted in a manner consistent with the FBI's QAS, to see if the probative sample matches any profiles in the NDIS. The results of this search are to be simultaneously provided to the court, applicant, and U.S. Attorneys office. If the test results ordered by the court are "inconclusive or show that the applicant was the source of the tested evidence, the applicant's DNA profile may be retained in the NDIS."[81] Moreover, if the test results show that the applicant was not the source of the tested evidence, and a comparison of the applicant's DNA profile with other forensic profiles in the NDIS results in a match, DOJ is to contact the appropriate agency and preserve the

[76] There is a rebuttable presumption of timeliness if the motion is made within 60 months of the enactment of the Justice for All Act of 2004 (October 30, 2004) or within 36 months of conviction, whichever comes later. The presumption of timeliness may be rebutted upon a showing that the applicant's motion for DNA testing is based solely upon information used in a previously denied motion or of clear and convincing evidence that the applicant's filing is done solely to cause delay or harass. For any motion that is not made within 60 months of the enactment of the Justice for All Act of 2004 or within 36 months of conviction, there is a rebuttable presumption against timeliness. The presumption against timeliness can be rebutted upon the court's finding (1) that the applicant was or is incompetent and such incompetence substantially contributed to the delay in the applicant's motion for a DNA test; (2) the evidence to be tested is newly discovered DNA evidence; (3) that the applicant's motion is not based solely upon the applicant's own assertion of innocence and, after considering all relevant facts and circumstances surrounding the motion, a denial would result in a manifest injustice; or (4) upon good cause shown. 18 U.S.C. §3600(a)(10)(B).

[77] 18 U.S.C. §3600(c)(1).

[78] 18 U.S.C. §3600(c)(2).

[79] 18 U.S.C. §3600(c)(3).

[80] 18 U.S.C. §3600(e)(1).

[81] 18 U.S.C. §3600(e)(3)(A).

applicant's DNA sample.[82] However, if the test results exclude the applicant as the source of the tested evidence, and a comparison between the applicant's DNA profile and forensic profiles in the NDIS does not result in a match, DOJ must destroy the applicant's DNA sample and ensure that the applicant's DNA profile is not stored in the NDIS if there is no other legal authority to retain the profile in the NDIS.[83]

If the results of the DNA test are inconclusive, the court can order further testing, if appropriate, or it can deny the applicant relief.[84] If the results of the DNA test demonstrate that the applicant was the source of the evidence tested, the applicant is denied relief, and on a motion of the government, the court can determine whether the applicant's claim of actual innocence was false. If the court finds the claim was false, it can

- hold the applicant in contempt of court;
- assess against the applicant any cost of DNA testing;
- forward the findings to BOP, who may wholly, or in part, deny the applicant's good conduct time;[85]
- if the applicant is eligible for parole, forward the finding to the U.S. Parole Commission so the commission can deny parole on the basis of the finding; or
- if the test results relate to a state offense, forward the findings to the appropriate state official.[86]

Under current law, if the applicant is convicted of making false assertions relating to postconviction DNA testing, the applicant is to be sentenced to no less than three years' imprisonment, to run consecutively with any other term of imprisonment the applicant is serving.[87]

If the results of the DNA testing demonstrate that the applicant was not the source of the tested evidence presented as a part of the case against the applicant, the applicant can file a motion for a new trial or resentencing, as appropriate, notwithstanding any law that would bar the motion as untimely.[88] Under current law, a court shall grant a motion for a new trial or resentencing, as appropriate, if DNA test results, when considered with all other evidence in the case (regardless of whether such evidence was introduced at trial), establish by compelling evidence that a new trial would result in an acquittal of

- in the case of a motion for a new trial, the federal offense for which the applicant is sentenced to imprisonment or death; and
- in the case of a motion for resentencing, another federal or state offense, if evidence of such offense was admitted during a federal sentencing hearing and

[82] 18 U.S.C. §3600(e)(3)(B).

[83] 18 U.S.C. §3600(e)(3)(C).

[84] 18 U.S.C. §3600(f)(1).

[85] Each prisoner serving a term of imprisonment of more than one year, but not prisoners serving a life sentence, can receive a good time credit of up to 54 days per year to count toward serving the sentence. The amount of the credit is subject to the determination of BOP. 18 U.S.C. §3624(b).

[86] 18 U.S.C. §3600(f)(2).

[87] 18 U.S.C. §3600(f)(3).

[88] 18 U.S.C. §3600(g)(1).

exoneration for the offense would entitle the applicant to a reduced sentence or a new sentencing hearing.[89]

Preservation of Biological Evidence

The Justice for All Act of 2004 (P.L. 108-405, as amended), among other things, established standards for preserving biological evidence. Under current law,[90] the federal government is required to preserve biological evidence[91] that was secured in the investigation or prosecution of a federal offense, if a defendant was imprisoned for the offense, unless[92]

- "after a conviction becomes final and the defendant has exhausted all opportunities for direct review of the conviction, the defendant is notified that the evidence may be destroyed and the defendant does not file a motion [for post-conviction DNA testing] within 180 days of receipt of notice";
- "the evidence must be returned to its rightful owner, or it is of such size, bulk, or physical character as to render retention impracticable and the [g]overnment takes reasonable measures to remove and preserve portions of the evidence sufficient to permit future DNA testing"; or
- the evidence has been the subject of postconviction DNA testing (see above) and the results of the testing demonstrate that the defendant was the source of the evidence.

Grants for DNA-Related Programs

Several grant programs provide assistance to state and local governments for forensic sciences. A bulk of the programs focus on providing state and local governments with funding to reduce the backlog of forensic and convicted offender samples waiting to be processed and entered into the NDIS. However, some grant programs provide funding for other purposes, such as offsetting the cost of providing postconviction DNA testing. This section of the report provides a brief overview of grants for forensic sciences.

Debbie Smith DNA Backlog Grant Program

The Debbie Smith DNA Backlog Grant Program (hereinafter, "Debbie Smith grants") provides grants to state and local governments for five major purposes: (1) conducting analyses of DNA samples collected under applicable legal authority for inclusion in the NDIS, (2) conducting analyses of forensic DNA samples for inclusion in the NDIS, (3) increasing the capacity of state and local laboratories to carry out DNA analyses, (4) collecting DNA samples from people required to submit them and forensic samples from crimes, and (5) ensuring that analyses of forensic DNA samples are carried out in a timely manner. The Katie Sepich Enhanced DNA Collection Act of 2012 (P.L. 112-253) amended the Debbie Smith program to set aside up to $10 million of the amount appropriated for Debbie Smith grants for FY2013-FY2015 to assist states with the costs associated with collecting DNA samples from arrestees (assuming there is statutory authority in the state to collect DNA sample from people arrested for certain offenses). The

[89] 18 U.S.C. §3600(g)(2).

[90] 18 U.S.C. §3600A(a).

[91] "Biological evidence" is defined as a sexual assault forensic examination kit, or semen, blood, saliva, hair, skin tissue, or other identified biological material. 18 U.S.C. §3600A(b).

[92] 18 U.S.C. §3600A(c).

Sexual Assault Forensic Evidence Reporting Act of 2013 (the SAFER Act of 2013, Title X of P.L. 113-4) added two new purposes for which Debbie Smith grants can be used: to conduct an audit of sexual assault evidence samples in the possession of a state or unit of local government that are awaiting testing and to ensure that the collection and processing of DNA evidence by law enforcement is carried out in a timely manner and in accordance with the protocols and practices the FBI is required to develop under the act.

The Attorney General is required to award these funds using a formula. The formula distributes funds among state and local governments to maximize the effective utilization of DNA technology to solve crimes and protect public safety. The formula must also allocate funding among state and local governments to reduce backlogs by considering the number of offender and forensic samples awaiting DNA analysis in the jurisdiction along with the population and number of violent crimes in the jurisdiction. Current law requires DOJ to award not less than 0.5% of the total amount appropriated each fiscal year to each state and the District of Columbia. The territories are to receive 0.125% of the total appropriation.

Agencies receiving a grant under the program are required to certify that DNA analyses are conducted in laboratories that satisfy the FBI's QAS and are operated either by a state or local government or by a private laboratory under contract with the state or local government. Grants for conducting analyses of DNA samples collected under applicable legal authority for inclusion in the NDIS, conducting analyses of forensic casework for inclusion in the NDIS, and ensuring that analyses of forensic DNA samples are carried out in a timely manner can be made in the form of a contract or voucher for laboratory services that can be redeemed by nonprofit or for-profit laboratories that satisfy the QAS and have been approved by the Attorney General.

State and local governments receiving funding under the program are required to submit a report to DOJ with a summary of the activities carried out under the grant and an assessment of whether such activities are meeting the needs identified in the grant application, as well as other information the Attorney General may require. DOJ may award not more than 1% of grant funding each fiscal year to states, units of local government, and nonprofit professional organizations of persons actively involved in forensic science and nationally recognized within the forensic science community to help offset the cost of accrediting and auditing laboratories.

The SAFER Act of 2013 established a series of conditions for states or units of local government receiving a grant under the Debbie Smith program for the purposes of conducting an audit of sexual assault evidence. The act, among other things, requires states and local governments receiving grants for this purpose to (1) submit a plan for performing an audit of samples, (2) provide an estimate of the number of samples, (3) complete the audit within one year of receiving the grant, and (4) submit a report to DOJ every 60 days for at least one year after the audit is completed that provides data on the number of samples in the state's or unit of local government's possession along with data on new sexual assault evidence the state or local government receives and how those samples are being processed.

The SAFER Act of 2013 also requires the FBI, in consultation with federal, state, and local law enforcement agencies, to develop protocols and practices for the accurate, timely, and effective collection and processing of DNA evidence, including protocols and practices specific to sexual assault cases. The protocols and practices are required to address (1) what evidence should be collected by law enforcement and forwarded for testing and the order in which that evidence should be tested, (2) a reasonable period of time for evidence to be forwarded to a laboratory for testing, (3) a reasonable period of time in which each stage of laboratory testing should be conducted, (4) a system to encourage communication between actors in the criminal justice system (e.g., law enforcement, courts, and laboratory personnel and crime victims) about the

status of evidence testing, and (5) standards for audits of sexual assault evidence in the possession of state and local governments.

Debbie Smith grants were originally authorized under the Justice for All Act of 2004 (P.L. 108-405). This law amended the DNA Backlog Elimination Act of 2000,[93] authorizing appropriations of $151 million for each of FY2004-FY2009. The program was reauthorized under the Debbie Smith Reauthorization Act of 2008 (P.L. 110-360), which includes authorized appropriations of $151 million for FY2009-FY2014. The Debbie Smith Reauthorization Act of 2014 (P.L. 113-182) extended the $151 million per fiscal year authorization until FY2019.

Kirk Bloodsworth Post-Conviction DNA Testing Grant Program

The Kirk Bloodsworth DNA Post-Conviction DNA Testing Grant program was authorized by the Justice for All Act of 2004 (P.L. 108-405). The act authorized the Attorney General to make grants to states to help defray the costs of postconviction DNA testing programs. The act authorized appropriations of $5 million for FY2005-FY2009. The Justice for All Reauthorization Act of 2016 (P.L. 114-324) reauthorized appropriations for this program at $5 million per year for FY2017-FY2021.

Sexual Assault Forensic Exam Program Grants

The Sexual Assault Forensic Exam Program Grants were authorized under the Justice for All Act of 2004 (P.L. 108-405). The program provides grants for training, technical assistance, education, equipment, and information relating to the identification, collection, preservation, analysis, and use of DNA samples and evidence by medical personnel and those treating victims of sexual assault. Under the program, entities eligible to receive grants include states, units of local government, and sexual assault examination programs. The act authorized appropriations of $30 million for each of FY2005-FY2009. P.L. 110-360 extended the same authorized amount through FY2014. The Debbie Smith Reauthorization Act of 2014 (P.L. 113-182) extended the $30 million per fiscal year authorization until FY2019.

DNA Research and Development Grants

The Justice for All Act of 2004 authorized grants for research and development for improving forensic DNA technology, including increasing the accuracy and efficiency of DNA analysis, decreasing the time and expense of conducting DNA analysis, and increasing its portability. In addition, the law authorized grants for demonstration projects to evaluate the use of DNA technology in conjunction with other forensic analyses. The act authorized funding of $15 million for each of FY2005-FY2009. The Justice for All Reauthorization Act of 2016 (P.L. 114-324) reauthorized appropriations for this program at $5 million per year for FY2017-FY2021.

DNA Training and Education for Law Enforcement, Correctional Personnel, and Court Officers

Under this program, the Attorney General is required to make grants to provide training, technical assistance, education, and information regarding the identification, collection, preservation, analysis, and use of DNA samples and evidence by law enforcement personnel, court officers,

[93] The DNA Backlog Elimination Act of 2000 (P.L. 106-546) authorized grants to increase the capacity of state and local government laboratories to conduct DNA analysis of biological samples from crime scenes.

forensic science professionals, and corrections personnel. The program was originally authorized under the Justice for All Act of 2004 (P.L. 108-405), which authorized $12.5 million for each of FY2005-FY2009. P.L. 110-360 extended the same authorized amount through FY2014. The Debbie Smith Reauthorization Act of 2014 (P.L. 113-182) extended the $12.5 million per fiscal year authorization until FY2019.

Author Contact Information

(name redacted)
Analyst in Crime Policy
[redacted]@crs.loc.gov, 7-....