

DNA FINGERPRINTING, GENETIC INFORMATION, AND PRIVACY INTERESTS

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I. INTRODUCTION

Deoxyribonucleic acid (DNA) is a nucleic acid molecule found in all living organisms that contains the genetic code for the development and functioning of those organisms.¹ In the early 1980s, geneticist Alec Jeffreys of Leicester University in England discovered that DNA could be used to isolate a “genetic marker” unique to each individual.² This marker can be found in hair, blood, saliva, and other parts of the body.³ Each person has unique DNA, though family relations can be detected.⁴ Not all testing procedures evaluate all aspects of the DNA.⁵

DNA evidence can be important in establishing paternity, determining familial relations for inheritance purposes, and identifying criminal suspects.⁶ Many people, including this Author, have taken a DNA test to study their ancestry.⁷ The first reported use of DNA evidence by an American court came in 1988, and DNA evidence received widespread public attention in the

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1. JOHN M. BUTLER, FUNDAMENTALS OF FORENSIC DNA TYPING 19 (2010).

2. *Id.* at 341; Ronald J. Rychlak, *Genetic Information and Privacy Interests: The DNA Fingerprinting Act*, 8 ENGAGE: J. FEDERALIST SOC’Y PRAC. GROUPS. 64, 64 (2007).

3. Rychlak, *supra* note 2.

4. BUTLER, *supra* note 1, at 9.

5. Rychlak, *supra* note 2.

6. *Id.* The infamous BTK Killer was identified through his daughter’s DNA. Ari Shapiro, *Police Use DNA to Track Suspects Through Family*, NPR (Dec. 12, 2007, 12:27 AM), <http://www.npr.org/templates/story/story.php?storyId=17130501>.

7. *See, e.g., ancestryDNA*, ANCESTRY.COM, <http://www.dna.ancestry.com> (last visited Oct. 12, 2015).

1995 O.J. Simpson criminal trial, in which the jury rejected the prosecution's DNA evidence.⁸

In criminal cases, DNA evidence serves primarily to confirm the presence of suspects at crime scenes by matching their DNA to evidence found at the scene.⁹ Of course, this requires identifying a suspect and taking a DNA sample for comparison to the crime scene evidence.¹⁰ To the extent that it is possible to create a catalog of DNA samples taken from potential suspects for comparison against a sample found at a crime scene, the value of DNA evidence increases significantly.¹¹

For several years, the federal government and most American states have had legislation regarding the collection of DNA, usually from convicted felons.¹² These laws vary significantly from one state to another, but all states share their DNA information with a national database, the FBI Laboratory's Combined DNA Index System (CODIS).¹³

CODIS began as a pilot project in 1990, serving fourteen state and local laboratories.¹⁴ Over time, and with strong backing from most police departments, many states joined in the pool.¹⁵ In 2000, with the enactment of the DNA Analysis Backlog Elimination Act, authorities could compel individuals convicted of murder, manslaughter, sexual abuse, child abuse,

8. *Andrews v. State*, 533 So. 2d 841, 849–50 (Fla. Dist. Ct. App. 1988), *abrogation recognized by Hadden v. State*, 690 So. 2d 573 (Fla. 1997). By 1994, a federal appellate court found that it was appropriate to take judicial notice of DNA testing. *United States v. Martinez*, 3 F.3d 1191, 1199 (8th Cir. 1993), *cert. denied*, 510 U.S. 1062 (1994); Rychlak, *supra* note 2.

9. Rychlak, *supra* note 2.

10. *See id.*

11. *Id.*

12. *See, e.g.*, 42 U.S.C.A. § 14135a (West 2013) (regulating collection and use of DNA identification information from certain federal offenders); CAL. PENAL CODE § 296 (West 2004), *held unconstitutional by People v. Byza*, 129 Cal. Rptr. 3d 753 (2011), *amended by A.B. 1492*, Reg. Sess. (Cal. 2015); LA. STAT. ANN. § 15:609 (2012); NEB. REV. STAT. § 29-4105 (2006); N.J. STAT. ANN. § 53:1-20.20 (West 2013); TEX. GOV'T CODE ANN. § 411.1471 (West 2015); VA. CODE ANN. § 19.2-310.2:1 (West 2006). The military collects DNA evidence on all personnel. *The Collection of DNA from Military Personnel*, COUNCIL FOR RESPONSIBLE GENETICS, http://www.councilforresponisblegenetics.org/geneticprivacy/DNA_mil.html (last visited Oct. 2, 2015). Originally this was solely for the purpose of identifying remains. *Id.* The National Defense Authorization Act, however, signed by President Bush on December 2, 2002, overrode that policy and permitted access to the Repository for law enforcement purposes. *See id.*

13. Rychlak, *supra* note 2. Perhaps the most expansive DNA sampling came from England, where authorities undertook the world's most aggressive DNA gathering effort. *Id.* Not only did English authorities take DNA samples from arrestees, but in 2001 they began retaining those samples even when the arrest resulted in an acquittal. *Id.* Moreover, in 2004 British police were given the authority to collect DNA from mere suspects. *Id.* Because of these policies, England acquired and maintained over four million DNA samples, representing about six percent of the population. *Id.* The British database matched hundreds of thousands of suspects to crimes. *See id.* In 2008, however, the European Court of Human Rights in Strasbourg ruled that keeping innocent people's DNA records on a criminal register breached Article Eight of the Human Rights Convention, covering the right to respect private and family life. Sarah Lyall, *European Court Rules Against Britain's Policy of Keeping DNA Database of Suspects*, N.Y. TIMES (Dec. 4, 2008), www.nytimes.com/2008/12/05/world/europe/05britain.html?_r=0.

14. Rychlak, *supra* note 2.

15. *Id.*

kidnapping, robbery, burglary, or any attempt or conspiracy to commit these crimes, to submit a DNA sample.¹⁶ Federal, state, and local law enforcement could also input DNA samples to CODIS and compare them to samples collected elsewhere.¹⁷

The match of crime scene DNA to an individual by comparison through a database is known as a “cold hit.”¹⁸ For a DNA database to be effective in identifying a significant number of perpetrators, it has to contain many samples.¹⁹ Senator Jon Kyl took this up as a cause and began promoting the DNA Fingerprinting Act. The Senator once gave the following example:

In early 1993, [Andre] Crawford was arrested for felony theft. [Under the DNA Fingerprint Act], DNA could have been taken from him at that time and kept in [the national DNA database]. Because it was not, when Crawford murdered a 37-year-old woman [in September 1993], although he left DNA at the scene, he could not be identified as the perpetrator.

Over the next six years, Crawford went on to commit one rape and to murder 10 more women [between the ages of 24 and 44]. If [Crawford’s] DNA sample had been taken and kept in NDIS after his March 1993 arrest, he could have been identified and arrested after [the September 1993] murder one rape would have been prevented, and those [10] women would still be alive.²⁰

It is clear that DNA testing is a valuable part of criminal investigations, and as authorities add more samples to the database, the value of DNA testing continues to increase.²¹

The question that arises is whether taking DNA evidence, using DNA evidence, or both, is too significant of an invasion of privacy.²² Various aspects of the process exist that must be considered: the collection of DNA,

16. *Id.*; DNA Analysis Backlog Elimination Act of 2000, Pub. L. No. 106-546, § 3, 114 Stat. 2726, 2728 (2000) (codified as amended at 42 U.S.C. § 14135a (2013)).

17. Rychlak, *supra* note 2. When a DNA sample is taken from an arrestee, authorities can extract a DNA profile from the sample and place it in a state database. *Privacy Impact Assessment National DNA Index System (DNS)*, FED. BUREAU INVESTIGATION (Feb. 24, 2004), <http://www.fbi.gov/foia/privacy-impact-assessments/dns>. Authorities then upload the profile into the Convicted Offender and Arrestee Index of the CODIS system. *Id.* Authorities can then compare the sample with samples in the Forensic Index, which holds samples from unsolved crimes. *Id.* The purpose of the CODIS system is to help solve unsolved crimes. *Id.* (“The information in NDIS is used to match DNA profiles with crime scenes and human remains (missing persons).”).

18. BUTLER, *supra* note 1, at 272; Rychlak, *supra* note 2.

19. Rychlak, *supra* note 2.

20. Jon Kyl, *DNA Fingerprints Can Help Catch More Criminals, Earlier*, VOTE SMART (Sept. 19, 2005), <http://votesmart.org/public-statement/137778/dna-fingerprints-can-help-catch-more-criminals-earlier#.VeOVELTZe-Q>.

21. Rychlak, *supra* note 2. In his 2015 encyclical, *Laudato Si'*, Pope Francis said that “knowledge of our DNA, [and other matters], have given us tremendous power.” Pope Francis, *Laudato Si'* para. 104 (2015); see generally *Love v. Young*, 781 F.2d 1307 (7th Cir. 1986) (representing an example of a case in which DNA evidence would have resolved lingering questions).

22. See *infra* Parts III–IV.

the use of DNA to prove that the arrestee committed the crime leading to the arrest, and the use of DNA to try to solve older cases with a cold hit.²³ There are also questions about who authorities should subject to the process: everyone, those arrested for felonies, those convicted of any felony, or only those convicted of particularly dangerous felonies.²⁴ If a sample is taken from an arrestee who is subsequently acquitted, should authorities retain or destroy the sample (automatically or by petition)?²⁵ If the DNA is maintained, how much information should be accessible?²⁶

The Fourth Amendment to the U.S. Constitution protects against unreasonable searches and seizures, and the involuntary extraction of DNA raises concerns about such issues.²⁷ DNA can reveal genetic predispositions and health issues.²⁸ It can reveal this type of information not only about individuals but also about their families.²⁹ As such, a major objection to DNA collection is the threat that it poses to the personal privacy of individuals and the Fourth Amendment bar against unreasonable searches and seizures.³⁰

In *Maryland v. King*, the U.S. Supreme Court held that Maryland's DNA collection statute was not unconstitutional.³¹ Different states, however, have different procedures, and some might present difficult privacy issues.³² Moreover, the citizens in different states may want the law to protect their

23. See *infra* Parts III–IV.

24. See *Haskell v. Harris*, 745 F.3d 1269, 1275 (9th Cir. 2014) (en banc) (rejecting unanimously a challenge to California's Proposition 69, which allows the collection of DNA from all arrested persons charged with felonies).

25. See *infra* notes 54–55 and accompanying text.

26. See BUTLER, *supra* note 1, at 25. Different parts of a DNA strand contain different information. See *id.* Thus, it is possible to keep only the part of the strand that reveals identity, not particular characteristics (also called junk DNA). See *id.*

27. See Brian Clark Stuart, Comment, *Dethroning King: Why the Warrantless DNA Testing of Arrestees Should Be Prohibited Under State Constitutions*, 83 MISS. L.J. 1111, 1132 (2014).

28. See Richard Willing, *DNA 'Near Matches' Spur Privacy Fight*, USA TODAY (Aug. 3, 2007, 11:44 PM), http://usatoday.com/news/nation/2007-08-02-dna_N.htm.

29. See *id.*

30. Stuart, *supra* note 27, at 1133.

31. *Maryland v. King*, 133 S. Ct. 1958, 1980 (2013). As explained by the Court, the Maryland DNA statute

authorizes Maryland law enforcement authorities to collect DNA samples from “an individual who is charged with . . . a crime of violence or an attempt to commit a crime of violence; or . . . burglary or an attempt to commit burglary.” Maryland law defines a crime of violence to include murder, rape, first-degree assault, kidnaping, arson, sexual assault, and a variety of other serious crimes. Once taken, a DNA sample may not be processed or placed in a database before the individual is arraigned (unless the individual consents). It is at this point that a judicial officer ensures that there is probable cause to detain the arrestee on a qualifying serious offense. If “all qualifying criminal charges are determined to be unsupported by probable cause . . . the DNA sample shall be immediately destroyed.” DNA samples are also destroyed if “a criminal action begun against the individual . . . does not result in a conviction,” “the conviction is finally reversed or vacated and no new trial is permitted,” or “the individual is granted an unconditional pardon.”

Id. at 1967 (citations omitted).

32. See Stuart, *supra* note 27, at 1144.

privacy more or less than the citizens of Maryland, and state law can come into play.³³

How should the states weigh these matters? How does the U.S. Constitution come into play? What about state constitutions? What should an informed voter think? These are the issues that this Article seeks to explore.

II. MARYLAND V. KING

Maryland v. King, a case in which the U.S. Supreme Court ruled (5–4) that Maryland’s DNA Collection Act did not violate the Fourth Amendment, addressed the constitutionality of the CODIS program.³⁴ The DNA act at issue required law enforcement to take a DNA sample from every person arrested for a violent felony.³⁵ The collection process involved swiping the inside of the arrestee’s mouth with a cotton swab.³⁶ The law enforcement agency then ran the DNA sample through CODIS to determine whether the DNA sample matched any unsolved crimes.³⁷ The Court held that, while this constituted a search under the Fourth Amendment, the search was reasonable and that the Government’s interest outweighed the infringed-upon privacy right.³⁸

The Court compared the DNA testing to fingerprinting.³⁹ The majority found fingerprinting to be part of the normal booking procedure, and DNA testing was not meaningfully different.⁴⁰ In fact, DNA testing was superior to fingerprinting because, although one may be able to alter his or her fingerprints, one cannot hide or change his or her DNA.⁴¹ Counsel for King argued “that DNA identification is not as fast as fingerprinting”; however, the Court stated that the quick turnaround of fingerprint analyses had only recently become the norm.⁴² The analysis of DNA samples is in fact getting

33. *See id.*

34. *King*, 133 S. Ct. at 1980. Although the decision in *Maryland v. King* addressed a DNA law that only applied to violent felonies, the Court did not appear to restrict its holding to those crimes. *See id.* Indeed, Justice Scalia warned in his dissent that the majority opinion will apply to everyone arrested, even if they are arrested for traffic violations. *Id.* at 1989 (Scalia, J., dissenting).

35. *See id.* at 1965 (majority opinion).

36. *Id.* The Act passed the House of Representatives as stand-alone legislation. Rochelle L. Haller, Comment, *The Innocence Protection Act: Why Federal Measures Requiring Post-Conviction DNA Testing and Preservation of Evidence are Needed in Order to Reduce the Risk of Wrongful Executions*, 18 N.Y. L. SCH. J. HUM. RTS. 101, 103 (2001). It was incorporated into the Senate’s reauthorization of the Violence Against Women Act, and it passed in that form. Dorothy Roberts, *Collateral Consequences, Genetic Surveillance, and the New Biopolitics of Race*, 54 HOW. L.J. 567, 571 (2011). President George W. Bush signed it into law on January 5, 2006. *Id.*

37. *King*, 133 S. Ct. at 1968.

38. *Id.* at 1960.

39. *Id.* at 1976.

40. *Id.*

41. *Id.*

42. *Id.*

quicker, with some states processing DNA samples in twenty days.⁴³ Ultimately, the Court held that the Government had a legitimate interest in identification.⁴⁴

In a sharp dissent, Justice Scalia denounced the majority's identification justification.⁴⁵ He argued that the DNA sample was not used to identify the arrestee for the crime at hand, but rather to possibly identify a DNA sample in an unsolved crime.⁴⁶ This "identification" was, according to Justice Scalia, nothing more than normal police investigative work and, therefore, should require a warrant supported by probable cause.⁴⁷

III. FOURTH AMENDMENT ISSUES (DNA COLLECTION)

At least "twenty-nine states have enacted statutes that require DNA testing of arrestees."⁴⁸ "These statutes vary in what crimes trigger the DNA testing."⁴⁹ All of the statutes cover felonies, while some also cover misdemeanors.⁵⁰ The majority of the statutes require an arrestee to provide a DNA sample at booking, although some statutes require law enforcement agencies to wait to collect the sample until arraignment.⁵¹ Some of the statutes require a probable cause determination for the arrest prior to either obtaining the sample or analyzing it.⁵² The statutes set minimum quality standards for the DNA testing—usually equivalent to FBI standards—and limit who may collect the samples.⁵³ A few statutes provide for the immediate destruction of the samples if criminal charges are dropped.⁵⁴ The majority of statutes, however, require the innocent person to obtain a court order to remove the sample.⁵⁵ The DNA statutes generally make the profiles

43. *Id.* at 1988 (Scalia, J., dissenting).

44. *Id.* at 1977 (majority opinion).

45. *Id.* at 1980–89 (Scalia, J., dissenting).

46. *Id.* at 1985.

47. *Id.* at 1981–82.

48. Stuart, *supra* note 27, at 1116 (complete listing in appendix).

49. *Id.*

50. *See, e.g.*, ARIZ. REV. STAT. ANN. § 13-610(L) (2011 & Supp. 2013) (covering certain felonies and misdemeanors); N.M. STAT. ANN. § 29-3-10(A) (West 2015) (covering all felonies).

51. *See, e.g.*, COLO. REV. STAT. ANN. § 16-23-103(1)(a) (West 2015) (must submit DNA sample at booking); VT. STAT. ANN. tit. 20, § 1933(a)(2) (2011) (must submit DNA sample at arraignment), *held unconstitutional by State v. Medina*, 102 A.3d 661 (Vt. 2014).

52. *See, e.g.*, 730 ILL. COMP. STAT. ANN. 5/5-4-3(a-3.2) (West 2015) (cannot obtain DNA sample until a judge finds that there was probable cause for the arrest); N.M. STAT. ANN. § 29-3-10(B)(1–3) (stating that the police cannot analyze DNA sample unless the arrest was made upon an arrest warrant, a judge finds there was probable cause for the arrest, or the arrestee posted bond, was released from custody, and failed to appear for a scheduled hearing).

53. *See, e.g.*, CAL. PENAL CODE § 297 (West 2007) (providing minimum standards for laboratories).

54. *See, e.g.*, MO. ANN. STAT. § 650.055(10)–(11) (West 2012) (expunging both the DNA sample and record if the prosecutor drops the charges, there is no probable cause to support the arrest, or the court dismisses the charges or acquits the arrestee).

55. *See, e.g.*, N.D. CENT. CODE § 31-13-07(1) (West 2013) (requiring an arrestee to submit a certified court order before having a DNA sample and profile expunged).

available to all law enforcement agencies and also to all prosecutors in all states.⁵⁶

In most cases, the law enforcement agency obtains the DNA sample by scraping the inside of the subject's cheek with a buccal swab.⁵⁷ The law enforcement agency then sends the sample to a state laboratory where it creates a DNA profile using part of the DNA sample.⁵⁸ The laboratory creates the profile from thirteen CODIS loci.⁵⁹ The state then uploads this DNA profile to the CODIS system, and the DNA profile is placed in the Convicted Offender and Arrestee Index.⁶⁰ The Index does not contain names or other personal identifiers of the arrestees; it contains the DNA profile, an Agency Identifier to show who submitted the profile, and a Specimen Identification Number to identify the sample.⁶¹ When the law enforcement agency collects a DNA sample, it uploads the sample into the CODIS Forensic Index.⁶² From there, a state agency can compare the sample it placed in the Convicted Offender and Arrestee Index with all of the samples in the Forensic Index and vice versa.⁶³

The Federal DNA Act authorizes the collection of DNA from anyone convicted, charged, or arrested for a felony or crime of violence.⁶⁴ It also authorizes DNA collection from any non-U.S. citizen who is merely detained by a federal agency, and it provides for the DNA samples to be entered into the CODIS system.⁶⁵ The DNA fingerprints of those arrestees or detainees who end up being exonerated, having their charges dropped, or never getting charges filed against them may have their DNA fingerprint removed from the CODIS system provided that the FBI receives a certified final court order relating to each charge.⁶⁶ Then-Arizona Governor, and later United States Secretary of Homeland Security under President Barack Obama, Janet Napolitano said: "DNA i[n] many respects is the new fingerprinting and

56. See, e.g., LA. STAT. ANN. § 15:612 (2012) (giving criminal justice agencies and laboratories access to the results of the DNA profiles).

57. See BUTLER, *supra* note 1. The Supreme Court described the process as quick and painless. *Maryland v. King*, 133 S. Ct. 1958, 1968 (2013).

58. See, e.g., MD. CODE ANN., PUB. SAFETY § 2-502 (West 2015).

59. BUTLER, *supra* note 1, at 155.

60. *Frequently Asked Questions (FAQS) on the CODIS Program and the National DNA Index System*, FED. BUREAU INVESTIGATION, <http://www.fbi.gov/about-us/lab/biometric-analysis/codis/codis-and-ndis-fact-sheet> (last visited Oct. 3, 2015).

61. *Id.*

62. *Id.*

63. *Id.*

64. 42 U.S.C. § 14135a (2012).

65. *Id.* §§ 14135a(a)(1)(a), 14135a(b).

66. See Jonathan Krim, *Bill Would Permit DNA Collection from All Those Arrested*, WASH. POST (Sept. 24, 2005), <http://www.washingtonpost.com/wp-dyn/content/article/2005/09/23/AR2005092301665.html>. The burden of ensuring that the order gets to the FBI would appear to be on the detainee/arrestee. *Id.* Obviously, this is complicated in the case of detainees who were never charged. *Id.*

when people get arrested now they usually get fingerprinted. To me this is just an evolution of that process.”⁶⁷

The collection process for DNA is not particularly burdensome:

The collection method is hardly more intrusive than inking fingers to get a set of prints: a swab with a piece of filter paper is rubbed against the inside of a person’s mouth to pick up some cells for sampling. (All of which is a lot less stressful than the urine test for drugs that employers routinely require of job applicants.)⁶⁸

Virtually every case challenging DNA collection has recognized that a compelled collection is a search or a seizure.⁶⁹ At the same time, most courts have found the searches to be reasonable.⁷⁰ Of course, the searches at issue are almost always related to convicts, probationers, or parolees.⁷¹

Taking DNA from arrestees or detainees, as opposed to convicts, raises more difficult issues. Unlike convicts, arrestees and detainees have not challenged the evidence and received guilty verdicts for the charged crimes.⁷² Even with arrestees, however, the collection only violates the Fourth Amendment if obtaining a DNA sample constitutes an unreasonable search.⁷³ That essentially boils down to a determination of whether the collection of the arrestees’ and detainees’ DNA violates a legally recognized privacy interest.⁷⁴

In *United States v. Dionisio*, the U.S. Supreme Court upheld a grand jury subpoena for a voice exemplar on the theory that the subpoena itself was not a seizure of the person, and a person’s voice cannot be considered private.⁷⁵ The Court explained:

The physical characteristics of a person’s voice, its tone and manner, as opposed to the content of a specific conversation, are constantly exposed to the public. Like a man’s facial characteristics, or handwriting, his voice is repeatedly produced for others to hear. No person can have a reasonable

67. Associated Press, *Governor Backs Collecting DNA from Arrestees*, TUCSON CITIZEN (June 21, 2007), <http://tucsoncitizen.com/morgue/2007/06/21/55194-governor-backs-collecting-dna-from-arrestees/>.

68. *A-OK on DNA, ASAP*, ARIZ. REPUBLIC (June 27, 2007, 12:00 AM), <http://www.nlada.org/DMS/Documents/1183040131.39/0627wed1-27.html%3F%26wired>.

69. *See, e.g.*, *United States v. Kincade*, 379 F.3d 813, 837–38 (9th Cir. 2004); *Rise v. Oregon*, 59 F.3d 1556, 1560 (9th Cir. 1995), *overruling recognized by* *Crowe v. County of San Diego*, 608 F.3d 406 (9th Cir. 2010); *Landry v. Attorney Gen.*, 709 N.E.2d 1085, 1092 (Mass. 1999).

70. *See, e.g.*, *Kincade*, 379 F.3d at 832; *Landry*, 709 N.E.2d at 1090.

71. *See, e.g.*, *Kincade*, 379 F.3d at 832–33; *Landry*, 709 N.E.2d at 1089–90.

72. Rychlak, *supra* note 2, at 65.

73. *Id.*

74. *Id.*

75. *Id.*; *see generally* *United States v. Dionisio*, 410 U.S. 1 (1973).

expectation that others will not know the sound of his voice, any more than he can reasonably expect that his face will be a mystery to the world.⁷⁶

Similarly, the Supreme Court has long recognized that fingerprinting suspects in the course of booking, photographing them to generate evidence, or taking handwriting exemplars in a criminal case are such minimal intrusions on privacy that probable cause is not necessary.⁷⁷

Maryland v. King seems to foreclose any serious argument that the collection of DNA with a swab inside of the mouth constitutes a Fourth Amendment violation.⁷⁸ Even if courts considered this an unreasonable search or seizure,⁷⁹ it is likely that the scientific community would develop a new, less invasive means of collecting DNA that would quickly be employed, thereby eliminating this claim.⁸⁰

IV. FOURTH AMENDMENT ISSUES (USE OF DNA)

The more powerful argument for a Fourth Amendment violation is that the DNA strands have the potential to reveal far more information than a fingerprint.⁸¹ DNA molecules, if analyzed at certain places on the chain, “could reveal the existence of rare diseases or indicate a predisposition to more common ones.”⁸² They could also reveal this information about family members.⁸³ “Given the wealth of genetic material in the famous double helix, we should be cautious. It’s sensible to be concerned about, say, employers

76. *Dionisio*, 410 U.S. at 14; Rychlak, *supra* note 2, at 65.

77. Rychlak, *supra* note 2, at 65.

78. *See generally* *Maryland v. King*, 133 S. Ct. 1958 (2013) (holding that a valid arrest with probable cause allows the police to take a DNA swab because it is a minimal invasion of privacy).

79. This thought is reminiscent of the statement made by Cardinal Renato Martino, then-head of the Vatican’s Justice and Peace Department and formerly the Holy See’s permanent observer at the United Nations, regarding the arrest of Saddam Hussein. *See* John Hooper, *I Feel Sorry for Saddam Says Pope’s Aide*, *GUARDIAN* (Dec. 17, 2003, 7:40 AM), <http://www.theguardian.com/world/2003/dec/17/iraq>. Photographs were released of soldiers looking in Hussein’s mouth, prompting Martino to say: “I felt pity to see this man destroyed, [the military] looking at his teeth as if he were a cow. They could have spared us these pictures . . .” *Id.* While very few American’s felt pity, Martino’s analogy to the inspection of a farm animal had a certain validity. *Id.*

80. *See* Timothy Williams, *Facial Recognition Software Moves from Overseas Wars to Local Police*, *N.Y. TIMES* (Aug. 12, 2015), http://www.nytimes.com/2015/08/13/us/facial-recognition-software-moves-from-overseas-wars-to-local-police.html?_r=0. Recent advances in facial recognition may overtake much of the current concern about DNA fingerprinting. *See id.* (“The software can identify 16,000 points on a person’s face—to determine the distance between the eyes or the shape of the lips, for instance—and compare them with thousands of similar points in police booking or other photos at a rate of more than one million faces a second.”).

81. Rychlak, *supra* note 2, at 65.

82. D. H. Kaye, *Who Needs Special Needs? On the Constitutionality of Collecting DNA and Other Biometric Data from Arrestees*, 34 *J.L. MED. & ETHICS* 188, 191 (2006).

83. Rychlak, *supra* note 2, at 65.

and insurers getting sensitive information that could cause people to lose their jobs or health coverage.”⁸⁴

Because of these concerns, DNA evidence is collected, kept, and used in the CODIS database in a limited manner.⁸⁵

DNA profiling for law enforcement purposes . . . looks at 13 bits of genetic coding that are uniquely combined in each individual—but have nothing to do with predicting susceptibility to disease or other inherited traits. Each entry in the DNA database is just a string of 13 pairs of numbers (from the mother’s and father’s side).⁸⁶

This “DNA code has no use outside the forensic system”⁸⁷ In fact, “there is currently no known potentially compromising genetic information contained among the thirteen CODIS locations other than the fact that they serve as a unique DNA fingerprint that can also confirm familial relationships.”⁸⁸ “Most police laboratories are not [even] equipped to do” more invasive testing.⁸⁹

It is important to note the difference between the DNA sample and the DNA profile. A lab can retest a sample of genetic material and extract more information.⁹⁰ A lab can prepare a DNA profile, on the other hand, with limited information (the identification information found in the string of 13 pairs of numbers) and discard the rest.⁹¹ Perhaps a scientist might one day find a way to analyze this information more deeply, but there is no ability to obtain new information from a profile.⁹²

If the lab retains a DNA sample and further analyzes it for anything other than CODIS loci, a significant personal privacy issue could arise. This, however, is unlikely. Even though the labs may “retain the actual cell samples [for a while], in case extra tests are needed or technology changes[,] [f]or security reasons, those [samples] are identified only by bar code and are

84. *A-OK on DNA, ASAP, supra* note 68.

85. Rychlak, *supra* note 2, at 65.

86. *A-OK on DNA, ASAP, supra* note 68.

87. *Id.* Most consumers, including this Author, willingly provide much more private information in exchange for a few cents when they use discount cards at their grocery stores. Rychlak, *supra* note 2, at 65.

88. Patrick Haines, Comment, *Embracing the DNA Fingerprint Act*, 5 J. ON TELECOMM. & HIGH TECH. L. 629, 638 (2007) (citing JOHN M. BUTLER, FORENSIC DNA TYPING: BIOLOGY AND TECHNOLOGY BEHIND STR MARKERS (2001)). At least one commentator argued that the family relations that can be discerned through DNA present a problem because entire families may become suspect due to a DNA sample, even though there is no exact match on file. Ronald Bailey, *Criminal Kinship: Slouching Toward a DNA Database Nation*, REASON.COM (May 19, 2006), <http://reason.com/archives/2006/05/19/criminal-kinship>.

89. Kaye, *supra* note 82.

90. *Frequently Asked Questions*, FORENSIC GENETICS POL’Y INITIATIVE, <http://dnapolicyinitiative.org/resources/frequently-asked-questions/> (last visited Oct. 3, 2015).

91. *Id.*

92. Rychlak, *supra* note 2, at 64–65.

stored and handled with the same protection as crime evidence.”⁹³ Moreover, even if labs could extract private information from these samples, the legislature could enact legislation to protect the privacy of the affected individuals.⁹⁴

Perhaps the hardest question relates to taking DNA samples from mere detainees. Under the federal DNA Fingerprinting Act, this happens only to non-citizens, and several commentators have suggested that it should be seen in light of the recent debates over illegal immigration.⁹⁵ According to Deborah Notkin, former president of the American Immigration Lawyers Association: “It’s so broad, it’s scary. It is a terrible thing to do because people are sometimes detained erroneously in the immigration system.”⁹⁶ Truthfully, however, collection of DNA only becomes a concern if it results in a cold hit or if the DNA is entered into CODIS and later matches up with a future crime.⁹⁷ In either of these cases, the equities are with the authorities.⁹⁸ Lynn Parrish, spokeswoman for the Rape, Abuse and Incest National Network, “pointed to the case of Angel Resendiz, a Mexican immigrant who . . . committed at least 15 murders and numerous rapes in the United States.”⁹⁹ He was deported 17 times before finally being executed in Texas.¹⁰⁰ Ms. Parrish said: “If he had been identified as the perpetrator of the first rapes, it would have prevented later ones.”¹⁰¹ Regarding the DNA Fingerprinting Act she said: “If this had been implemented years ago, it could have prevented many crimes. Rapists . . . don’t just rape, they also murder.”¹⁰²

A slightly different concern is that if a minority racial group is arrested or detained more often than other racial groups, DNA samples will be taken from that minority more frequently, and the DNA database will contain a higher percentage of their DNA.¹⁰³ That, of course, would suggest that members of that minority race would end up being identified more often through the database.¹⁰⁴ The same problem, of course, is true when it comes

93. *A-OK on DNA, ASAP*, *supra* note 68.

94. Rychlak, *supra* note 2, at 65.

95. *See How Does the Kyl Amendment to the VAWA Reauthorization Bill Affect Immigrants?*, NAT’L IMMIGR. L. CTR. (Oct. 2005), <http://www.nilc.org> (“For Immigrants, the provision is stunningly egregious and overreaching. It would cast immigrants—both documented and undocumented—as criminals, requiring them to submit to seizure of their DNA . . .”).

96. Julia Preston, *U.S. Set to Begin a Vast Expansion of DNA Sampling*, N.Y. TIMES (Feb. 5, 2007), <http://www.nytimes.com/2007/02/05/washington/05dna.html>.

97. *See id.*

98. *See id.*

99. *Id.*

100. *Id.*

101. *Id.*

102. *Id.*

103. *See* Anna Gosline, *Will DNA Profiling Fuel Prejudice?*, NEW SCIENTIST (Apr. 6, 2005), <http://www.newscientist.com/article/mg18624944-900-will-dna-profiling-fuel-prejudice/>.

104. *See id.*

to traditional fingerprints.¹⁰⁵ The problem relates not to the DNA collection but to the reasons for the arrests.¹⁰⁶ Those reasons might or might not be valid. Moreover, if most crime takes place within racial groups, the minority group might actually end up benefiting because it will have a safer community.¹⁰⁷

Perhaps the most important remaining question, then, relates to the appropriate role of governmental agencies. There will almost certainly be pressure to expand the CODIS program.¹⁰⁸ It is not hard to imagine a time when DNA samples will be taken from all children shortly after birth. Safety could justify this.¹⁰⁹ DNA fingerprinting will help exonerate the innocent, convict the guilty, and protect the children.¹¹⁰ But are governmental agencies competent to handle this much authority? If CODIS expands to the point where it covers all citizens, it may come to embody the “big brother” government so feared by generations of Americans.¹¹¹

Many think that DNA evidence is foolproof, but it is only as reliable as the people and processes that collect and analyze it.¹¹² As with all governmental programs, there will be instances of poor management, budget shortages, and corruption in the CODIS program.¹¹³ Moreover, the DNA fingerprinting program is “certain to bring a huge new workload for the F.B.I. laboratory that logs, analyzes and stores federal DNA samples.”¹¹⁴ Mistakes will happen.¹¹⁵

V. THE BENEFITS

While there is no compelling evidence that DNA samples will compromise the privacy of arrestees, sending arrestee DNA to CODIS will almost certainly generate increased cold hits, reduce crime, and lower the number of wrongful convictions.¹¹⁶ The Innocence Project,¹¹⁷ the institution

105. *See id.*

106. *See id.*

107. Arnold H. Loewy, *A Proposal for the Universal Collection of DNA*, 48 TEX. TECH. L. REV. 261 (2015) (arguing in support of a universal DNA bank).

108. *Id.*

109. *Id.*

110. *See id.*

111. *See id.*

112. *See* Adam Liptak, *The Nation; You Think DNA Evidence Is Foolproof? Try Again*, N.Y. TIMES (Mar. 16, 2003), <http://www.nytimes.com/2003/03/16/weekinreview/the-nation-you-think-dna-evidence-is-foolproof-try-again.html>.

113. *See id.*

114. Preston, *supra* note 96.

115. *See, e.g.*, Jennifer L. Mnookin, *Fingerprint Evidence in an Age of DNA Profiling*, 67 BROOK. L. REV. 13, 49–50 (2001); Liptak, *supra* note 112.

116. *See* Loewy, *supra* note 107.

117. *See* *What is the Innocence Project? How Did It Get Started?*, INNOCENCE PROJECT, <http://www.innocenceproject.org/faqs/what-is-the-innocence-project-how-did-it-get-started> (last visited Oct. 12, 2015). In 1992, attorneys Barry Scheck and Peter Neufeld created a center at the Benjamin N. Cardozo

that uses DNA to try to win the release of the wrongfully convicted, has already helped exonerate over 330 American convicts.¹¹⁸ Presumably, none of them would have served any time if the government had used DNA evidence to find the real culprit at the time of their trial.¹¹⁹

The Mississippi Innocence Project, housed at the University of Mississippi School of Law, is justifiably proud of its efforts to overturn the convictions of Levon Brooks and Kennedy Brewer for separate sexual assaults and murders of two different three-year-old girls.¹²⁰ But for DNA testing—in that case, of mere suspects—those two innocent men would likely be behind bars, and Kennedy—who was sentenced to death—might have been executed.¹²¹ It is hard to justify the mass roundup and DNA collection process that led to the exoneration of Brooks and Brewer, but it is quite likely that a much greater injustice would have taken place without it.

The FBI currently claims a cold hit rate of about 32% (“Investigations Aided”) using CODIS.¹²² In the United Kingdom, back when law enforcement used to follow a “sample on arrest” policy, the cold hit rate was almost 40%.¹²³ Absent abuse, it is hard to conclude anything other than that the value of DNA fingerprinting for arrestees outweighs the privacy intrusion on the affected individuals.

School of Law of Yeshiva University to help those convicts who were able to conclusively prove their innocence with DNA evidence. *Id.* This evolved into a number of “Innocence Projects” around the nation. *See id.* This Author was involved in the establishment of the Mississippi Innocence Project at the University of Mississippi School of Law. Ronald J. Rychlak, *Curriculum Vitae of Ronald J. Rychlak*, UNIV. OF MISS. SCH. L. 2, <http://www.law.olemiss.edu/assets/rychlak-cv.pdf> (last visited Oct. 12, 2015).

118. *DNA Exonerations Nationwide*, INNOCENCE PROJECT (Sept. 3, 2015, 12:30 PM), <http://www.innocenceproject.org/free-innocent/improve-the-law/fact-sheets/dna-exonerations-nationwide>. For a recent exoneration, see *With Consent of District Attorney, a Pennsylvania Court Vacates Murder Conviction Based on DNA Evidence Pointing to Innocence*, INNOCENCE PROJECT (Aug. 13, 2015, 2:30 PM), <http://www.innocenceproject.org/news-events-exonerations/press-releases/with-consent-of-district-attorney-a-pennsylvania-court-vacates-murder-conviction-based-on-dna-evidence-pointing-to-innocence>.

119. *See The Cases: DNA Exoneree Profiles*, INNOCENCE PROJECT, http://www.innocenceproject.org/cases-false-imprisonment/front-page#c10=published&b_start=o&c4=Exonerated+by+DNA (last visited Oct. 12, 2015).

120. *See Brooks v. State*, 748 So. 2d 736, 746 (Miss. 1999). *See generally* Tucker Carrington, *Mississippi Innocence: The Convictions and Exonerations of Levon Brooks and Kennedy Brewer and the Failure of the American Promise*, 28 GEO. J. LEGAL ETHICS 123 (2015) (discussing the convictions and subsequent exonerations of Levon Brooks and Kennedy Brewer).

121. *See Kennedy Brewer*, INNOCENCE PROJECT, http://www.innocenceproject.org/Content/Kennedy_Brewer.php (last visited Oct. 12, 2015); *Levon Brooks*, INNOCENCE PROJECT, <http://www.innocenceproject.org/cases-false-imprisonment/levon-brooks> (last visited Oct. 12, 2015).

122. *See FBI Laboratory Services, Statistics of Cold Hits and Success Rates Based on NDIS Data from CODIS*, FED. BUREAU INVESTIGATION, <https://www.fbi.gov/about-us/lab/forensic-science-communications/fsc/oct2009/undermicroscope/review/table1.htm> (last visited Oct. 12, 2015) (noting that 79,320 cases had been aided from 245,171 samples as of January 16, 2009).

123. Haines, *supra* note 88. Similar statistics can be found from New Zealand. *See id.* at 653 & n.165.

VI. CONCLUSION

In considering DNA fingerprinting, the issue is whether collection and retention of a DNA fingerprint creates an unbearable risk to individual liberty and personal privacy.¹²⁴ In terms of collection, DNA swabs taken from inside of the cheek are little more intrusive than the traditional process of inking fingers and taking prints.¹²⁵ Moreover, if collection is the problem, hand swabs can be perfected and used to replace inner cheek swabs.¹²⁶ If the law treats DNA differently than it treats fingerprints, the law must base that treatment on concern about the information contained in DNA fingerprints.¹²⁷

DNA, of course, can reveal much more about the individual from whom it was taken than fingerprints can.¹²⁸ The Supreme Court, however, has concluded that the Constitution does not bar DNA fingerprinting.¹²⁹ That is partly because information that describes height, eye color, hair color, and the like are not private and are not protected by privacy laws.¹³⁰ It is also because the invasion is minimal, and the process is helpful.¹³¹

The real risk lies in the possibility of misuse of DNA information, either intentionally or due to incompetence. The horror scenario is that scientists, having a large cache of DNA, will be tempted to develop profiles that might be misused in the future—by, for instance, identifying traits that suggest a person is more likely to engage in criminal activity. There are, however, several opportunities to prevent something like that from happening.¹³² One is to maintain DNA profiles but not samples.¹³³ Congress should also pass legislation regarding valid and invalid uses of those profiles.¹³⁴ Ultimately, the danger seems more remote than the risks of not developing CODIS.

The downside risks related to errors or abuse with the current CODIS system are not significantly different than they are with traditional fingerprints or other investigatory techniques, but the benefits are potentially quite significant.¹³⁵ Fortunately, neither CODIS nor the other genetic

124. See *supra* Parts IV–V.

125. See *supra* note 68 and accompanying text. Today, many police departments have inkless collection equipment. See *Live Scan Fingerprinting*, FINGERPRINTING, <http://www.fingerprinting.com/live-scan-fingerprinting.php> (last visited Oct. 12, 2015).

126. See *supra* Part III.

127. See *supra* Part IV.

128. See *supra* Part IV.

129. See *supra* notes 34–44 and accompanying text.

130. See *supra* notes 75–77 and accompanying text.

131. See *supra* notes 34–44 and accompanying text.

132. See *supra* notes 54–66, 81–85 and accompanying text.

133. See *supra* notes 90–92 and accompanying text.

134. See *supra* text accompanying note 94.

135. See *supra* notes 103–23 and accompanying text.

databases have been subject to significant acts of fraud or data compromise.¹³⁶

The legislative intent behind DNA fingerprinting is to generate investigative leads and improve the accuracy of the criminal justice system.¹³⁷ The collection of DNA is not embarrassing and the data are useful, reliable, and effective.¹³⁸ The risk of harm to the innocent is minimal. Moreover, DNA data significantly increase the accuracy of the criminal justice system.¹³⁹ As such, the balance between individual privacy and governmental interests points to the reasonableness of the collection and the use of DNA evidence without a judicial warrant.¹⁴⁰ If the risks change in the future, added political pressure on legislators can constrain the program.

136. See, e.g., *Mayfield v. United States*, 504 F. Supp. 2d 1023, 1027 (D. Or. 2007), *vacated*, 588 F.3d 1252 (9th Cir. 2009), *vacated and superseded by* 599 F.3d 964 (9th Cir. 2010). That is not to suggest that there have never been mistakes in related fields. In *Mayfield v. United States*, the Automated Fingerprint Identification System picked out Mayfield's fingerprints (on file as a lawyer) as matching those found on bomb fragments in the Madrid subway bombing. *Id.* After extensive wiretapping and several "sneak and peek" searches of his home and office, all authorized under the Foreign Intelligence Surveillance Act of 1978, the police arrested Mayfield. *Id.* at 1028–29. Two weeks later, the Spanish police announced that they arrested someone else with a positive match of fingerprints and Mayfield was released. *Id.* at 1029. This civil action for damages followed. *Id.* at 1025.

137. Rychlak, *supra* note 2, at 66.

138. *Id.*

139. *Id.*

140. *Id.*

