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Introduction

On a December morning in New York City, a young girl is found by authorities, sexually molested and murdered. There is no evidence present at the crime scene to produce a suspect. The victim's friends and family are questioned, but no one is able to provide any leads. As the investigation continues, however, lab reports uncover semen samples from the victim's body. With today's technology, such evidence can be run through New York State's deoxyribonucleic acid ("DNA") database, with the hope of finding a match between the semen found on the victim's body and a sample already existing in the database. Currently, this database contains DNA profiles from those previously convicted of certain sex offenses, homicide, assault and escape.[1]

Unfortunately, the crime scene sample does not match any recorded in the database. The killer murders four more girls in the same way before being captured in the act with victim number six.

Upon detention, it is discovered that the killer had been convicted of two misdemeanors in New York State within the last year-Sexual Misconduct and Reckless Endangerment in the Second Degree. Had New York's compulsory DNA statute been more expansive to mandate samples from all those arrested for fingerprintable offenses, the initial sample collected would have matched this man's DNA profile. The lives of five young girls could have been spared.

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1. *See* N.Y. EXEC. LAW § 995 (McKinney 1994). Specifically, felons are required to submit a DNA sample when convicted of an assault under N.Y. PENAL LAW sections 120.05, 120.10 and 120.11, a homicide under sections 125.15-125.27 or a sex offense under sections 130.25, 130.30, 130.35, 130.40, 130.45, 130.50, 130.65, 130.67, 130.70 and 255.25. *See id.* § 995.7. Also, submission is required when a felon is convicted under sections 205.10, 205.15, 205.17 and 205.19 relating to escape and other offenses, where the offender has been convicted within the previous five years of one of the other felonies enumerated. *See id.*

This Note analyzes New York City Police Commissioner Howard Safir's ("Safir") proposal to expand New York's DNA Database to include profiles from all persons arrested for a recordable offense. Part I discusses the admissibility of DNA identification technology in New York courts and gives an overview of the molecular biology of DNA, explaining the powerful investigative advantage of DNA and the main profiling methods available. In addition, Part I describes other DNA database programs currently in place and concludes with a detailed outline of Safir's proposal. Part II defines the controversy surrounding Safir's proposal, specifically Fourth Amendment privacy concerns, as well as fears of potential misuse of DNA profile information stored in a computer database. Part III addresses these concerns and details New York's specific need for an expanded statute in light of New York's recidivism rates, recent crime trends, investigative efficiency and lower administrative costs. This Note concludes that Safir's plan is an effective, cutting-edge law enforcement tool that does not overly intrude upon an individual's Fourth Amendment privacy rights.

I. Overview of DNA Uses

DNA identification techniques are capable of assisting law enforcement officials in implicating the guilty and exonerating the innocent.[2] In the early 1990s, New York State recognized these inherent benefits and began admitting the probative evidence in judicial proceedings.

2. Despite these apparent benefits in criminal prosecutions, opponents to the processes of DNA identification cite two main arguments against the admissibility of findings in criminal proceedings. First, because DNA profiling is a long complex process, opponents attack relaxed testing protocols that could lead to error. *See* ROBERT J. GOODWIN & JIMMY GURULE, CRIMINAL AND SCIENTIFIC EVIDENCE 285 (1997). Specifically, results are unreliable when mislabeling, contamination and comparison negligence occurs. *See id.* One illustration of the call for quality control and proficiency standards in laboratory DNA testing can be found in *New York v. Castro*, 545 N.Y.S.2d 985, 997-98 (Sup. Ct. 1989), where the court held DNA evidence inadmissable because those testing the sample failed to follow appropriate standards and controls.

Second, critics attack the accuracy of probability estimates concerning the chances of another person having a similar genetic make-up as the accused. *See id.* The probability figures, usually in the one-in-several million range, if wrongfully calculated, are "unreliable, misleading, and highly prejudicial." *Id.*

In 1994, in *People v. Wesley*,[3] the New York Court of Appeals found Restriction Fragment Length Polymorphism ("RFLP")[4] profiling admissible in New York State.[5] The court ruled that the RFLP profiling method is generally accepted as reliable in the scientific community,[6] using a test for admissibility of novel scientific evidence similar to that in *Frye v. United States*.[7] The majority decision noted that questions of procedural negligence and probability inaccuracy were irrelevant to the issue of admissibility, but instead, were matters for jury consideration.[8]

Seven months after *Wesley*, a New York trial court held that Polymerse Chain Reaction ("PCR")[9] profiling techniques were generally admissible in criminal proceedings in *People v. Palumbo*.[10] Relying on universal acceptance in other jurisdictions,[11] the *Palumbo* court found the PCR test to be "generally ac-

3. 633 N.E.2d 451 (1994). This case involved the murder of seventy-nine year-old Helen Kendrick. *See id.* at 453. The investigation of her death led to Wesley when a bloodstained T-shirt with gray and white hairs on it, bloodstained underwear and bloodstained sweatpants were found in the defendant's apartment. *See id.* DNA comparisons provided inculpatory evidence, though the defendant was linked to the crime through a number of incriminating statements and nylon from Wesley's carpet found on the deceased's dress. *See id.* Wesley questioned whether DNA profiling evidence was admissible in New York and, if so, whether it should have been admitted against him. *See id.* at 452.

4. *See infra* text accompanying notes 29-52.

5. *See Wesley*, 633 N.E.2d at 455.

6. *See id.*

7. 293 F. 1013 (D.C. Cir. 1923). The rule of *Frye* is that scientific expert testimony is admissible only after the espoused theory has gained general acceptance in the scientific field. *See id.* at 1014. Specifically, the *Frye* court stated:

> Just when a scientific principle or discovery crosses the line between the experimental and demonstrable stages is difficult to define. Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.

Id. The *Wesley* court felt *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579 (1993), which held that *Frye* was superseded by the Federal Rules of Evidence, was inapplicable here. *See Wesley*, 633 N.E.2d at 454 n.2.

8. *See id.* 457-58. In concurrence, Chief Judge Kaye disputed the finding that RFLP was a reliable scientific technique in 1988, when conducted against Wesley. *See id.* at 463 (Kaye, J., concurring).

9. *See infra* text accompanying notes 53-70.

10. 618 N.Y.S.2d 197 (Sup. Ct. 1994). In a second-degree murder proceeding, the defendant requested a determination on the admissibility of a DNA profile taken using the PCR profiling method. *See id.* at 198.

11. *See id.* at 200-01 (citing Oregon v. Lyons, 863 P.2d 1303 (Or. Ct. App. 1993); Clarke v. Texas, 813 S.W.2d 654 (Tex. Ct. App. 1991); Spencer v. Virginia, 393 S.E.2d 609 (1990); Washington v. Russell, 882 P.2d 747 (1994)).

cepted as reliable in the scientific community."[12] The *Palumbo* court further addressed opponents' concerns regarding probability issues in stating "[t]hat the PCR test may only show that the defendant and the assailant are part of a relatively large group of people having the same characteristic goes to weight of the evidence, not its admissibility."[13]

While generally admissible in New York State, however, DNA evidence still generates heated debate, specifically over its use as an identification tool in conjunction with technological revolutions. In order for one to fully understand the relevant issues being raised, an overview of DNA science and profiling techniques is necessary.

A. Molecular Biology of DNA

DNA is the fundamental material that defines the genetic characteristics of all life forms.[14] DNA is present in most body cells, specifically those with nuclei, and can be carried in bodily fluids such as saliva, blood or semen.[15] DNA sequences vary in length and are composed of four organic bases, namely adenine ("A"), cytosine ("C"), thymine ("T") and guanine ("G"), arranged in long chains that form a double helix.[16] Essentially, the structure resembles a twisted ladder.[17] The sides of the ladder consist of repeated sequences of phosphate and deoxyribose sugar.[18] The rungs of the ladder are formed by pairs of the aforementioned bases.[19] A single DNA molecule consists of over three billion base pairs where A matches only with T, while C exclusively pairs with G.[20] Thus, if a section of bases on one side of the ladder is ATTACAGGC, the opposite side would be TAATGTCCG.[21]

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12. *Palumbo*, 618 N.Y.S.2d at 201.
13. *Id.*
14. *See* BRUCE ALBERTS ET AL., *Glossary in* MOLECULAR BIOLOGY OF THE CELL G-8 (3d ed. 1994) (defining DNA as "serv[ing] as the carrier of genetic information").
15. *See* BRUCE ALBERTS ET AL., MOLECULAR BIOLOGY OF THE CELL 385 (2d ed. 1983); People v. Castro, 545 N.Y.S.2d 985, 988 (Sup. Ct. 1989) (detailing the scientific background behind the theory of DNA identification). Red blood cells, for instance, which do not have nuclei, do not carry DNA. *See Castro*, 545 N.Y.S.2d at 988. Also, DNA may be recoverable from other tissue through a cell's mitochondria. *See* Barry Scheck, Privacy: The Impact of DNA Databases 33 (March 2, 1999) (transcript on file with *Fordham Urban Law Journal*) [hereinafter Scheck Transcript].
16. *See* ALBERTS ET AL., *supra* note 15, at 99.
17. *See* People v. Wesley, 533 N.Y.S.2d 643, 646 (Albany County Ct. 1988).
18. *See Castro*, 545 N.Y.S.2d at 988.
19. *See id.*
20. *See* LOUIS LEVINE, BIOLOGY OF THE GENE 11 (1969).
21. *See id.*

Over ninety-nine percent of the base pairs described are the same in all humans, responsible for a human's inherent form.[22] The remaining base pairs, however, vary from person to person,[23] accounting for physical differences among humans that make each person unique.[24]

B. DNA Profiling[25]

DNA profiling technology provides law enforcement officials with a means of identifying individuals by detecting differences in cell structure.[26] DNA profiling involves three basic steps:

> (i) an analysis of both the known sample (taken from the suspect) and the unknown sample (recovered from the crime scene) to derive a series of DNA patterns present in each; (ii) a comparison of these profiles to determine if there is a match (indicating that an identity of source is possible) or an exclusion (indicating that such identity is unlikely); and (iii) if there is a match, a statistical analysis to determine what proportion of persons in the same population as the suspect have the same DNA patterns.[27]

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22. *See* Judith A. McKenna et al., *Reference Guide on Forensic DNA Evidence*, *in* REFERENCE MANUAL ON SCIENIFIC EVIDENCE 273, 281 (1994); KEITH INMAN & NORAH RUDIN, AN INTRODUCTION TO FORENSIC DNA ANALYSIS 29 (1997).

23. While DNA is unique to each individual, identical twins, with the same genetic make-up, will posses identical DNA. *See* McKenna et al., *supra* note 22, at 281.

24. *See id.* Within a cell's nucleus, DNA is apportioned into forty-six sections called chromosomes. *See* SIMON EASTEAL ET AL., DNA PROFILING: PRINCIPLES PITFALLS AND POTENTIAL 9 (1991). The ordinary human cell contains twenty-three pairs of matching chromosomes, one chromosome per pair inherited from each parent. *See id.* Each human cell actually contains the same twenty-two pairs of chromosomes and a pair of sex chromosomes (male cells contain X and Y chromosomes, while female cells contain two X chromosomes). *See id.* The portion of DNA involved in producing certain physical traits is called a gene. *See* McKenna et al., *supra* note 22, at 281. Genes are located at specific sites, or loci, upon certain chromosomes. Alternate forms of genes are known as alleles. *See id.* at 282. Alleles have a dramatic impact on cells, accounting for variant physical expression among humans. *See* EASTEAL ET AL., *supra* note 24, at 12. A locus where the allele differ among humans is called "polymorphic, and the difference is known as polymorphism." Mckenna et al., *supra* note 22, at 282.

25. In 1984, Alec Jeffreys discovered a unique application of technology for personal identification purposes. *See* INMAN & RUDIN, *supra* note 22, at 19. He termed the method "DNA fingerprinting," but scientists generally agree a better term for the process is "DNA typing" or "DNA profiling." *See id.*

26. *See* Mira Gur-Arie, *The Science of DNA Profiling*, *in* NEW YORK'S DNA DATABANK AND COMMISSION ON FORENSIC SCIENCE, AN ANALYSIS OF CHAPTER 737 OF THE LAWS OF 1994, INCLUDING THE COMPLETE TEXT OF THE NEW STATUTORY PROVISIONS 16 (1994) [hereinafter COMMISSION ANALYSIS].

27. *Id.* at 17 (citing NATIONAL RESEARCH COUNCIL, DNA TECHNOLOGY IN FORENSIC SCIENCE 51 (1992); Bruce S. Weir, *Population Genetics in the Forensic DNA*

Identifying individuals for law enforcement purposes can be accomplished by utilizing one of several methods for comparing genetic variation.[28]

1. *RFLP Analysis*

RFLP analysis determines the size of a repetitive sequence of base pairs.[29] "Because the length of these sequences (sometimes called band size) of base pairs [can vary greatly] . . . comparison of several corresponding sequences of DNA from known (suspect) and unknown [crime scene] sources gives information about whether the two samples are from the same source."[30]

In the first step of RFLP analysis, DNA is separated from a sample of cells through the use of a centrifuge.[31] After extraction, the DNA is cleaned with organic solutions and divided into fragments with restriction enzymes.[32] Through a procedure called "agarose gel electrophoresis," the fragments are then separated by length and placed adjacent to a positive electrode in a container full of agarose gel.[33] Electric current is applied to the sample, causing DNA fragments to separate by length.[34]

After electrophoresis, the resulting DNA fragments are transferred from the gel to a nylon membrane, through a process called "Southern Blotting."[35] The DNA is then unzipped by "heating [and] separating the double helix into single strands[,]"[36] exposing

Debate, 89 PROC. NAT'L ACAD. SCI. 11, 654 (1992)); *see also* Arizona v. Bible, 858 P.2d 1152, 1180 (Sup. Ct. 1993).

28. *See* COMMISSION ANALYSIS, *supra* note 26, at 17.

29. *See* M. KRAWCZAK & J. SCHMIDTKE, DNA FINGERPRINTING 27 (1994). Base pair sequences consistently repeat. *See* NATIONAL RESEARCH COUNCIL, THE EVALUATION OF FORENSIC SCIENCE 14 (1996). The repetitive sequences are known as Variable Number of Tandem Repeats. *See id.*

30. McKenna et al., *supra* note 22, at 282.

31. *See* DEPARTMENT OF CRIMINAL JUSTICE, FORENSIC DNA ANALYSIS: ISSUES 5 (1991) [hereinafter DEPARTMENT ANALYSIS]. A centrifuge is "a machine [used] for whirling fluids rapidly to separate substances of different densities by centrifugal force." WEBSTER'S THIRD NEW INTERNATIONAL DICTIONARY 363 (1986).

32. Restriction enzymes are virtual scissors used to cut DNA chains at specific sites. This stage is known as restriction digestion. *See* COMMISSION ANALYSIS, *supra* note 26, at 18.

33. *See id.* Agarose Gel is a "gelatin-like material solidified in a slab about five inches thick." McKenna et al., *supra* note 22, at 282.

34. *See* COMMISSION ANALYSIS, *supra* note 26, at 18. DNA carries a negative charge and will, when electrocuted, move toward the positive electrode. *See* DEPARTMENT ANALYSIS, *supra* note 31, at 5. The distance a single DNA fragment travels depends on its length, as shorter fragments travel farther than longer, heavier fragments. *See id.*

35. *See* DEPARTMENT ANALYSIS, *supra* note 31, at 5.

36. McKenna et al., *supra* note 22, at 282.

the A, T, C and G base blocks.[37] Next, the unzipped fragments are exposed to radioactive probes,[38] "designed to be attracted only to polymorphic DNA segments, those that vary somewhat among individuals."[39]

The radioactivity of the probes allows for visual tracking via X-rays.[40] When film is developed, bands called "autorads" are visible, representing an actual print of DNA band patterns.[41] The final stage of RFLP analysis involves band pattern comparison.[42] "Genetic differences between individuals will be identified by differences in the location and distribution of the band patterns, which correspond to the length of the DNA fragments present."[43] If two samples are from the same source, "hybridized DNA fragments of approximately the same length should appear at the same point in the suspect and evidence specimen[s]."[44] This procedure, therefore, is not an actual comparison of genetic code, but is instead a measure of length of DNA fragments at a particular site on the DNA chain.[45]

RFLP analysis is a useful technique because it is capable of discriminating between samples.[46] If at different markers there is band consistency, a high probability[47] exists that the DNA came

37. *See* DEPARTMENT ANALYSIS, *supra* note 31, at 5.

38. The probes are laboratory developed fragments carrying radioactive markers. *See id.* Each probe seeks out a matching sequence and binds to the complimentary strands. *See id.*

39. COMMISSION ANALYSIS, *supra* note 26, at 18. This process is known as "hybridization." *Id.* The probes will seek out sequences with which they match and attach themselves to the strand. *See* DEPARTMENT ANALYSIS, *supra* note 31, at 5. Therefore, a strand of "ATTGCA, for example, will bind with TAACGT." *Id.* at 6.

40. *See* DEPARTMENT ANALYSIS, *supra* note 31, at 6.

41. *See* COMMISSION ANALYSIS, *supra* note 26, at 18. This image of bars is a comparable configuration to that found on a supermarket bar code. *See* INMAN & RUDIN, *supra* note 22, at 65.

42. The autorads can be compared either visually or by computer. *See* COMMISSION ANALYSIS, *supra* note 26, at 18. Machine comparison converts the bar pattern into numeric code for purposes of analysis. *See id.*

43. DEPARTMENT ANALYSIS, *supra* note 31, at 6.

44. McKenna et al., *supra* note 22, at 283.

45. *See* COMMISSION ANALYSIS, *supra* note 26, at 18. Each fragment tends to vary in length among individuals. *See id.* While no single fragment is unique, an identical combination of lengths is extremely rare. *See id.* When a match is made, therefore, an estimate of the "frequency with which such a set of fragment length patterns is likely to appear in a given population[ ]" is necessary to evaluate the significance of the match. *Id.* at 18-19.

46. *See* Scheck Transcript, *supra* note 15, at 27.

47. A five marker match would indicate that the same pattern could only be found in one-in-ten to one hundred million individuals. *See id.* at 27.

from the same source, thereby identifying a suspect.[48] Moreover, matching more bands increases the discrimination power of the analysis.[49] Conversely, inconsistency at markers is dispositive that the suspect should be excluded.[50]

One potential drawback to RFLP analysis is that a sufficient sample size is required to initiate the process.[51] Similarly, older samples cannot be utilized via this process because bacteria eats away at the DNA sample, rendering it useless for identification purposes.[52]

2. *PCR Technique*

PCR is another effective identification technique available when there is an insufficient amount of DNA for RFLP analysis.[53] Essentially, the process replicates a minuscule DNA sample to enable genetic analysis.[54]

The first step, called denaturation, involves separating the two strands of the double helix so each can be used to generate a new strand.[55] Next, DNA primers[56] are used to establish a foundation on which DNA can replicate.[57] The primers must have a complimentary sequence of bases to the sample so that synthesis is possible.[58] An enzyme is applied to the sample, causing the primers to synthesize with their complimentary strands.[59] This process is performed over and over, resulting in millions of copies of DNA iden-

48. *See id.* A commonly misunderstood point is that a DNA match via RFLP is not a declaration that a defendant is the source of the specimen tested. *See* COMMISSION ANALYSIS, *supra* note 26, at 19. Rather, the match of a DNA profile is merely an estimate of the frequency "with which this particular pattern of fragment lengths is likely to occur in the defendant's relevant ethnic population." *Id.*

49. *See* Scheck Transcript, *supra* note 15, at 27.

50. *See id.* at 28.

51. *See* INMAN & RUDIN, *supra* note 22, at 69.

52. *See* Scheck Transcript, *supra* note 15, at 28.

53. *See* DEPARTMENT ANALYSIS, *supra* note 31, at 6. Another benefit of using this technique compared to RFLP is that one sample can be tested several times. *See* Scheck Transcript, *supra* note 15, at 30. Comparatively, RFLP analysis usually only permits but one test if a limited sample is present. *See id.* at 28.

54. *See* EASTEAL ET AL., *supra* note 24, at 129.

55. *See* INMAN & RUDIN, *supra* note 22, at 69. Separating the double helix requires heating the sample to 94°C. *See* EASTEAL ET AL., *supra* note 24, at 129.

56. Primers are "short synthetic pieces of DNA that match defined locations by complimentary base pairing." INMAN & RUDIN, *supra* note 22, at 70.

57. *See* DEPARTMENT ANALYSIS, *supra* note 31, at 6.

58. *See id.*

59. *See id.*

tical to the original sample.[60] Finally, DNA is placed in a filter to evaluate the amplified sample.[61]

One manner of analysis is the DQ Alpha technique. Under this process, the amplified DNA sample is placed over strips of probes containing DNA segments corresponding to a base known to exist at the studied site.[62] A reagent is then applied that produces colored dots to appear where binding is successful between the amplified DNA and the probe DNA, confirming the presence of targeted alleles.[63] Because a high percentage of the population may carry a given allele,[64] the analysis must be completed several times at different loci to narrow the percentage of people that could carry the fragments present in the DNA sample.[65] The problem with this technique, therefore, is its lack of discrimination, raising concerns over a coincidental match.[66]

Another analytic technique is the D1S80 method. Similar to RFLP, D1S80 analyzes the variation present at a given locus of a defined DNA fragment.[67] However, because the sample size is small, it is amplified using PCR.[68] Like RFLP, D1S80 distinguishes the sample manually using a chart resembling a supermarket barcode.[69] Because only a limited number of loci are analyzed under this system, the power of discrimination is not as great as that of RFLP.[70]

3. *Mitochondrial DNA*

While both the RFLP and PCR methods analyze genetic material residing within a cell's nucleus, other bits of genetic material

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60. The process is also known as "molecular Xeroxing" because of this duplication effect. *See* INMAN & RUDIN, *supra* note 22, at 70.

61. *See* People v. Lee, 537 N.W.2d 233, 251 (Mich. Ct. App. 1995).

62. *See* INMAN & RUDIN, *supra* note 22, at 70-71.

63. This comparison process is therefore known as "reverse-dot blot procedure or the blue-dot procedure." *Lee*, 537 N.W.2d at 251.

64. At any given locus, for example, there may be alleles resulting merely in brown or green eyes. *See* DEPARTMENT ANALYSIS, *supra* note 31, at 6.

65. *See id.*

66. This method guarantees only that one of every 5000 individuals will posses this genetic make-up. *See* Scheck Transcript, *supra* note 15, at 31.

67. *See* INMAN & RUDIN, *supra* note 22, at 47.

68. However, unlike RFLP, the power of discrimination is limited because usually only one locus is analyzed. *See id.*

69. *See id.* Another comparison method, Short Tandem Repeats (STR) is strikingly similar to the D1S80 system, except repeat units are shorter. *See id.* at 48.

70. Also, the significance of the test may be further reduced if it analyzes alleles common among individuals in particular racial groups. *See id.* at 47.

exist in a cell's mitochondria.[71] The main advantage of analyzing mitochondrial DNA ("mDNA") is that it is available in hair and bone, materials that would prove useless with other testing techniques.[72] However, discrimination is a substantial problem because mDNA, transmitted maternally, is identical in siblings and between mother and child.[73]

C. DNA Databases

DNA evidence has limited use as an identification tool without the utilization of a computer database.[74] A DNA database is a computerized collection of DNA profiles capable of being used for criminal identification purposes.[75] DNA profiles are ideal for such storage because the information can be stored in numeric code, thereby requiring minimal technology.[76] Essentially, a DNA test result derived from a crime scene sample can be checked against the digital profiles stored in the database.[77] Any matches made with database profiles can then be used as probable cause to obtain a sample from a suspect for further testing.[78] This procedure guards against sampling errors that could have occurred during data entry.[79]

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71. Mitochondria are subcellular compartments or organelles that supply power to the cell. *See* NATIONAL RESEARCH COUNCIL, *supra* note 29, at 72.

72. *See* Scheck Transcript, *supra* note 15, at 34.

73. *See* EASTEAL ET AL., *supra* note 24, at 136.

74. Without the use of random DNA profiles to check it against, a sample of DNA recovered from a crime scene would only be valuable if there were a suspect in custody who provided a sample matching the unknown sample. *See generally* KRAWCZAK & SCHMIDTKE, *supra* note 29, at 93 (acknowledging the limited impact of DNA evidence in a criminal justice system that does not utilize databases). Therefore, without other evidence at a crime scene that produces a suspect, DNA evidence has little value. *See id.*

75. *See* INMAN & RUDIN, *supra* note 22, at 133.

76. *See id.* at 134. While DNA databases store the computerized DNA profile of an individual, the genetic samples from which the profiles are derived are often also kept in storage for future analysis. *See* Jean M. McEwen, *DNA Databanks*, *in* GENETIC SECRETS 231 (Mark A. Rothstein ed., 1997).

77. *See* DEPARTMENT ANALYSIS, *supra* note 31, at 25. This process is inherently similar to the one currently used to track latent fingerprints. *See* INMAN & RUDIN, *supra* note 22, at 133. The Automated Fingerprint Identification System (AFIS) contains millions of citizens' fingerprints on computer file. *See id.* Fingerprints, like DNA, are unique to the individual and do not change over the course of one's life. *See* NATIONAL RESEARCH COUNCIL, *supra* note 29, at 57. Prints dusted at crime scenes can, therefore, be compared with those in the system to generate suspects or lead to convictions. *See id.*

78. *See* INMAN & RUDIN, *supra* note 22, at 134.

79. *See id.*

1. *Current State Laws on Criminal DNA Databases*

As of June 1998, all fifty states have passed legislation to create state DNA databases.[80] Generally, these laws require designated offenders to provide a genetic sample[81] for inclusion in the state DNA bank.[82] States usually cite the assistance of law enforcement in identification and detection or exclusion of individuals under criminal investigation as the main purpose of database legislation.[83]

The scope of criminals included in DNA databases varies from state to state. Most statutes simply require a DNA sample from persons convicted of sex offenses and violent felonies.[84] Mean-

80. *See* ALA. CODE § 36-18-20 (1994); ALASKA STAT. § 44.41.035 (Michie 1996); ARIZ. REV. STAT. ANN. § 31-281 (1993); ARK. CODE ANN. § 12-12-1101 (Michie 1994); CAL. PENAL CODE § 290.2 (West 1994); COLO. REV. STAT. ANN. § 17-2-201(5)(g)(I) (West 1995); CONN. GEN. STAT. ANN. § 54-102g (West 1994); DEL. CODE ANN. tit. 29, § 4713 (1994); FLA. STAT. ANN. § 943.325 (West 1994); GA. CODE ANN. § 24-4-60 (1992); HAW. REV. STAT. ANN. § 706-603 (Michie 1992); IDAHO CODE § 19-5504 (1996); 720 ILL. COMP. STAT. ANN. 5/12-13 (West 1992); IND. CODE ANN. § 10-1-9-8 (West 1996); IOWA CODE ANN. § 13.10 (West 1991); KAN. STAT. ANN. § 21-2511 (1991); KY. REV. STAT. ANN. § 17.170 (Banks-Baldwin 1992); LA. REV. STAT. ANN. § 15:605 (West 1999); ME. REV. STAT. ANN. tit. 25, § 1573 (West 1996); MD. CODE ANN., CTS. & JUD. PROC. § 10-915 (1994); MASS. GEN. LAWS ANN. ch. 22E, § 3 (Law. Co-op. 1997); MICH. COMP. LAWS ANN. § 750.520m (West 1994); MINN. STAT. ANN. § 299C.155 (West 1993); MISS. CODE ANN. § 45-33-15 (1995); MO. ANN. STAT. § 650.050 (West 1991); MONT. CODE ANN. § 44-6-102 (1995); NEB. REV. STAT. § 29-4104 (1997); NEV. REV. STAT. ANN. § 176.0913 (Michie 1989); N.H. REV. STAT. ANN. § 632-A:22 (1996); N.J. STAT. ANN. § 53:1-20.17 (West 1994); N.M. STAT. ANN. § 29-16-2 (Michie 1997); N.Y. EXEC. LAW § 995 (McKinney 1994); N.C. GEN. STAT. § 15A-266 (1993); N.D. CENT. CODE § 31-13-05 (1995); OHIO REV. CODE ANN. § 2901.07 (West 1995); OKLA. STAT. ANN. tit. 57, § 584 (West 1996); OR. REV. STAT. § 181.085 (1998); 35 PA. CONS. STAT. ANN. § 7651.302 (West 1995); R.I. GEN. LAWS § 12-1.5-4 (1998); S.C. CODE ANN. § 23-3-600 (Law. Co-op. 1995); S.D. CODIFIED LAWS § 23-5-14 (Michie 1990); TENN. CODE ANN. § 38-6-113 (1991); TEX. GOV'T CODE ANN. § 411.141 (West 1995); UTAH CODE ANN. § 53-10-406 (1994); VT. STAT. ANN. tit. 20, § 1931 (1998); VA. CODE ANN. § 19.2-310.2 (Michie 1993); WASH. REV. CODE ANN. § 43.43.752 (West 1990); W. VA. CODE § 15-2B-1 (1995); WIS. STAT. ANN. § 165.77 (West 1993); WYO. STAT. ANN. § 7-19-402 (Michie 1997).

81. Some states require a blood sample for testing. *See, e.g.*, HAW. REV. STAT. ANN. § 706-603(b) (Michie 1992); OKLA. STAT. ANN. tit. 57, § 584.A.2 (West 1996); FLA. STAT. ANN. § 943.325(1)(a) (West 1994); GA. CODE ANN. § 24-4-60 (1992); N.Y. EXEC. LAW § 995-7 (McKinney 1994). Others, alternatively, call for a saliva swab. *See, e.g.*, KAN. STAT. ANN. § 21-2511(a)(1991); ARK. CODE ANN. § 12-12-1103(7) (Michie 1994).

82. *See* McEwen, *supra* note 76, at 232.

83. *See, e.g.*, ARK. CODE ANN. § 12-12-1103(2) (Michie 1994); ALASKA STAT. § 44.41.035(a) (Michie 1996); KY. REV. STAT. ANN. § 17.175(2) (Banks-Baldwin 1992).

84. *See, e.g.*, HAW. REV. STAT. ANN. § 706-603(3) (Michie 1992); KAN. STAT. ANN. § 21-2511(a) (1991); ARK. CODE ANN. § 12-12-1103(10-11) (Michie 1994); N.J. STAT. ANN. § 53:1-20.20(a) (West 1994); N.Y. EXEC. LAW § 995-c.3. (McKinney 1994).

while, other states have increased the legislative scope to include persons convicted of any felony.[85]

2. *National DNA Database Policy*

The federal government also has taken steps in conjunction with states to apply technology to national criminal investigations. The DNA Identification Act of 1994[86] authorized the FBI to establish the Combined DNA Index System ("CODIS").[87] CODIS is a three-tiered[88] computer system used to facilitate the exchange of DNA profile information across the nation.[89] The national tier of the CODIS network, the National DNA Index System ("NDIS"), is "a repository for DNA profiles submitted by participating states. The NDIS allows states to exchange DNA profiles and perform inter-state [searches]."[90] To aid in administration, DNA profiles are stored in three indices: convicted offenders, unknown suspects and a population file used for statistical purposes.[91] States therefore are not limited to their own databases, and can search more effectively for suspects who cross state lines.[92]

85. *See, e.g.*, VA. CODE ANN. § 19.2-310.2 (Michie 1993); W. VA. CODE § 15-2B-1 (1995).

86. 42 U.S.C. § 14131 (1994).

87. *See id.* § 14132.

88. CODIS' three hierarchical levels include local, state and national tiers. *See What's the Difference Between NDIS and CODIS* (visited Jan 20, 1999) <http://www.fbi.gov/pressrel/diff> [hereinafter FBI Release]. All three contain DNA profiles, but each are flexible to meet the specific legislative or technical needs of state and local enforcement agencies. *See id.* The Local DNA Index System (LDIS) is "installed at crime laboratories operated by police departments or sheriff's offices. All DNA profiles originate at the local level, then flow to the state and national levels." *Id.* The State DNA Index System ("SDIS"), "allows laboratories within a state to exchange DNA profiles. The SDIS is also the communications path between the local and national tiers. The SDIS is typically operated by the agency responsible for implementing as a state convicted offender statute." *Id.*

89. *See* McEwen, *supra* note 76, at 233.

90. FBI Release, *supra* note 88.

91. *See* Howard Safir, Remarks to the Students of Bronx High School of Science (Dec. 14, 1998) at 9-10 (transcript on file with *Fordham Urban Law Journal*) [hereinafter Safir's Plan].

92. *See* McEwen, *supra* note 76, at 233. For example, in December 1997, within minutes of networking eight states into CODIS, a perpetrator in a 1989 Wisconsin rape and attempted murder was identified as a convicted Illinois sex offender. *See* Safir's Plan, *supra* note 91, at 10. Also, by September 1996, databases accounted for matching 58 profiles where unknown DNA from a crime scene was found to be the same as a criminal profile of a known offender in another state. *See* McEwen, *supra* note 76, at 233.

3. *More Intrusive DNA Databases*

The theory behind more expansive databases, storing the profiles of all those arrested, is not an unprecedented concept. Great Britain currently permits its law enforcement officials to collect non-intimate samples, such as hair and saliva, from all individuals arrested for a recordable offense.[93]

The British system, operational since April 1995, has met with resounding investigative success.[94] Approximately 135,000 samples were collected within the system's first year[95] and 463,000 samples currently are included.[96] To date, over 38,000 suspect to crime matches have been obtained in investigations, with a success rate of three to five hundred matches per week.[97] Over the last five years, 40,000 crimes have been solved with the help of DNA database profiles and more than 51,000 suspects have been exonerated.[98] Additionally, over 6,000 links have been made between separate crime scenes, proving crimes were being committed by the same individual.[99] These statistics exemplify the investigative benefits offered by an expansive DNA database.

D. Safir's Proposal

On December 14, 1998, New York City Police Commissioner Howard Safir launched a bold campaign to widen the scope of New York's compulsory DNA statute to encompass aspects of Great Britain's system.[100] Safir's plan calls for the universal DNA testing

93. *See* Criminal Justice and Public Order Act, Pt. IV, § 55 (1994) (Eng.). The samples taken include non-intimate tissue such as hair or saliva. Louisiana also authorized a similar system to begin in the Fall of 1999. *See* Eric Fettmann, *Isn't Crime the Worst Privacy Invasion of All?*, N.Y. POST, Dec. 20, 1998, at 81.

94. In addition to using its database, Great Britain also practices "Bloodings" in circumstances where an offender is known to live among a certain population. Law enforcement officials will collect blood from every person in the area to ferret out the guilty. *See* Scheck Transcript, *supra* note 15, at 42. Such DNA samples, however, are not placed into the State databank. *See id.*

95. *See* McEwen, *supra* note 76, at 236.

96. *See* Scheck Transcript, *supra* note 15, at 45.

97. *See* Safir's Plan, *supra* note 91, at 13. The greatest number of hits in a week was over 1000. *See* Scheck Transcript, *supra* note 15, at 47.

98. *See Today: Police Commissioner Howard Safir and Norman Siegel of New York Civil Liberties Union Debate Proposed Policy of Taking DNA Sample and Other Tests on Everyone Arrested in New York City* (NBC television broadcast, Dec. 15, 1998) [hereinafter *Today Debate*] (quoting Safir's comments on Great Britain's investigation success).

99. *See* Fettmann, *supra* note 93, at 81.

100. Safir introduced the initiative for the first time while addressing the students of the Bronx High School of Science. *See* Safir's Plan, *supra* note 91, at 1.

of all those arrested so that the individual's DNA can be included in a DNA database.[101] If passed, such an amendment would expand section 995 of the New York Executive Law,[102] which currently permits involuntary DNA samples to be taken from designated offenders for inclusion into a statewide database.[103] This DNA database includes DNA identification information from persons convicted of assault, homicide and certain sex offenses.[104]

In short, Safir's plan is to begin taking DNA samples from *all* individuals arrested for a recordable offense, as opposed to limiting testing to designated offenders under section 995.[105] Under the proposal, police would swab a suspect's mouth for about thirty seconds to collect DNA present in saliva.[106] The DNA sample would then be used to create a computerized DNA profile, which would then be stored in a statewide database. This information would aid in suspect identification by matching genetic material found at crime scenes against a pool of known offenders, similar to the method currently employed in matching latent fingerprints against criminal records.[107] According to Safir, creation of a universal DNA database will enable police to narrow the field of possible suspects in a crime more quickly (exposing the guilty and exonerating the innocent), efficiently arrest repeat offenders and save costs.[108]

Meanwhile, Safir assures steps would be taken to minimize the risk of abuse of the collected specimens.[109] First, the computerized DNA profile would be expunged and the DNA sample destroyed upon acquittal or pardon of an offense.[110] Second, access to the database would be limited so the information could not be misap-

101. *See id.*

102. *See* N.Y. EXEC. LAW § 995 (McKinney 1994).

103. *See id.* § 995-c.3.

104. *See id.* § 995.7.; *see also supra* note 1 (detailing specific offenses enumerated within the statute). This current program covers only eight percent of felony offenders. *See* Gary Spencer, *Action Predicted on Bills on DNA, Ending Parole*, N.Y. L.J., Feb. 8, 1999, at 7. Blood samples have been taken from about 6000 offenders since the program began in 1996. *See id.*

105. *See Today Debate*, *supra* note 98. Safir wants to assure the public that unrecordable offenses, such as traffic infractions, would not fall within the scope of this proposal. *See id.*

106. *See* Safir's Plan, *supra* note 91, at 13.

107. *See* Spencer, *supra* note 104, at 7.

108. *See* Safir's Plan, *supra* note 91, at 14-17.

109. *See infra* text accompanying notes 204-205.

110. *See* Safir's Plan, *supra* note 91, at 13.

propriated, but instead used exclusively for law enforcement identification purposes.[111]

Publicly, Safir's plan has been met with mixed reaction. New York City mayor Rudolph Giuliani wholly endorses the plan as a novel, effective law enforcement tool.[112] A number of other politicians likewise support the program, but to varying degrees.[113] For instance, some would simply prefer to expand the statute to include DNA from only convicted felons, and not those convicted of all offenses as Safir suggests.[114] On the other hand, some are adamantly opposed to amending the statute altogether.[115]

II. Conflict Surrounding Safir's Plan

A. Constitutional Argument Against Safir's Plan

Opponents of DNA extraction for use in a universal database argue that the procedure violates the Fourth Amendment guarantee against unreasonable searches and seizures on the grounds that such bodily searches are conducted in the absence of individualized suspicion.[116] For instance, Norman Siegel, executive director of the New York Civil Liberties Union contends that the practice is unconstitutional because "in order to get DNA under the Fourth

111. *See id.*

112. *See* Mayor Rudolph W. Giuliani: Celebrating Our Progress in Building a Safer City, and Moving Forward (WINS Radio Broadcast, Jan. 3, 1999) (visited Jan. 14, 1999) <http://www.ci.nyc.ny.us/html/om/html/99a/me990103.html>. Specifically, Mayor Giuliani stated:

> [A] few weeks ago Police Commissioner Safir called for what we believe can be another important tool to continue reducing crime in the City: DNA testing. Sampling the DNA of all those who are arrested-through a very simple, non-invasive procedure that involves briefly placing a swab in the mouth to collect saliva is essentially a more advanced and more precise form of fingerprinting. In concert with strict privacy protections so that the process cannot be misused, DNA represents an important new tool in policing that can help convict the guilty and, equally important, keep the innocent free.

Id.

113. For example, State Senator Roy Goodman hails the proposal as offering a high-tech crimefighting tool. Senator Goodman states, "This is a better fingerprint. Call it a throat print. I think it makes all sorts of sense." Tracey Tully, *Dem[ocrat]s Rip Safir's DNA Plan, Pol[itician]s See 'Police State' Tactic*, N.Y. DAILY NEWS, Dec. 16, 1998, at 8.

114. State Senator Dale Volker feels Safir's idea has a more realistic chance of becoming law if it limits DNA testing to suspects arrested on felony charges. *See* Matthew Cox, *Cool Response to Safir DNA Plan*, N.Y. NEWSDAY, Dec. 16, 1998, at A30. New York Governor George Pataki plans to propose such an idea alongside Safir's Plan to the State Assembly. *See* Spencer, *supra* note 104, at 7.

115. *See infra* text accompanying note 117.

116. *See* Jones v. Murray, 962 F.2d 302, 305 (4th Cir. 1992); Boling v. Romer, 101 F.3d 1336, 1338 (10th Cir. 1996); State v. Olivas, 856 P.2d 1076, 1081 (1993).

Amendment, [the government] would have to show that the gathering of the DNA is relevant to the crime. That means that [the government has] to show that there was blood, semen, [or] saliva at the crime scene in order to make the match."[117] Proponents of such plans, however, observe that if individualized suspicion must exist before a suspect is required to submit a sample, an effective DNA database would be impossible to implement.[118] DNA databases refute the idea of individualized suspicion because the collection of samples is intended to "solve future cases for which no present suspicion can exist."[119]

1. *The Fourth Amendment Standard*

The primary function of the Fourth Amendment is to ensure a citizen's personal privacy against unwarranted State intrusions.[120] Specifically, the Fourth Amendment reads, in pertinent part: "The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated and no Warrants shall issue, but upon probable cause, . . . particularly describing the place to be searched, and the persons or things to be seized."[121] This federal guarantee also prohibits unreasonable searches and seizures conducted by state officers via the Fourteenth Amendment.[122] To prove an action violates Fourth Amendment rights, therefore, one must first show that the government action constituted a search, then prove it lacked the requisite amount of reasonableness.

2. *The Search Requirement*

Implication of Fourth Amendment protection first requires the determination of whether a government official's action constitutes a search.[123] In *Katz v. United States*,[124] the Supreme Court intro-

117. *Today Debate*, *supra* note 98.

118. *See Jones*, 962 F.2d at 305.

119. *Id.*

120. *See* United States v. Martinez Fuerte, 428 U.S. 543, 554 (1975); Schmerber v. California, 384 U.S. 757, 767 (1966).

121. U.S. CONST. amend. IV.

122. *See* New Jersey v. T.L.O., 469 U.S. 325, 334 (1985); Mapp v. Ohio, 367 U.S. 643, 655 (1961) (holding that "[s]ince the Fourth Amendment's right of privacy has been declared enforceable against the States through the Due Process Clause of the Fourteenth [Amendment], it is enforceable against them by the same sanction of exclusion as is used against the Federal Government").

123. *See* Hon Charles E. Moylan, Jr., *A Conceptualization of the Fourth Amendment*, *in* WILLIAM W. GREENHALGH, THE FOURTH AMENDMENT HANDBOOK, A CHRONOLOGICAL SURVEY OF SUPREME COURT DECISIONS 6 (1995).

duced the appropriate standard as to what actions constitute a "search" within the dictates of the Fourth Amendment.[125] The Court held:

> [T]he Fourth Amendment protects people, not places. What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection. But what he seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected.[126]

In a concurring opinion, Justice Harlan refined the Court's analysis, defining a "search" as a government intrusion into an area where an individual has a "reasonable expectation of privacy."[127]

Given this framework, the Supreme Court has determined the withdrawal of blood to be a search under the Fourth Amendment.[128] Specifically, in *Schmerber v. California*,[129] the Court definitively stated, "[i]t could not reasonably be argued . . . that the administration of the blood test in this case was free of the constraints of the Fourth Amendment. Such testing procedures plainly constitute searches . . . within the meaning of that Amendment."[130]

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124. 389 U.S. 347 (1967).

125. In *Katz*, FBI agents, without first obtaining a warrant, used electronic eavesdropping equipment to record Charles Katz's conversation in a public telephone booth. Officials recorded Katz's voice as he transmitted wagering information over the telephone. It was clear the agents violated Katz's Fourth Amendment rights because they did not obtain a court order for placement of the equipment. The issue, however, was whether the Fourth Amendment even covered such a situation without a physical intrusion into a constitutionally protected area. *See* Katz v. United States, 369 F.2d 130 (9th Cir. 1966).

126. *See Katz*, 389 U.S. at 351. The Court then found "[t]he Government's activities in electronically listening to and recording [Katz's] words violated the privacy upon which he justifiably relied while using the telephone booth and thus constituted a 'search and seizure' within the meaning of the Fourth Amendment." *Id.* at 353.

127. *Id.* at 360 (Harlan, J., concurring).

128. *See* Schmerber v. California, 384 U.S. 757 (1966). In *Schmerber*, the Supreme Court held a state could withdraw blood from a motorist suspected of drunk driving, despite his refusal to consent to the search. *See id.* at 758-59. The Court felt the action did not violate the motorist's Fourth Amendment rights because the Fourth Amendment's proper use is to protect only against intrusions that are not justified under the circumstances or made in an improper manner. *See id.* at 768. The blood test was performed properly, "taken by a physician in a hospital environment according to accepted medical practices." *Id.* at 771. The intrusion, meanwhile, was classified as insignificant since "tests are a commonplace in these days of periodic physical examination and experience with them teaches that the quality of blood extracted is minimal, and that for most people the procedure involves virtually no risk, trauma, or pain." *Id.*

129. *See id.* at 757.

130. *Id.* at 767.

Since *Schmerber*, the withdrawal of blood consistently is referred to as a "search."[131]

Collection and analysis of urine similarly has been deemed a Fourth Amendment search by the Court.[132] In *Skinner v. Railway Labor Executives' Ass'n*,[133] the Supreme Court announced, "it is clear that the collection and testing of urine intrudes upon expectations of privacy that society has long recognized as reasonable . . . and . . . these intrusions must be deemed searches under the Fourth Amendment."[134] *Skinner* further documents unanimous recognition of this principle among the Federal Courts of Appeals.[135]

3. *The Reasonableness Requirement*

Finding a practice to be a "search" under the Fourth Amendment is only the first step toward setting the standard governing such intrusions.[136] "The Fourth Amendment does not proscribe all searches and seizures but only those that are unreasonable."[137]

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131. *See, e.g.*, Skinner v. Railway Labor Executives' Ass'n, 489 U.S. 602, 616 (1989) ("We have long recognized that a 'compelled intrusio[n] into the body for blood to be analyzed for alcohol content' must be deemed a Fourth Amendment search."); Winston v. Lee, 470 U.S. 753, 760 (1985) (reaffirming the *Schmerber* analysis); Rise v. Oregon, 59 F.3d 1156, 1159 (9th Cir. 1995) ("Non-consensual extraction of blood implicated Fourth Amendment privacy rights."); Jones v. Murray, 962 F.2d 302, 306 (4th Cir. 1992) (noting that "the bodily intrusion resulting from taking a blood sample constitutes a search within the scope of the Fourth Amendment").

132. *See Skinner*, 489 U.S. at 617. In *Skinner*, the Court upheld the Federal Railroad Administration's drug and alcohol tests as constitutional. *See id.* at 634. The Court concluded the testing was reasonable under the Fourth Amendment even in the absence of a search warrant or reasonable suspicion of any particular employee due to the compelling government interest served by the mandate, which outweighed the voiced privacy concerns. *See id.*

133. *See id.* at 602.

134. *Id.* at 617.

135. *See id.* (citing, for example, Lovvorn v. Chattanooga, 846 F.2d 1539, 1542 (6th Cir. 1988); Copeland v. Philadelphia Police Dep't, 840 F.2d 1139, 1143 (3d Cir. 1988); National Treasury Employees Union v. Von Raab, 816 F.2d 170, 176 (5th Cir. 1987)).

136. *See id.*, at 618-19; New Jersey v. T.L.O., 469 U.S. 325, 337 (1985).

137. *Skinner*, 489 U.S. at 619 (citing United States v. Sharpe, 470 U.S. 675, 682 (1985)); Schmerber v. California, 384 U.S. 757, 768 (1966). This reasonableness requirement arises from the Constitutional language itself. *See* U.S. CONST. amend. IV. (guaranteeing security against "unreasonable searches and seizures"). *Schmerber* also articulately stresses the need for a reasonable search:

> [T]he Fourth Amendment's proper function is to constrain, not against all intrusions as such, but against intrusions which are not justified in the circumstances, or which are made in an improper manner. In other words, the question[ ] we must decide in this case [is] . . . whether the means and procedures employed in [the search] respected relevant Fourth Amendment standards of reasonableness.

Schmerber, 384 U.S. at 768.

Reasonableness "depends on all of the circumstances surrounding the search or seizure and the nature of the search or seizure itself."[138] Therefore, the viability of a search "'is judged by balancing its intrusion on the individual's Fourth Amendment interests against its promotion of legitimate governmental interests.'"[139]

The *Skinner*[140] Court recognized that in most criminal cases the aforementioned balance is struck by requiring a search warrant in the Fourth Amendment.[141] When non-consensual extraction of bodily fluids is performed without a warrant or individualized suspicion, the Court demands that the state have "'special needs' beyond normal law enforcement that may justify departures from the usual warrant and probable-cause requirements."[142] Specifically, the Court stressed:

> [A] showing of individualized suspicion is not a constitutional floor, below which a search must be presumed unreasonable. In limited circumstances, where the privacy interests implicated by the search are minimal, and where an important government interest furthered by the intrusion would be placed in jeopardy by a requirement of individualized suspicion, a search may be reasonable despite the absence of such suspicion.[143]

B. Potential for Misuse of Obtained Information

In addition to the documented constitutional arguments,[144] opponents of DNA databanking also highlight the serious risk of abusing the vast amount of information available in an individual's

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138. United States v. Montoya de Hernandez, 473 U.S. 531, 537 (1985); *T.L.O.*, 469 U.S. at 337 ("[W]hat is reasonable depends on the context within which a search takes place.").

139. *Skinner*, 489 U.S. at 619 (quoting Delaware v. Prouse, 440 U.S. 648, 654 (1979)); *see also*, *T.L.O.* 469 U.S. at 337; Bell v. Wolfish, 441 U.S. 520, 559 (1979); Jones v. Murray, 962 F.2d 302, 305 (4th Cir. 1992).

140. 489 U.S. at 602.

141. *See id.* at 619.

142. *Id.* at 620 (quoting Griffin v. Wisconsin, 483 U.S. 868, 873-74 (1987)). *See supra* note 132 (summarizing *Skinner*). The Court stated the scrutinized regulation furthered the government's special need to prevent accidents and casualties in railroad operations that result from railroad employees under the influence of drugs or alcohol. *See Skinner*, 489 U.S. at 620-21. Once this "special need" for testing was found, the Court concluded the warrant requirement in this case would not further traditional purposes of a warrant because drugs and alcohol dissipate quickly from the body. *See id.* at 623. Requiring a warrant would, therefore, frustrate the government's interest in the search. *See id.*

143. *Skinner*, 489 U.S. at 624.

144. *See supra* text accompanying note 116.

DNA.[145] The DNA of an individual, serving as the human code,[146] is a virtual blueprint of genetic make-up that carries a map of that person's biological past and future.[147] Opponents cite numerous instances where such information, when misappropriated, can be used for nefarious purposes.[148] For instance, some are concerned that employers would use private genetic information in a discriminatory manner.[149] Also, there is a fear that insurance companies might use the information of disease propensity to raise health insurance premiums or deny coverage altogether.[150] Even the government is cited as a potential candidate for misappropriation of the information.[151] These arguments are further supplemented by Justice Brennan's[152] concurrence in *Whalen v. Roe*,[153] stating pro-

145. *See* C. Teddy Li, Boling v. Romer: *Federal Courts Condone Forced Withdrawal of Blood for DNA Databanks Despite Constitutional Concerns*, 1 J. HEALTH CARE L. & POL'Y 421, 431 (1998) (citing Yale H. Yee, Note, *Criminal DNA Databanks: Revolution for Law Enforcement or Threat to Individual Privacy?*, 22 AM. J. CRIM. L. 461, 462 (1995)).

146. *See id.*

147. *See* Karen Ann Jensen, Note, *Genetic Privacy in Washington State: Policy Considerations and a Model Genetic Privacy Act*, 21 SEATTLE U. L. REV. 357, 359-60 (1997). This commentary utilizes the term "future diary", which is applicable to the instant contentions. *See id.* at 360. Acknowledging a diary contains past information of a personal and private nature, genetic information stored in DNA can be called a "future diary" because it carries information about future health. *See id.*

148. *See* Fettmann, *supra* note 93, at 81.

149. *See* Kathy Day, *Genetic Testing Leads to Discrimination Questions*, SAN DIEGO DAILY TRANSCRIPT, Aug. 4, 1992, at 1 (raising the issue of whether employers who possess knowledge of an individual's high susceptibility to an occupational disease would deny a job); *see also* Michael Kirby, *Genetic Testing and Discrimination: The Development of Genetic Testing Confronts Humanity with Urgent Challenges*, UNESCO COURIER, May 1, 1998, at 29 (stressing that an employer's desire to know of a worker's disease susceptibility in light of potential costs such as disability benefits, sick leave and replacement pay).

150. *See* Kirby, *supra*, note 149, at 29. Insurance in the past was relatively fixed by analyzing the risks of the "onset of a multitude of genetic disorders amongst all members of the insuring public." *Id.* Kirby argues that now the insurance company will gain an upper hand in offering higher premiums or flatly denying coverage because of the availability of particular genetic information of inherited orders. *See id.* Insurers merely argue they should be able to obtain such information because it is merely "substituting the latest scientific information for the old-fashioned medical check-ups and replacing generalized data of life expectancy with accurate predictive data of genetic disorders." *Id.*

151. *See* George J. Annas, *Privacy Rules for DNA Databanks: Protecting Coded 'Future Diaries'*, 270 JAMA 2346, 2348 (1993). Annas envisions law enforcement or child protection agencies using DNA information to ensure parents of children with inherent genetic conditions are providing proper medical care. *See id.*

152. *See id.* at 2346.

153. 429 U.S. 589 (1977). This case concerned an action brought by physicians and patients challenging a New York statute requiring the state to be provided with a copy of a prescription for certain drugs. *See id.* The Court held the statute to be a reason-

phetically: "The central storage and easy accessibility of computerized data vastly increase the potential for abuse of that information, and I am not prepared to say that future developments will not demonstrate the necessity of some curb on such technology."[154]

While "genetic redlining"[155] may be easy to dismiss as an alarmist or extremist reaction,[156] a simple look at American genetic practices over the last century illustrate why there is a cause for concern. During the 1920s, for example, strong judicial support was lent to the eugenics movement, calling for sterilization of citizens deemed undesirable.[157] Specifically, the Supreme Court upheld a Virginia statute compelling sterilization for those judged to be "manifestly unfit from continuing their kind."[158]

Evidence of genetic redlining is not so dated, however. In fact, during the 1970s, states enacted legislation to identify carriers of the sickle cell anemia gene to discourage them from bearing children.[159] African-Americans, as the primary carriers of the gene, immediately felt discriminatory repercussions in the form of decreased job opportunities and higher insurance premiums.[160]

III. Analysis

A. DNA Extraction Under Safir's Plan is a Search Within the Meaning of the Fourth Amendment

Under the analyses of *Schmerber* and *Skinner*, Safir's plan, calling for swabbing an accused's cheek to obtain a saliva sample for DNA analysis,[161] should be deemed a Fourth Amendment search.

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able exercise of the state's broad police power, responding to concerns that drugs were being appropriated for unlawful use. *See id.*

154. *Id.* at 607 (Brennan, J., concurring).

155. "Genetic Redlining" is "differentiated treatment based on apparent or perceived human variation." Janet C. Hoeffel, Note, *The Dark Side of DNA Profiling: Unreliable Scientific Evidence Meets the Criminal Defendant*, 42 STAN. L. REV. 465, 534 (1990).

156. *See Today Debate*, *supra* note 98. (including Safir's classification of the liberal view as "alarmist").

157. *See* Hoeffel, *supra* note 155, at 534 (citing PHILIP REILLY, GENETICS, LAW AND SOCIAL POLICY 124 (1977)).

158. Buck v. Bell, 274 U.S. 200, 207 (1927).

159. *See* Hoeffel, *supra* note 155, at 534.

160. *See id.* at 534-35; *see also* Day, *supra* note 149, at 1 (describing how the identification of sickle cell anemia carriers led to exclusion of opportunities in the military from amphibious and flight assignments).

161. *See* Safir's Plan, *supra* note 91, at 13.

Although a relatively new analysis,[162] saliva sampling is favorably comparable with the testing of blood and urine.[163] First, the procedure involves an intrusion reaching "beyond the physical characteristics exposed to the public and into the security of the person."[164] Second, a saliva sample can, like blood and urine, provide significant amounts of genetic identity information.[165] Over the last decade, courts utilized these factors in asserting that an oral swabbing procedure, like the one suggested by Safir, implicates the Fourth Amendment.[166] At least one New York Federal District Court is among those in compliance.[167]

B. Safir's Plan is Reasonable

Because saliva extraction can be considered a "search" under the Fourth Amendment, the next question is whether the practice is reasonable and can be answered by balancing the intrusion against the promotion of legitimate government interests. The constitutional challenge to DNA databanks consistently has been overruled through consideration of a number of factors. Limited privacy rights, strong government interest and minimal bodily intrusion each prove the validity of the practice in question.

162. *See* Henry v. Ryan, 775 F. Supp. 247, 253 (N.D. Ill. 1991) (commenting that while no court to date had explicitly held saliva extraction to be a Fourth Amendment search, this court would make the assertion).

163. *See* Schlicher v. Peters, 103 F.3d 940, 943 (10th Cir. 1996); United States v. Nicolosi, 885 F. Supp. 50, 55 (E.D.N.Y. 1995); *Henry*, 775 F. Supp. at 255.

164. *Henry*, 775 F. Supp. at 253 (citing Cupp v. Murphy, 412 U.S. 291, 295 (1973)).

165. *See Nicolosi*, 885 F. Supp. at 55.

166. *See* Shelton v. Gundmanson, 934 F. Supp. 1048, 1050 (W.D. Wis. 1996) (involving swabbing the inside of an individual's mouth cheek with a sponge-like toothbrush); *Nicolosi*, 885 F. Supp. at 55 (assuming the saliva sample would be obtained by swabbing the inside of the subject's mouth with a pad of some sort).

167. *See Nicolosi*, 885 F. Supp. at 55. This case involved a prosecution for sending threatening communications through the mail in violation of 18 U.S.C. § 876. *See id.* at 51. The government obtained a "so-ordered" subpoena directing the accused to provide a saliva sample. *See id.* The defendant refused, claiming the prosecution must first obtain a valid search warrant in conformance with the requirements of the Fourth Amendment. *See id.* The District Court was asked to decide whether the Fourth Amendment applied to the ability of the Government to obtain saliva samples. *See id.* The court held that, in light of the facts that the search implicated a dignity interest by swabbing the inside of the defendant's mouth and the sample can provide a significant amount of genetic information not within the public domain, proper compliance with the Fourth Amendment is necessary. *See id.* at 55.

1. *Limited Privacy Right Upon Arrest*

In *Jones v. Murray*,[168] perhaps the definitive authority on the constitutionality of body fluid extraction for use in DNA databases,[169] the Fourth Circuit Court of Appeals concluded the DNA testing statute in question did not violate an inmate's Fourth Amendment privacy right.[170] The court reasoned, in part: "probable cause had already supplied the basis for bringing the person within the criminal justice system. With the person's loss of liberty *upon arrest* comes the loss of at least some, if not all, rights to personal privacy otherwise protected by the Fourth Amendment."[171] The Supreme Court has recognized this principal in holding both body cavity searches of prisoners[172] and penitentiary cell searches[173] constitutional. Accordingly, while a free citizen need not expect such routine searches, that same individual cannot raise privacy objections upon arrest.[174]

2. *Strong Government Interest*

Upon arrest, a suspect's identification becomes a matter of legitimate state interest, relevant to solving the crime for which the arrest took place and for establishing a record to aid in solving past and future crimes.[175] As such, criminals remain willing to take certain steps to hamper positive identification by law enforcement officials by disguising faces, changing names or even altering

168. 962 F.2d 302 (4th Cir. 1992). This case involved the challenge that a Virginia statute requiring DNA testing for all felons violated the individual's civil rights. *See id.* at 305.

169. *See* State v. Olivas, 856 P.2d 1076, 1085 (1993) ("*Jones v. Murray* . . . is persuasive authority for the proposition that drawing of blood from convicted felons to establish a DNA data bank for use in future prosecution of recidivist acts does not violate the Fourth Amendment.").

170. *See Jones*, 962 F.2d at 311.

171. *Id.* at 306 (emphasis added).

172. *See* Bell v. Wolfish, 441 U.S. 520 (1979). In *Bell*, prisoners in a federal penitentiary questioned the constitutionality of visual body cavity searches in light of their Fourth Amendment rights. *See id.* at 558. The Court upheld the searches, concluding the limited privacy rights of prisoners to be outweighed substantially by the governments' need for penal security. *See id.* at 559.

173. *See* Hudson v. Palmer, 468 U.S. 517 (1984). In *Hudson*, an inmate brought an action against an officer for destruction of his property during a prison cell search. *See id.* at 520. In rejecting the prisoner's claim, the Court declared: "[W]e conclude that prisoners have no legitimate expectation of privacy and that the Fourth Amendment's prohibition on unreasonable searches does not apply in prison cells[.]" *Id.* at 530.

174. *See* James P. O'Brien, Jr., Note, *DNA Fingerprinting: The Virginia Approach*, 35 WM. & MARY L. REV. 767, 801-2 (1994).

175. *See Jones*, 962 F.2d at 306.

features.[176] As the *Jones* court reasons, however, DNA databases can play a pivotal role in aiding officials with legitimate pursuit of suspect identification:

> DNA . . . is claimed to be unique to each individual and cannot, within current scientific knowledge, be altered. The individuality of the DNA provides a dramatic new tool for the law enforcement effort to match suspects and criminal conduct. Even a suspect with altered physical features cannot escape the match that [he] . . . left at the scene of a crime within samples of blood, skin, semen, or hair follicles. The governmental justification, . . . therefore, relies on no argument different in kind from that traditionally advanced for taking fingerprints and photographs, but with additional force because of the potentially greater precision of DNA sampling and matching methods.[177]

Along with the government's interest in identification, deterrence of both criminal and harmful actions is also a documented government interest in DNA databanking.[178] DNA databases can address this national interest by serving as a significant deterrent against recidivist activity.[179] In theory, those with prior arrests who previously submitted a DNA sample would be deterred from future criminal behavior due to an increase in likelihood of capture accompanying the strong identification power of DNA evidence.[180]

3. *Minor Intrusion in DNA Extraction*

The bodily intrusion requested under Safir's plan, namely extracting DNA with a swab of the oral cavity to obtain a saliva sample,[181] must be evaluated against the aforementioned governmental interests. In *People v. Wealer*,[182] upholding a correctional code provision for mandatory blood and saliva sampling from state prisoners, the court presented a persuasive argument about the intru-

176. *See id.* at 307.

177. *Id.*

178. *See, e.g.*, Skinner v. Railway Labor Executives' Ass'n, 489 U.S. 602, 620-21 (1989) (upholding mandatory drug testing of railroad employees because of the importance of preventing harmful accidents and casualties); National Treasury Employees Union v. Von Raab, 489 U.S. 656 (1989) (highlighting the need for sober customs officials to protect national borders from contraband smuggling).

179. *See* State v. Olivas, 856 P.2d 1076, 1085-86 (1993) (disclosing the rationale behind the Virginia compulsory DNA statute at issue in *Jones*).

180. *Accord* O'Brien, *supra* note 174, at 797 (asserting that "DNA fingerprints on file . . . deter future criminal behavior and . . . increase the likelihood of capturing repeat offenders").

181. *See* Safir's Plan, *supra* note 91, at 13.

182. 636 N.E.2d 1129 (Ill. App. Ct. 1994).

sive levels of saliva extraction.[183] The *Wealer* court reasoned the procedure involved in taking saliva samples is inherently less intrusive than that required for extracting blood.[184] Therefore, if taking blood samples withstands constitutional scrutiny, taking saliva samples likewise is reasonable.[185] It thus follows that if blood sampling no longer is to be considered an overly intrusive procedure,[186] saliva sampling cannot be an inherently violative process either.[187]

C. Safeguards Can Protect Against Misuse of Information

Learning valuable lessons from the dark moments of genetic redlining in American history, legislators may consider several alternatives to ensure DNA information stored in a database will only be used for the stated purposes.

1. *Unambiguous Legislative Drafting*

Clear, unambiguous legislation such as the DNA Identification Act of 1994,[188] is one solution.[189] This particular federal law provides that the results of DNA tests performed for a federal law enforcement agency may be disclosed only to criminal justice agencies for the purpose of law enforcement identification,[190] judicial

183. *See id.* at 1132.

184. *See id.*

185. *See id.*

186. *See supra* note 131, at 771 (chronicling reasons why blood testing is not an overly intrusive procedure).

187. *See Wealer*, 636 N.E.2d at 1136. Where blood testing involves actually piercing skin, a saliva extraction gently swabs the inside of an individual's mouth cheek to gain the necessary sample. *See* United States v. Nicolosi, 885 F. Supp. 50, 55 (E.D.N.Y. 1995).

Similarly, an argument can be made that the swabbing procedure is less physically intrusive than the constitutionally protected fingerprinting process. While swabbing invades the oral cavity, it is a quick, pain-free action. During fingerprinting, however, arestees may need to be physically guided to mark the inkpad and print card. *Accord* People v. Sallow, 165 N.Y.S. 915, 924 (Ct. Gen. Sess. 1917) (acknowledging the constitutionality of the fingerprinting process while stressing the importance of an arestee's freedom from torture or duress). This ordeal presents a constitutional physical intrusion greater than swabbing for saliva.

188. 42 U.S.C. § 14131 (1995).

189. *See* Annas, *supra* note 151, at 2349 ("[D]ata protection principles suggest that there should be . . . stringent rules for the . . . distribution of . . . information derived from [DNA molecules] because of the unique characteristics of genetic information, including the fact that DNA molecules contain an individual's probabilistic future diary.").

190. 42 U.S.C. § 14133(b)(1)(A).

proceedings,[191] criminal defense,[192] inclusion in a population statistics database, identification research and protocol development for quality control.[193] The DNA Identification Act then outlines specific penalties for unauthorized disclosure of DNA information available in a federal database and for unauthorized possession of DNA samples indexed in a database or individually identifiable DNA information.[194] Violation of any of these mandates may be punishable with a fine up to 100,000 dollars.[195] States, including New York, with DNA databank statutes in place have modeled their legislation to mirror the federal act in this regard.[196] In drafting more expansive legislation to replace section 995, New York could easily pattern the statute to reflect that currently in place.[197]

2. *Anti-Discrimination Legislation*

Anti-discrimination legislation is another alternative to combat genetic redlining.[198] For example, New York amended its anti-discrimination laws to deem it an unlawful, discriminatory practice for an employer to refuse employment or to discharge an employee based on "genetic predisposition or carrier status."[199] The specter

191. Results of DNA tests performed for law enforcement purposes may be disclosed in judicial proceedings only if "otherwise admissible pursuant to applicable statutes or rules." *Id.* § 14133(b)(1)(B).

192. *Id.* § 14133(b)(1)(C).

193. Test results may only be used for these three purposes where personal identifiable information is removed. *See id.* § 14133(b)(2).

194. *See id.* § 14133(c)(1)-(2).

195. *See id.*

196. *See, e.g.*, LA. REV. STAT. ANN. §§ 15:612, 15:617-18 (West 1999).

197. *See* N.Y. EXEC. LAW § 995-c.-f. (McKinney 1994). New York law currently mandates that records in its state DNA index only be released for law enforcement identification purposes to a federal, state or local law enforcement agency, district attorney's office, for criminal defense purposes, to a defendant or representative or for inclusion into a population statistical database, development of identification research and protocol or quality control when personal identifiable information has been removed. *See id.* § 995-c.6.(a)-(c). Also, confidentiality requirements stipulate such information may not be released to "insurance companies, employers, or potential employers, health providers, employment screening or personnel companies, or . . . private investigation services." *Id.* § 995-d.1. Any person who intentionally discloses a DNA record or results of a DNA test to an unauthorized agency or intentionally uses such information for unauthorized purposes is guilty of a class A misdemeanor and, upon conviction, subject to a fine of up to 10,000 dollars. *See id.* § 995-f.

198. *See generally*, Michael M.J. Lin, *Conferring a Federal Property Right in Genetic Material; Stepping into the Future with the Genetic Privacy Act*, 22 AM. J. L. & MED. 109, 128 (1996).

199. N.Y. EXEC. LAW § 296.1.(a) (McKinney 1993) (amended 1996); *see also*, N.J. STAT. ANN. § 10:5-12a. (West 1994) (amended 1996) ("It shall be an unlawful employment practice, or, as the case may be, an unlawful discrimination for an employer,

of criminal prosecution or civil liability can serve to deter possible offenders and pacify liberal activists.

3. *Manner of Storage*

The nature of the DNA information stored in a databank can also quell the concern for misappropriation of information. Standard DNA profiles, capable of being stored as a mere numeric code, will provide little information regarding inherited medical or physical traits.[200] The privacy issues in databanking arise instead from retention of samples themselves, once identification information is entered into the database.[201] These samples are where the wealth of genetic information is stored because further testing could be performed on them in the future.[202] In light of these privacy risks, one suggestion for preserving confidentiality more effectively would be to destroy genetic samples after analysis.[203] Such an approach would provide law enforcement officials with data necessary for identification purposes, while addressing the obvious concerns for abuse of any other readily obtainable information.

Additionally, Safir's plan recognizes the debate surrounding genetic information available in a DNA sample.[204] Wanting to avoid comparisons to a virtual police state, where all citizens' profiles are available for identification purposes, Safir proposes that an arrested citizen's sample would be destroyed and the DNA profile erased from the databank once the person is found innocent or exempt from prosecution.[205] This practice succeeds in being sensitive to concerns of information misappropriation by taking an affirmative step in assuring certain information is unobtainable (via expungement) to unauthorized parties.

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because of . . . genetic information . . . [to] refuse to hire or employ or to bar or discharge . . . from employment such individual.").

200. *See* Paul B. Ferrara, *DNA Benefits Outweigh Any Risk*, N.Y. NEWSDAY, February 11, 1999, at A49.

201. *See* McEwen, *supra* note 76, at 237.

202. *See id.*

203. *See id.* at 238. McEwen, however, questions the feasibility of this approach in light of a crime lab's need to save samples for reanalysis as technology improves, the needs of a defendant to challenge the sample itself in a future case or the need for routine quality control checks. *See id.* To solve this problem, perhaps, an additional sample could be recollected at a future date, retested for identification purposes and subsequently destroyed. *See* Jensen, *supra* note 147, at 382.

204. *See* Safir's Plan, *supra* note 91, at 13.

205. *See id.* Under the current New York law, upon reversal of a conviction or grant of a pardon of an individual whose DNA record has been stored in the state database, the DNA record is expunged from the index and all samples, analyses and other documents are destroyed. *See* N.Y. EXEC. LAW § 995-c.9. (McKinney 1994).

D. New York City's Need for an Expanded DNA Database

While Safir's plan withstands constitutional scrutiny,[206] as well as questions involving misappropriation,[207] the benefits of the practice for New York City also support passage into legislation.

1. *Suspect Identification*

Perhaps the greatest benefit an expanded DNA database yields is the increased number of suspects identifiable under a more inclusive law who, under current legislation, are not being profiled. In his proposal, Safir provides one example of how identification information becomes more useful under the proposed system.[208] In examining the last one hundred forcible rape or sodomy cases in which arrests were made, seventy-five arrestees had prior arrests.[209] According to Safir, however, "in only eighteen of the cases did the perpetrator have prior arrests and convictions for crimes that would place them in . . . [the] convicted offender DNA database."[210] The logical conclusion, therefore, is that a significant number of investigations and apprehensions could be conducted with greater speed and efficiency if New York collected DNA profiles from all those arrested.[211]

A consultation of New York State inmate profiles supports this assertion.[212] Across New York State, only 7.9% of inmates had no prior convictions and only 12.9% had no prior arrests.[213] These statistics show an overwhelming majority of inmates serving time who had prior infractions with the law[214] and would therefore have been eligible for a DNA profile under Safir's plan, perhaps expe-

206. *See supra* text accompanying notes 161-187.

207. *See supra* text accompanying notes 188-205.

208. *See* Safir's Plan, *supra* note 91, at 15.

209. *See id.*

210. *Id.*

211. *See id.* at 16. Safir then goes on to cite the program in Great Britain as evidence of this theory. *See id.* Safir states that over an eighteen-month period ending in October 1998, British law enforcement identified 175 rape suspects, 46 murder suspects and over 19,000 burglary suspects with help from their expansive DNA database. *See id.*

212. *See* STATE OF NEW YORK DEPARTMENT OF CORRECTIONAL SERVICES, DIVISION OF PROGRAM PLANNING, RESEARCH AND EVALUATION, THE HUB SYSTEM: PROFILE OF INMATES UNDER CUSTODY ON JANUARY 1, 1998 (1998) [hereinafter 1998 PROFILE].

213. *See id.* at 32.

214. Statewide, a majority of inmates (69.0%) had either served a prior jail term (23.8%) or a prior prison term (35.2%) and 20.1% had a prior conviction without jail or prison. *See id.* at 32.

diting the investigation and arrest for each inmate for his or her criminal commission.

Meanwhile, in light of the total number of inmates under custody,[215] a large percentage of DNA profiles could be taken for use in future investigations. While those persons serving terms for select homicides, assaults and sexual offenses are already included in the state DNA database under current law, a majority of inmates in New York State prisons are not being profiled.[216] Specifically, almost a third of inmates (32.8%) are committed for drug offenses, 18.8% for robbery and 5.9% for burglary.[217] If each of these offenders were to be profiled under Safir's plan, approximately 40,000 more DNA profiles would be available to law enforcement statewide to aid in future investigations.[218]

The relevance of these 40,000 additional profiles comes to light when recidivism rates in New York are provided. While there are many ways to measure recidivism, it will be defined as the return or recommitment to New York State Department of Correctional Services' custody for purposes of this Note.[219]

Approximately forty-four percent of the inmates released in 1993 were recommitted within three years of their release.[220] Sta-

215. As of January 1, 1998, there were 69,099 inmates under custody in New York State. *See id.* at 2.

216. According to the 1998 *Profile*, of all those inmates under custody in New York State currently eligible for inclusion in the state's DNA databank, 9.1% are serving for Murder, 2.6% for Attempted Murder, 4.6% for Manslaughter, 2.9% for Rape in the First Degree, 1.9% for Assault in the First Degree, 1.6% for Assault in the Second Degree, 1.5% for Sodomy in the First Degree and 1.0% for Sodomy in the Second Degree. *See id.* at 26.

217. *See id.* at 25-26. These percentages represent the largest commission statistics, with others, such as kidnapping, weapons offenses, arson, etc. rounding out the rest of the prison population. *See id.*

218. 40,000 represents 57.5% of the 69,099 inmates under custody listed in the 1998 *Profile*. *See id.* at 2.

219. *See* STATE OF NEW YORK DEPARTMENT OF CORRECTIONAL SERVICES, DIVISION OF PROGRAM PLANNING, RESEARCH AND EVALUATION, 1993 RELEASES: THREE YEAR POST RELEASE FOLLOW-UP 3 (1997) [hereinafter 1993 RELEASES]. There are several forms of releases such as release of an inmate to a health facility, parole or completion of sentence. *See id.* at 1. The 1993 *Releases* includes only releases on parole and sentence completion. *See id.* Therefore, readmission to a New York correctional facility and, thus recidivism, is measured by either parole violation, occurring when a released inmate violates rules of parole and is returned to prison to continue serving time on a remaining sentence, or new felony commitment, occurring when an inmate commits a new crime within the community and receives a new sentence for it. *See id.* at 4. Essentially, the 1993 *Releases* provides return to custody statistics for all inmates released from New York State prisons in 1993 during a three-year follow-up period. *See id.* at 1.

220. *See id.* at 3.

tistics for return rates of those originally serving time for offenses not currently covered by section 995 prove the benefits of including all offenders in a statewide DNA database.[221] For example, the category defined as "Property and Other Offenses," which includes inmates committed for Burglary in the Third Degree, Grand Larceny, Forgery, Stolen Property, Driving While Intoxicated and other crimes, demonstrated that within three years, fifty percent of offenders were recommitted for another offense.[222] Similarly, of those who served time for drug offenses, forty percent returned.[223] Among other current crimes not covered by section 995, "offenses that demonstrated high return rates were Robbery 3rd (fifty-six percent), Burglary 3rd (fifty-five percent), Stolen Property (fifty-two percent) and Grand Larceny (fifty-one percent)."[224]

Indeed, these numbers suggest a striking trend: the same individuals constantly are being recycled through New York's prisons for repeat offenses. If DNA samples were taken from all arrestees, these individuals' computerized profiles would be included upon their first sentence. While obviously not helpful in all investigations, DNA database profiles would be immensely helpful in those investigations which include genetic samples left behind at crime scenes. Because many of the same individuals are recommitting crimes, proliferation of this investigative tool can help ease the burden on police, thereby reducing the time and cost of investigations.

2. *Maintaining New York City's Low Level of Crime*

Over the past decade, New York City has undergone a social renaissance, transforming itself into an inherently safer metropo-

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221. Interestingly, homicide releases, currently covered by section 995, demonstrated one of the lowest recidivism rates. *See id.* at 16. Of 176,991 inmates released during 1985-1993, 6399 had been committed for a homicide offense (Murder, Attempted Murder, Manslaughter and all other Homicide offenses), only 25% returned to prison within three years. *See id.* "Approximately 9% of those released with homicide offenses returned as new court commitment; only 6% returned for a new homicide offense." *Id.* Similarly, sex offenders (i.e. Rape, Sodomy, Sexual Abuse and all other Sex Crimes), covered under section 995, returned 33% within three years, another lower return rate. *See id.* at 18. "Of the sex offenders who returned to prison for the commission of new crime, 25% returned for the commission of another sex offense, 19% returned for a drug offense, and 17% returned for robbery." *Id.*

222. *See id.* at 11.

223. *See id.*

224. *Id.* at 10. Offenses currently included under section 995 showed comparable percentages, but represented a smaller number of inmates. For example, where Rape in the First Degree had a 46.8% return rate, 124 violators out of 265 were recommitted. *See id.* at 11. Comparatively, Robbery in the First Degree, with a 46.2% return rate, represents the return of 995 out of 2217 violators. *See id.*

lis.[225] A brief consultation of crime rate statistics over this period lends weight to this assertion. For example, in 1998, only 628 homicides were reported in New York City,[226] less than a third of the number of homicides in 1990, when a record 2262 were committed.[227] Overall, major crimes in the city dropped approximately eleven percent from 1997, with the most drastic declines recorded in homicides, down nineteen percent, and car thefts, which dropped fifteen percent.[228] Also, in 1998, "[t]here were fewer reported robberies, assaults, burglaries, grand larcenies and car thefts, and — despite early indications that the drop in rape was leveling off — [there has been an] 11 percent . . . [drop in] rapes."[229]

Criminologists debate the causes of the consistent and dramatic drop in New York City's crime rates. Some cite factors such as the booming economy, the drop in the number of people in their late teens and early twenties, the decline of drug use and the increase of incarceration as reasons for the decline.[230] Others even suggest that the current generation of teens witnessed first hand the effect of lawlessness on their families and have become weary of its costs.[231]

One factor resulting in the dramatic crime rate drop, however, can be found in the aggressive policing of New York City's populace.[232] Among other implemented strategies, the move away from community policing, calling for officers to simply walk neighborhood beats, towards utilizing modern technology to fight crime has

225. *See* David Kocieniewski, *Murders Drop 25% as Violent City Crime Falls Again*, N.Y. TIMES, July 2, 1998, at B3 (quoting Mayor Rudolph Giuliani's characterization: "Over the past four years, New York City has been transformed from the crime capital of the world to the safest large city in the United States").

226. *See* Micheal Cooper, *Chicago Logs More Killing than New York City in '98*, N.Y. TIMES, Jan. 1, 1999, at B3 (observing that New York City, with an estimated 7.3 million population logged 69 less homicides than did Chicago, a city with a 2.7 million population).

227. *See* Micheal Cooper, *Homicides Decline Below 1964 Level in New York City*, N.Y. TIMES, Dec. 24, 1998, at A1 (stating homicide levels today are the lowest since 1964, when 636 homicides were reported).

228. *See id.*

229. *Id.* Between 1990 and 1997, the total number of felony convictions has decreased 19.1%. *See* Division of Criminal Justice Services, *Criminal Justice Indicators by Percent Change, New York City: 1990-1997* (visited Jan. 10, 1999) <http://criminaljustice.state.ny.us>.

230. *See id.*

231. *See* David Kocieniewski, *Crime in City Down in '97 by 9.1 Percent*, N.Y. TIMES, Jan. 3, 1998, at B1. Kocieniewski refers to this reason as the "little brother factor." *Id.*

232. *See* Kocieniewski, *Murders*, *supra* note 225, at B3.

been very helpful in lowering crime.[233] Moreover, Mayor Giuliani's constant call for a proliferated police force,[234] the devotion of police resources to an anti-drug campaign,[235] and the work of the department's street crime unit[236] each play a role in addressing criminal problems.

The expansion of New York's DNA database is another aggressive police tactic that can help keep crime rates in New York City at these low levels. While some would question the allocation of funds toward more policing,[237] expansion of law enforcement tactics and crime reduction play too crucial a role in New York City's revitalization, from the growth in tourism to "the impressionistic sense that residents feel better about their hometown."[238] Plans to increase police efficiency, such as Safir's plan, cannot be dismissed because the city can not lose its momentum if there is an expectation to drive down crime.[239]

Meanwhile, due to the investigative efficiency posed by Safir's plan, costs associated with lengthy police investigations (such as interviewing multiple suspects, attempts to uncover inculpatory evidence and preparing eyewitnesses for prosecution) would drastically decrease, as a profile match in a database would prove highly probative in either exonerating the innocent or convicting the guilty.[240] Cost and time aside, a review of the success of a similar program in Great Britain[241] proves the effects of the practice on crime fighting, showing the strategy would aid in maintaining (or bettering) the low crime rate existing in New York City today.

233. For example, police are using computer maps to chart crimes and assign officers where they will be used most effectively throughout the five boroughs. *See* Cooper, *Homicides*, *supra* note 227, at A1.

234. The size of the New York City police force has swelled to nearly 40,000 officers. *See* Kocieniewski, *Murders*, *supra* note 225, at B3.

235. The anti-drug initiative seeks to exile narcotics dealers from neighborhoods by saturating high-crime areas with law enforcement officials. *See id.*

236. This police unit seizes illegal weapons, helping to reduce the number of shootings from 2500 in the first half of 1993 to fewer than 1000 in the first half of 1998. *See id.*

237. For example, Peter F. Vallone, the Speaker of the City Council, and Glenn Passman, the Associate Director of the Public Policy Organization, City Project, question whether the Mayor is already doing too much with law enforcement at the expense of other city services such as education, health care and social services. *See* Dan Barry, *Mayor Says Adding Officers is Key to City's Health*, N.Y. TIMES, Jan. 29, 1999, at B10.

238. *Id.*

239. *See id.* (quoting Eli Silverman, a professor at John Jay College of Criminal Justice).

240. *See* Safir's Plan, *supra* note 91, at 15.

241. *See supra* text accompanying notes 93-99.

3. *Backlog Caveat*

While the positive logical effects of an expanded DNA database are apparent, one prevalent administrative issue must be addressed before New York can seriously consider putting Safir's plan into action. That problem is state DNA laboratories lack the funds, facilities and personnel to type enough cases. Consequently, a significant backlog results, even under the current, less expansive, DNA collection statute.[242]

According to Professor Barry C. Scheck,[243] the backlog results from samples that have been collected but not profiled due to sheer volume.[244] Similarly, New York has a significant number of rape kits from unsolved sexual crimes that include genetic samples that have not been profiled and checked against the state databank.[245] Yet another problem resulting from the overload is the large number of owed samples that have yet to be collected from convicted felons under the current statute because they are out on parole.[246]

The effects of backlog in New York are numerous. Databases are not being utilized to their full investigative advantage because they are not being kept current.[247] Even when labs are able to analyze a profile, it takes months to produce results,[248] by which time a suspect may already be awaiting trial, thereby creating unnecessary expenses for the judicial system[249] and overall injustice to the de-

242. *See* Barry C. Scheck, *Getting Smart About DNA (US Does Not Use DNA Technology to Full Advantage)*, NEWSWEEK 69 Nov. 16, 1998; Mike Pezzella, *FBI DNA Dragnet to Track Fugitives in 50 States*, BIOTECHNOLOGY NEWSWATCH, Oct. 19, 1998, at 1. Nationally, over 450,000 samples exist at crime laboratories that have not yet been analyzed. *See* Kendall Anderson, *Panel Debates Taking DNA Upon Arrest; Some at Dallas Meeting Say Samples Backlogged*, THE DALLAS MORNING NEWS, March 2, 1999, at 13A.

243. Barry C. Scheck is a law professor and co-director of the Innocence Project at the Benjamin N. Cardozo School of Law in New York City. *See* Scheck, *DNA*, *supra* note 242, at 69. The Innocence Project utilizes DNA testing to aid in defending inmates wrongfully convicted of crimes. *See id.* Professor Scheck is also a commissioner on New York's Forensic Science Review Board, which created and maintains the state's DNA databank. *See id.*

244. *See* Scheck Transcript, *supra* note 15, at 54.

245. Professor Scheck estimates there are approximately 10,000 such kits in New York, which were formerly being thrown away before a change in policy. *See id.* at 59.

246. *See id.* at 56.

247. *See id.* at 54.

248. *See* Scheck Transcript, *supra* note 15, at 62; *see also Cellmark to Use New DNA Test to Link Criminals to Unsolved Crimes*, PR NEWSWIRE, Feb. 15, 1999.

249. "[D]efendants are likely to plead guilty quickly after getting bad DNA results." *Cellmark*, *supra* note 248.

tained.[250] Comparatively, the British, who have made the investment in sufficient personnel and facilities, are able to profile their crime scene DNA within two weeks because they do not have backlog problems.[251]

The solution to the problem of backlog simply would be to fund the state laboratories so that they are able to efficiently transform incoming evidence into computerized profiles, as well as eliminate the current backlog at these labs.[252] In a recent budget proposal, President Clinton set aside federal funds to aid anti-crime initiatives.[253] Recognizing the backlog issue, the proposal allots fifteen million dollars to eliminate over one million backlogged convicted offender DNA samples at state laboratories.[254] When these old samples are digitized, states can allocate funds to provide facilities and personnel to handle the volumes of incoming samples and thus prevent future backlog.

Conclusion

The ability to store the genetic records of criminals in a database is an invaluable tool when used for law enforcement identification purposes. Such a technique, however, is not used to its utmost potential when only selected criminals are included in the database. The implementation of a system where DNA is taken from all those arrested for inclusion in a statewide DNA database would strengthen the fight against crime in New York by detering recidivism, assisting in maintaining record low crime rates and easing investigative burdens on law enforcement agencies.

The proposed system, in light of inherent government interest in crime fighting, does not violate an arrestee's privacy rights. Although steps first should be taken to address the misappropriation of information and backlog, the New York State Legislature should adopt Safir's plan into law because of its potential as an invaluable law enforcement tool.

250. "[I]ndigent defendants, unable to make bail, spend time in jail for crimes they did not commit." *Id.*

251. *See id.*; *See also* Scheck Transcript, *supra* note 15, at 62.

252. *See* Scheck, *DNA*, *supra* note 242, at 69; *see also* Anderson, *supra* note 242, at 13A.

253. *See* Juan Otero, *Clinton Focuses Funds on Anti-Crime Initiatives*, NATION'S CITIES WKLY. Feb. 8, 1999, at 13.

254. *See id.*