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## Relative Doubt: Familial Searches of DNA Databases

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# RELATIVE DOUBT: FAMILIAL SEARCHES OF DNA DATABASES

Erin Murphy\*

*The continued growth of forensic DNA databases has brought about greater interest in a search method known as “familial” or “kinship” matching. Whereas a typical database search seeks the source of a crime-scene stain by making an exact match between a known person and the DNA sample, familial searching instead looks for partial matches in order to find potential relatives of the source. The use of a familial DNA search to identify the alleged “Grim Sleeper” killer in California brought national attention to the method, which has many proponents. In contrast, this Article argues against the practice of familial searching on a variety of grounds, including claims related to equality, accuracy, privacy, racial discrimination, and democratic accountability. It then addresses the legality of the method. Lastly, in the event that arguments to prohibit the practice prove unpersuasive, this Article sets forth recommendations for restrictions on familial searches that might ameliorate their possible iniquitous effects.*

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## INTRODUCTION

In 2005, Denver District Attorney Mitchell Morrissey recovered DNA profiles in three separate unsolved rape cases, but his search for matching profiles in the national DNA database failed to return any hits.<sup>1</sup> Typically, such a search looks for complete identity between a crime-scene sample and a known offender using thirteen genetic markers. However, the software that compares profiles can reveal not only exact matches, but also near-miss matches of fewer markers. In Morrissey's case, each of the three searches also uncovered partial matches. Because genetic information is inherited, Morrissey conjectured that those profiles might belong to relatives of the sources, and thereby point to the perpetrators of the offenses.

The only problem was that the matches originated in Oregon, Arizona, and California, and the Federal Bureau of Investigation ("FBI"), which administers the national database, stores its information anonymously. Even though a state can always access its own information, FBI rules forbade states from disclosing to other states the identifying information of anyone other than the "putative perpetrator." When Morrissey asked for an exemption, federal DNA database head Thomas Callaghan refused, citing concerns about privacy and fairness.<sup>2</sup> He worried that the searches would discredit

1. Maura Dolan & Jason Felch, *Tracing a Suspect Through a Relative*, L.A. TIMES, Nov. 25, 2008, at 1.

2. Ellen Nakashima, *From DNA of Family, a Tool to Make Arrests*, WASH. POST, Apr. 21, 2008, at A1.

DNA databasing efforts, and stated that he “would be more comfortable with congressional authorization to conduct familial searches.”<sup>3</sup>

Frustrated, Morrissey wrote to the director of the FBI laboratories in 2006, complaining that the policy “protects murderers and rapists” and warning that one of his “quite assertive” victims would generate a media maelstrom.<sup>4</sup> Several days later, FBI Director Robert Mueller called Morrissey to discuss the issue. Shortly thereafter, Director Mueller changed the national database regulations to permit the release by states of identifying information in the event of a partial match, defined as one allele at each locus.<sup>5</sup> Arizona and Oregon then complied with Morrissey’s request, but California still resisted. After a campaign by the state’s sheriffs and district attorneys’ organizations, however, California Attorney General Jerry Brown agreed to release the name. Then, in April of 2008, Brown announced that California would not only share such information, but would also set out the first policy in the nation that explicitly authorizes intentional searches for partial matches—also known as “familial” or “kinship” searches—in its DNA databank.<sup>6</sup> Additional jurisdictions have since then formally announced their intention to begin conducting familial searches,<sup>7</sup> and individual laboratories have simply conducted such searches even in the absence of formal legal authorization or express policies.<sup>8</sup>

Interestingly, often lost in recitations of Morrissey’s crusade is one revealing fact: his familial searches did not work. None of the three matches turned out to point toward a relative, much less the source, of the actual crime-scene sample.<sup>9</sup> Also often absent from the tale is any story of what happened in the aftermath of the searches. How many relatives were investigated? How did officials rule out wrongly identified persons, or attempt to confirm the identity of a perpetrator? Given that it failed in three separate cases, how tailored was the partial match search?

In contrast to Morrissey’s unsuccessful first venture into familial searching stands the story of the apprehension of the alleged “Grim Sleeper” killer. After California adopted its familial search policy, investigators began using

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3. *Id.*

4. Dolan & Felch, *supra* note 1.

5. Bulletin, CODIS Bulletin # BT072006, Interim Plan for Release of Information in the Event of a “Partial Match” at NDIS (July 20, 2006).

6. Information Bulletin from Edmund G. Brown, Jr., Attorney General, DNA Partial Match (Crime Scene DNA Profile to Offender) Policy No. 2008-BFS-01 (2008) [hereinafter California Policy]; Maura Dolan & Jason Felch, *California Takes Lead on DNA Crime-Fighting Technique*, L.A. TIMES, Apr. 26, 2008, at 1.

7. See, e.g., Jeremy W. Peters, *New Rule Allows Use of Partial DNA Matches*, N.Y. TIMES, Jan. 25, 2010, at 12 (announcing New York’s change in policy, as of December 2009, to permit kinship matches under certain circumstances).

8. See Natalie Ram, *Fortuity and Forensic Familial Identification*, 63 STAN. L. REV. (forthcoming 2011); see also Natalie Ram, *Interactive Map: State Policies for DNA Crime Databases Vary Widely*, SCI. PROGRESS, Nov. 2, 2009, <http://www.scienceprogress.org/2009/11/map-state-dna-policies/print/>.

9. Dolan & Felch, *supra* note 1.

the technique. Ten attempts were unsuccessful, including one involving a genetic profile that linked the slayings of at least ten women in the Los Angeles area to one likely perpetrator, dubbed the "Grim Sleeper."<sup>10</sup> But in April of 2010, a second search in the case uncovered a potential match to a recently convicted offender believed to be the Sleeper's son.<sup>11</sup> After a sting operation in which officers surreptitiously collected a piece of pizza discarded by the suspect, tests revealed a match to the crime-scene samples and the suspect was arrested.<sup>12</sup> Unlike the Morrissey cases, the California search apparently not only proved successful in finding an actual relative, but also (likely as a result) produced a public record of the course of the follow-up investigation.

The Morrissey and Grim Sleeper case studies illustrate both the promise and the perils of familial DNA searching. On the one hand, familial searches offer the opportunity to solve horrific crimes that have frustrated all law enforcement efforts; on the other hand, they can generate false starts or cast suspicion on wholly innocent people solely on account of biological relatedness. This Article examines the practice, and ultimately argues against it on both utilitarian and deontological grounds. Part I provides a brief technical background. Part II argues normatively against the method, offering six separate arguments that reference both its practical utility and moral defensibility as a law enforcement tool. Part III then addresses the legality, and in particular the constitutionality, of the practice. And finally, in the event that the previous Parts fail to persuade, Part IV suggests safeguards intended to minimize the intrusiveness and discriminatory potential of such searches.

## I. A BRIEF INTRODUCTION TO FAMILIAL SEARCHING

### A. *Forensic DNA: Mechanics*

A person's genome is made up of 3.2 billion nucleotides (abbreviated as G, T, C, or A) inherited equally from one's mother and father and stored in divided bunches on twenty-three paired chromosomes.<sup>13</sup> These chromosomes are found in the nuclei of each of the roughly 100 trillion cells that make up a human being.<sup>14</sup> Genome "sequencing," or the process of unpacking the genetic strand to uncover the letters and put them in order, has

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10. Greg Miller, *Scientists Explain How Familial DNA Testing Nabbed Alleged Serial Killer*, SCIENCE INSIDER, July 12, 2010, <http://news.sciencemag.org/scienceinsider/2010/07/scientists-explain-how-familial.html>. It is unclear whether the ten prior attempts turned up no leads at all, or whether some turned up leads, but further investigation of those leads' relatives relieved them of suspicion.

11. Dolan & Felch, *supra* note 1.

12. Miller, *supra* note 10.

13. JOHN M. BUTLER, *FORENSIC DNA TYPING* 17–20 (2d ed. 2005). See generally Erin Murphy, *The Art in the Science of DNA: A Layperson's Guide to the Subjectivity Inherent in Forensic DNA Typing*, 58 EMORY L.J. 489, 495 (2008). The twenty-third chromosome pair is the sex chromosome—either XX for females or XY for males. *Id.*

14. Murphy, *supra* note 13, at 494–95.

revealed that the vast majority of DNA—over 99.7 percent—is identical between two people.<sup>15</sup> However, certain stretches of the DNA strand, called “microsatellites,” contain a finite quantity of variability that can serve to distinguish one individual from another.<sup>16</sup>

The most common form of forensic DNA typing in the United States, known as “STR” or “single-tandem repeat” typing, looks to thirteen places (or “loci”) on the genomic strand and counts the number of times certain known sequences repeat themselves.<sup>17</sup> These are referred to as the “autosomal” loci, because the genes are spread across the twenty-two chromosomes that are identical in both sexes, as contrasted to the “Y-STR” loci, which reference genetic material found only on the male Y sex chromosome. At each locus, analysts measure two repeat lengths, otherwise known as “alleles”—one descended from the mother and one from the father. By counting the repeats at thirteen loci, an analyst can obtain twenty-six discrete measurements that help individuate one person from another.<sup>18</sup>

Because these twenty-six alleles are directly inherited from one’s biological parents, there is a significant probability that two people who share biological ties will also share a large number of alleles in common. At minimum, a child and a parent will match at thirteen alleles, for instance. Due to the unpredictability of inheritance (since, of course, it is possible for one sibling to inherit one-half of a parent’s twenty-six alleles while the other inherits the other half), it is not possible to state definitively how many alleles two siblings will share in common.<sup>19</sup> However, one estimate suggests that siblings on average share roughly 16.7 alleles in common.<sup>20</sup> Interestingly, the probability of overlap turns on several factors—most pertinently on common inheritance, but also on the likelihood that the parents themselves shared a particular allele and the commonness of that allele in the population at large.<sup>21</sup> Suffice it to say, however, that it is possible to draw inferences of relatedness based on a particular pattern or distribution of alleles in the genetic profiles of two individuals.

In the United States, all fifty states and the federal government collect and type biological samples, typically from convicted persons, but more

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15. BUTLER, *supra* note 13, at 26.

16. *Id.* at 85–86.

17. Murphy, *supra* note 13, at 495.

18. BUTLER, *supra* note 13, at 23.

19. Identical twins will of course share all alleles in common. *Id.* at 26.

20. Henry T. Greely et al., *Family Ties: The Use of DNA Offender Databases to Catch Offenders’ Kin*, 34 J.L. MED. & ETHICS 248, 253 (2006); *see also* Simon Cowen & Jim Thomson, *A likelihood ratio approach to familial searching of large DNA databases*, 1 FORENSIC SCI. INT’L 643, 644 & fig.1 (2008) (reporting on simulations of shared allele expectations in related and unrelated populations using SGM+ loci).

21. Greely et al., *supra* note 20, at 253.

recently also from arrestees.<sup>22</sup> The material is then stored in databases at the local, state, and national level. The Combined DNA Index System (“CODIS”) is the name of software developed by the FBI to conduct searches of genetic profiles, but it has come to stand for the idea of the national database itself—a central repository into which all states can “upload” their profiles and then in turn search among the profiles deposited by other jurisdictions.<sup>23</sup> The uploaded profiles consist solely of the numbers describing the alleles, as well as identifying information that allows the record to be traced back to the uploading entity. The jurisdiction that enters the record retains all of the personal information (such as the name and address) of the individual to whom it belongs.<sup>24</sup> Originally, there were separate rules for what kinds of material could be uploaded nationally versus kept within a state’s own borders<sup>25</sup>—for instance, arrestee profiles were initially prohibited from being placed in CODIS.<sup>26</sup> However, a subsequent enactment enabled the FBI to change its rules to allow states to upload any profile collected in a manner consistent with the state’s own laws.<sup>27</sup>

The national database has grown impressively in size since its authorization by Congress in 1994.<sup>28</sup> It contains several different indexes of profiles, but most relevant to this discussion are those belonging to known persons (often called “offender profiles”) and samples of unknown origin gathered from crime scenes (often called “crime-scene” or “forensic” profiles).<sup>29</sup> As of August 2010, the national database contained over 8.7 million offender profiles and over 332,000 forensic profiles.<sup>30</sup> Links can be made between a crime-scene sample and a known offender (often called a “cold hit”), as well as between two samples from the same or different crime scenes. There have already been numerous instances of individuals convicted on the basis of a cold hit alone.<sup>31</sup>

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22. Erin Murphy, *The New Forensics: Criminal Justice, False Certainty, and the Second Generation of Scientific Evidence*, 95 CALIF. L. REV. 721, 738 (2007).

23. *Id.* at 739–40 & nn.74 & 79.

24. BUTLER, *supra* note 13, at 440.

25. Murphy, *supra* note 22, at 739 & nn.75 & 76.

26. 42 U.S.C. § 14132(a)(1)(C) (2000).

27. 42 U.S.C. § 14132(a)(1) (2006) (adding to “persons convicted of crimes” also those “charged in an indictment or information with a crime” as well as “other persons whose DNA samples are collected under applicable legal authorities”); Justice for All Act of 2004, Pub. L. No. 108-405, § 203(a)(1), 118 Stat. 2260, 2269 (2004) (altering enabling legislation).

28. 42 U.S.C. § 14131–32 (2006).

29. Murphy, *supra* note 22, at 738.

30. Federal Bureau of Investigation, CODIS Statistics Clickable Map, <http://www.fbi.gov/hq/lab/codis/clickmap.htm> (last visited Oct. 6, 2010).

31. Yun S. Song et al., *Average Probability that a “Cold Hit” in a DNA Database Search Results in an Erroneous Attribution*, 54 J. FORENSIC SCI. 22, 22–23 (2009) (citing cases where convictions were obtained by this method). *See generally* Andrea Roth, *Safety in Numbers?: Deciding When DNA Alone Is Enough To Convict*, 85 N.Y.U. L. REV. 110 (forthcoming Oct. 2010).

A law enforcement officer wishing to search a database has several options. First, the officer must choose which level of database to search.<sup>32</sup> The national database (“NDIS”) is the most comprehensive, as it contains the greatest number of profiles from the widest array of jurisdictions. But the officer might also search her own state level database (“SDIS”) or even a locally maintained database (“LDIS”). Databases within a jurisdiction might contain more local material than the national database, because the rules about the submission’s quality or its connectedness to a crime scene might be relaxed within a state or locality.<sup>33</sup> If a search conducted in the national database reveals a match, then the FBI facilitates the disclosure of information between the jurisdictions according to FBI policy. In contrast, a search within a jurisdiction or locality that turns up a match can be dealt with according to that jurisdiction’s own rules.

The investigator must also decide how strictly to construe the match parameters. The CODIS software allows three levels of inquiry: high, moderate, and low stringency.<sup>34</sup> A high-stringency search requires identity both in number and kind of all twenty-six of the alleles in the two samples.<sup>35</sup> A moderate-stringency search returns matches in which the profile has all twenty-six alleles of the submission, but the submission contains additional material as well. Such a search could be useful in the case of mixtures, when investigators wish to pull up all profiles that contain all of the submitted sample’s alleles, while also allowing the submission to have extra alleles likely belonging to another person.<sup>36</sup> A low-stringency search returns matches in which at least one allele is present, even though the profile has additional alleles that the sample does not, or vice versa.<sup>37</sup> Typically, a search in a DNA database is conducted on high- or moderate-stringency, and the goal is to return an exact match. However, because lower-stringency searches are possible, a search may also return near misses or “partial matches.”<sup>38</sup>

### B. Familial Searching: Mechanics

Familial searching refers generally to the idea of looking in a DNA database not for the person who left the crime-scene sample, but rather for a relative of that individual. That is, when a database search does not turn up

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32. Murphy, *supra* note 22, at 739 (explaining databases available at local, state, and national levels).

33. BUTLER, *supra* note 13, at 441; Murphy, *supra* note 22, at 739 n.75. This benefit subsided slightly when the federal rules adapted to allow uploading of any material collected in compliance with state regulations.

34. Eva Steinberger & Gary Sims, *Finding Criminals Through the DNA of Their Relatives—Familial Searching of the California Offender DNA Database*, 31 PROSECUTOR’S BRIEF 28, 30 (2008).

35. *Id.*

36. *Id.* at 30–31.

37. *Id.* at 30.

38. *Id.* at 29–31.



an exact match, it is possible to follow up with a moderate- or low-stringency search that returns partial matches—profiles that match some, but not all, of the sample's alleles. Studies show that, if the database does indeed contain a relative and the search threshold is set widely enough, it is 80 to 90 percent likely that a partial match search will include the relative in its results.<sup>39</sup> But studies also show that such a search is also likely to return a number of persons that are not in fact related to the source.<sup>40</sup> The exact number of such persons depends dramatically on the scope of the search, which will be explored in greater depth in Section IV.D. For now, suffice it to say that a reasonably tailored search is likely to uncover as few as one or as many as twenty-five persons.<sup>41</sup>

Discussing familial search methods can be confusing, because the word “relative” can refer to the person in the database, any of that person's kin (suspected sources of the material), as well as the actual source of the material. Thus, for purposes of clarity, it may be helpful to establish a vocabulary regarding such searches. For purposes of this Article, the persons in the database will be called “offenders” or “database leads,” since they are the individuals who, by possessing a databased profile that partially matches a crime-scene sample, point toward suspects, one of whom may be the source. Note that there will, in many cases, be multiple leads—a partial match search by its very nature can always return more than one potential lead. Of those many leads, multiple suspects (the relatives of those leads) may be generated. Thus, for this Article, “suspects” refers to the relatives of those databased persons—the individuals on whom suspicion will fall as a result of their relatedness to the databased individual. Although in theory *any* relative of a lead could be considered a suspect, in reality the true suspects are likely to be those relatives who fit the presumed profile of the criminal perpetrator; we can imagine that investigators will in most cases rule out the toddlers and grandmothers of the leads, for instance. Finally, I will use “source” to identify the actual individual who left the unknown crime-scene sample, usually considered to be the perpetrator of the offense.

Most importantly, the word “relatives” here refers *only* to the pool of suspects (of which the source may be a part) generated as a result of a database partial match search—that is, an undefined number of individuals under suspicion as a result of a partial match search that identified one or more database leads as a possible relation of the source. Accordingly, “suspects” and “relatives” here are somewhat interchangeable, although we might imagine that while “relatives” includes the entire universe of persons

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39. Erin E. Murphy et al., *Equality, Efficiency & Familial DNA Search Policies* (unpublished manuscript) (on file with author); see also Frederick R. Bieber et al., *Finding Criminals Through DNA of Their Relatives*, 312 Sci. 1315, 1315–16 (2006) (estimating that roughly 80 percent of siblings might be identified).

40. T.M. Reid et al., *Use of sibling pairs to determine the familial searching efficiency of forensic databases*, FORENSIC SCI. INT.: GENETICS 340–42 (2008).

41. *Id.*

related to the database lead, “suspects” refers to a more narrow class of likely perpetrators (e.g., no grandmas or toddlers).

To illustrate, imagine a homicide in which scrapings from beneath the victim’s fingernails turn up the profile of the likely perpetrator. Detectives first run the sample in the database to find the source, but no matches are forthcoming. Detectives then run the sample at lower stringency, and turn up twenty-five leads, which they narrow down to a list of five based on other factors (say, proximity to the crime scene). Detectives then investigate the relatives of the five leads, to determine if any link to the source. Four turn out to be clearly bad leads—investigation of their relatives reveals that none is the source. Those relatives, then, are innocent suspects—they were suspected of the crime as a result of the database lead, but have nothing to do with the offense. Imagine that the fifth lead turns out to have two relatives, one of whom is totally innocent (an innocent suspect), but the other of whom proves to be the source (in this example, the perpetrator). Of course, there may also be cases with many leads (databased offenders that partially match the crime-scene stain) that generate many suspects (the relatives of those offenders), and yet no source is found (because subsequent testing excludes each of those relatives as the possible source).

Lastly, it is important to note that the number of leads generated, and thus the number of suspected relatives investigated, will be a function of several factors. The most direct function relates to the manner in which the search is conducted—the technical parameters that are imposed. A search that sets incredibly high standards for leads, by requiring a great deal of identity between the sample and a known profile, will greatly increase the likelihood that one of those leads pans out, but such strict parameters are also more likely to eliminate a lead that would have pointed toward the source. Conversely, a search that sets lower standards, and allows partial matches with less identity, may generate a greater overall number of leads, one of whom might be related to the source, but it will be far more difficult to find the useful lead within this larger suspect pool. In other words, if the search looks for matches of twenty-five alleles, then it is less likely to identify leads, but the leads identified are more likely to in fact be relatives. If the search looks for matches of only fifteen alleles, it will return a large number of leads, but among them is likely to be a source’s databased relative. Choosing how to conduct the search is thus a trade-off: if the standard is too high, it will inevitably cut out leads that are in fact related to the source, but if the standard is too low, it will sweep in a larger number of individuals who are innocent and make it more difficult to find the true source.

This trade-off is exemplified in the manner in which partial match leads come about, since near-miss matches can come about two ways. The first, often called “inadvertent partial matching,” occurs when investigators search the database intending to find an exact match, but use a low- rather than high-stringency search. In some cases, the search inadvertently turns up matches that are closely approximate. At that point, the analyst has two choices: she can report the partial matches to law enforcement or return a

report that states that no exact matches were found. Which of those routes the analyst takes often depends on the policy, custom, or laws of the particular jurisdiction. Some states expressly forbid reporting in such cases, others expressly allow it, and still others remain silent. It may also turn on the closeness and number of the matches—if the inadvertent match is one individual matching at twenty-three of twenty-six alleles, for instance, the analyst may be more inclined to report it than if it is a handful of persons matching at seventeen of twenty-six alleles.

The second method, called “intentional familial searching,” is an intentional search for partial match leads. In that case, the very purpose of the search is to identify possible leads and then investigate any suspicious relatives. California, in adopting its policy, became the first jurisdiction (state or federal) to explicitly authorize intentional familial searches, although it is not the only state that undertakes them. The California policy permits searches, in certain circumstances, for partial matches at fifteen alleles, and then requires an additional form of genetic typing (Y-STRs) to winnow those leads down to a manageable number.

The next Section explores the current landscape of familial searches in greater depth. But first, one final point is worth observing: most experts acknowledge that the current iteration of the CODIS software does a poor job of identifying true leads in familial searches.<sup>42</sup> Because the software was not designed for this purpose, it fails to take into account the wide variation in the popularity of certain allelic combinations as opposed to others. By simplistic analogy, it is akin to running a computer program designed to ferret out suspects by their names that does not differentiate between names that have an “X” in them versus those that start with an “X.” It would thus consider “Alexander” as equally probable a match as “Xenia.” Naturally, advocates of intentional familial searches have moved toward the development and deployment of more sensitive search tools, and some such tools are already available.<sup>43</sup> Accordingly, this Article will assume the deployment of the best current technologies in assessing familial search practices.

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42. Steinberger & Sims, *supra* note 34, at 31 (“Research conducted at the DOJ Richmond DNA laboratory has shown that CODIS, in its current configuration, is a very poor tool for finding familial relationships.”). That is because “CODIS looks for allele-sharing patterns based on the level of stringency specified in a search and does not take into account the rarity in the population of a shared allele.” *Id.*; see also Dolan & Felch, *supra* note 1 (“The FBI software was not designed to find relatives, and a standard search accidentally eliminates more than 99.9% of relatives while often fingering people whose profiles are similar by pure chance . . .”).

43. Denver DA Mitch Morrissey has stated that he is testing software explicitly designed for such searches. National Forensic Science Technology Center, Familial DNA Search Investigations, <http://projects.nfstc.org/postconviction/presentations/morrissey.pdf> (last visited Sept. 9, 2010). It appears that he is referring to a program known as “DNA•View,” which was developed by a researcher. DNA•View, <http://dna-view.com/dnaview.htm> (last visited Sept. 9, 2010). Morrissey claims that it can eliminate 90 percent of unrelated people.

## C. Current Landscape

Perhaps surprisingly, the concept of familial searching has been around for a decade or so. In fact, the first forensic use of DNA typing was in a familial context: an immigration case in the United Kingdom used genetic typing to “test of the truthfulness of a claim to family connectedness.”<sup>44</sup> The first familial database search, however, did not occur until 2002, when genetic testing led investigators in a serial rape case from the 1970s to a profile that turned out to be the son of the perpetrator.<sup>45</sup> That search proceeded in a somewhat unorthodox fashion: investigators had compiled a list of potential suspects based on various conventional investigative methods, and one of those listed was a man by the name of Joseph Kappen.<sup>46</sup> Further investigation revealed that Kappen had since died, but a familial search of the national database produced his son as a possible familial lead. Based on this information, investigators received permission to exhume Joseph Kappen’s body, and subsequent testing revealed a match.<sup>47</sup>

Presently, the United Kingdom and New Zealand actively engage in familial search methods,<sup>48</sup> with conflicting reports on its rate of success,<sup>49</sup> and other countries have similarly expressed an interest in pursuing the technique.<sup>50</sup> Canada appears to be the only country to expressly forbid the practice, apparently on privacy grounds.<sup>51</sup> The first conviction based on

44. Robin Williams & Paul Johnson, *Inclusiveness, Effectiveness and Intrusiveness: Issues in the Developing Uses of DNA Profiling in Support of Criminal Investigations*, 34 J.L. MED. & ETHICS 234, 242 (2006).

45. *Id.* at 243.

46. *Id.*

47. *Id.*

48. See Thomas Jones, *The Devil is in the Detail*, GUARDIAN, Apr. 10, 2010, at 24. The UK Forensic Regulator is presently undertaking a review of the practice. Carole McCartney et al., *The Future of Forensic Bioinformation*, NUFFIELD COUNCIL ON BIOETHICS at 86 (May 2010), available at <http://www.law.leeds.ac.uk/assets/files/research/ccjs/forensic-bioinformation-report.pdf>.

49. See, e.g., James M. Curran & John S. Buckleton, *Effectiveness of familial searches*, 84 SCI. & JUST. 164, 164 (2008). One recent article cited seventy searches since 2004, eighteen of which led to matches and thirteen to convictions. Jeffrey Rosen, *Genetic Surveillance for All*, SLATE, Mar. 17, 2009, <http://www.slate.com/id/2213958/>. Another report suggests that as of April 2008, eight cases had been solved in this way. Nakashima, *supra* note 2, at A1; see also Richard Willing, *DNA ‘near matches’ spur privacy fight*, USA TODAY, Aug. 2, 2007, [http://www.usatoday.com/news/nation/2007-08-02-dna\\_N.htm](http://www.usatoday.com/news/nation/2007-08-02-dna_N.htm) (citing fifteen cases); Richard Willing, *Suspects get snared by a relative’s DNA*, USA TODAY, June 7, 2005, [http://www.usatoday.com/news/nation/2005-06-07-dna-cover\\_x.htm](http://www.usatoday.com/news/nation/2005-06-07-dna-cover_x.htm) (citing nine solved cases); NATIONAL POLICING IMPROVEMENT AGENCY, NATIONAL DNA DATABASE ANNUAL REPORT, available at <http://www.npia.police.uk/en/14395.htm>.

50. Legislation is presently pending in the Netherlands to allow familial searches, and Spain and Western Australia are also investigating the practice. GENETIC SUSPECTS: GLOBAL GOVERNANCE OF FORENSIC DNA PROFILING AND DATABASING 177 (Richard Hindmarsh & Barbara Prainsack, eds. 2010).

51. Amelia Belalmy-Royds & Sonya Norris, *New Frontiers in Forensic DNA Analysis: Implications for Canada’s National DNA Data Bank*, at 10, Parliamentary Information and Research Service (Mar. 3, 2009), <http://www2.parl.gc.ca/Content/LOP/ResearchPublications/prb0829-e.pdf>; see also Royal Canadian Mounted Police, 2008–2009 Annual Report, <http://www.rcmp-grc.gc.ca/dnaac-adncc/annurp/2008-2009-annurp-eng.htm#kinship>.

familial searching occurred in a particularly spectacular case, in which British investigators identified a youth who threw a brick off of an overpass, causing a driver to die of a heart attack, through the databased profile of his brother.<sup>52</sup>

The picture of familial searching in the United States is considerably murkier, both formally and informally. But thanks to a comprehensive study in late 2009 by Natalie Ram, some clarity is possible.<sup>53</sup> At the time of her analysis, fifteen states expressly permitted the reporting of partial matches;<sup>54</sup> California and Nebraska also expressly authorized familial searches. Six states prohibited familial searching, but were unclear about whether partial matches may be reported.<sup>55</sup> Eleven states seemed to prohibit both partial match reporting and intentional familial searching.<sup>56</sup> Finally, four states had policies in progress,<sup>57</sup> and thirteen gave no response to the survey.<sup>58</sup>

Significantly, of all those states, only two have formal, readily accessible statements of their rules. California has a written and publicly available policy drafted by the attorney general (which explicitly outlines procedures for intentional familial searching).<sup>59</sup> Maryland has a state statute forbidding familial searching.<sup>60</sup> Of the remaining states, thirteen have spelled out their policies in internal lab manuals,<sup>61</sup> and twelve proceed only on internal practice without a written policy.<sup>62</sup> Thus, formal law provides very little guidance. Instead, many jurisdictions appear to follow a flexible approach in which investigators do not actively pursue partial matches, but may follow up on them should an unusually close matching profile turn up—a practice that works because the vast majority of states have DNA laws that neither expressly permit nor forbid kinship searches.<sup>63</sup> In the absence of clear legal

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52. *Surrey Police, First successful prosecution after use of pioneering DNA technique*, [http://www.surrey.police.uk/media/news\\_item.asp?area=12&itemID=4293](http://www.surrey.police.uk/media/news_item.asp?area=12&itemID=4293) (last visited Sept. 10, 2010).

53. Ram, *supra* note 8.

54. Alabama, California, Connecticut, Florida, Louisiana, Minnesota, Missouri, Montana, Nebraska, North Carolina, Oklahoma, Oregon, South Carolina, Washington, and Wyoming. *Id.*

55. Indiana, Iowa, Kentucky, Maryland, Ohio, and Wisconsin. *Id.*

56. Alaska, Georgia, Maine, Massachusetts, Michigan, Nevada, New Mexico, Rhode Island, Tennessee, Utah, and Vermont. *Id.*

57. Colorado, Illinois, North Dakota, and West Virginia. *Id.* At the time of the survey, New York was still reviewing the practice, but it has since announced that it will permit the reporting of inadvertent familial matches. *See Peters, supra* note 7.

58. Arizona, Arkansas, Delaware, Hawaii, Idaho, Kansas, Mississippi, New Hampshire, New Jersey, Pennsylvania, South Dakota, Texas, and Virginia. The District of Columbia also did not respond. Ram, *supra* note 8.

59. California Policy, *supra* note 6.

60. MD. CODE ANN., PUB. SAFETY § 2-506(d) (West 2010).

61. Ram, *supra* note 8.

62. *Id.*

63. *See, e.g.,* MINN. STAT. §§ 609.117 (2009) (neither prohibiting nor providing for familial searches). In contrast, New York grants express statutory approval to conduct partial match searches, but until it announced an express policy in December 2009 that allowed reporting of inadvertent matches, it did not seem to be regularly engaged in familial searches. Ram, *supra* note 8; *see also*

standards, there can emerge totally divergent practices. For instance, in 2007, the administrator of the Massachusetts state DNA database was fired in part for reporting four near-matches, a practice state officials claimed was prohibited.<sup>64</sup> Meanwhile, Denver, the home of DA Morrissey, began testing software designed specifically for familial searches in September of 2007 with apparent political support, even absent official statutory authorization.

## II. SHOULD WE ALLOW FAMILIAL SEARCHES?

Given that familial searching only began in earnest in 2002 in the United Kingdom, it is perhaps not altogether surprising that discussion of the practice in the academic literature both as a matter of empirical inquiry and legal study has only recently begun. A few articles examine the British experience,<sup>65</sup> as have a series of student pieces in American legal journals.<sup>66</sup> The first cornerstone treatments of the issue were two pieces published in 2006, both of which expressed support for familial search methods, though with reservations.<sup>67</sup> Each generated some original empirical calculations about the likely success of familial searches—one claiming that “kinship analyses . . . could increase a 10% cold-hit rate to 14%—that is, by 40%.”<sup>68</sup>

More substantive legal articles addressing the American experience have been published, including two notable contributions by Jessica Gabel and Jules Epstein.<sup>69</sup> Professor Gabel focuses primarily on the legal implications of familial searching, canvassing statutory and Fourth Amendment implications

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Duncan Carling, Note, *Less Privacy Please, We're British: Investigating Crime with DNA in the U.K. and the U.S.*, 31 HASTINGS INT'L & COMP. L. REV. 487 (2008).

64. Jonathan Saltzman, *Director of crime lab quits post*, BOSTON GLOBE, Mar. 10, 2007, at A1. The administrator, Robert Pino, disputed the claim that the practice was prohibited. *Id.*

65. See, e.g., Carole McCartney, *The DNA Expansion Programme and Criminal Investigation*, 46 BRIT. J. CRIMIN. 175, 181 (2006); Williams & Johnson, *supra* note 44, at 245–46.

66. See, e.g., Daniel J. Grimm, Note, *The Demographics of Genetic Surveillance: Familial DNA Testing and the Hispanic Community*, 107 COLUM. L. REV. 1164 (2007); Lina Alexandra Hogan, Note, *Fourth Amendment—Guilt By Relation: If Your Brother Is Convicted of a Crime, You Too May Do Time*, 30 W. NEW ENG. L. REV. 543 (2008); Kimberly A. Wah, Note, *A New Investigative Lead: Familial Searching as an Effective Crime-Fighting Tool*, 29 WHITTIER L. REV. 909 (2008); Michael Seringhaus, *The Evolution of DNA Databases: Expansion, Familial Search, and the Need for Reform* (manuscript on file with author).

67. Bieber et al., *supra* note 39, at 1315–16 (emphasizing the value of familial searches as an investigative tool, but cautioning that “[e]very agency or country considering such methods should evaluate attendant policy, ethical, and legal implications”); Greely et al., *supra* note 20, at 248, 255, 260 (concluding that there are no “persuasive constitutional or policy arguments for prohibiting or greatly limiting the use of this technique as a general matter,” but noting that the questions of racial disparity might make it “wise to consider an expressly population-wide database rather than ending up with something that, through the extension to family members, becomes a large but racially biased database”).

68. Bieber et al., *supra* note 39, at 1316.

69. Jules Epstein, “Genetic Surveillance” – *The Bogeyman Response to Familial DNA Investigation*, 2009 U. ILL. J.L. TECH. & POL’Y 141 (2009); Jessica D. Gabel, *Probable Cause from Probable Bonds: A Genetic Tattle Tale Based on Familial DNA*, 21 HASTINGS WOMEN’S L.J. 3 (2010).

of the practice.<sup>70</sup> She concludes that statutory or constitutional privacy claims by a target are likely to be “implausib[le.]”<sup>71</sup> and that searching would likewise “pass Fourth Amendment scrutiny as applied to both the pivot and the target.”<sup>72</sup> Her article appears to ultimately endorse familial search methods, although it proposes specific guidelines to cabin their use.<sup>73</sup>

Professor Epstein, in contrast, offers a full-throated defense of familial searching, dismissing the arguments made against it as “unfortunate hyperbole and short-sighted.”<sup>74</sup> His ultimate thesis is that familial searches can help “innocents who are wrongfully accused,” and thus they should be embraced.<sup>75</sup> On the way to this conclusion, however, Professor Epstein responds to criticisms that familial searching is discriminatory<sup>76</sup> and disruptive of private familial bonds.<sup>77</sup>

In contrast to the articles above, and to every other substantial work on the topic, this Article argues flatly against familial search methods. It rests its claims on both utilitarian and deontological grounds. In short, I argue that familial searches should be forbidden because they embody the very presumptions that our constitutional and evidentiary rules have long endeavored to counteract: guilt by association, racial discrimination, propensity, and even biological determinism. They are akin to adopting a policy to collect and store the DNA of otherwise database-ineligible persons, solely because they share a blood relation with a convicted person, while deliberately sheltering similarly situated individuals from similar genetic exposure. Such an approach is likely to be an ineffective means of crime control—particularly when weighed against the costs done to society by such a strategy—and even if effective, contradicts the very principles of equality and liberty that law enforcement serves to uphold and defend.

Before adumbrating these claims, it is necessary to note that this Part explores the legitimacy of familial search practices from a position that assumes that, in essence, familial searches work. That is, it assumes that near-miss searches, as a basic scientific and statistical matter, point directly enough toward potential perpetrators to be useful at some level while acknowledging that they also generate a limited number of false leads.

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70. Gabel, *supra* note 69, at 26–42.

71. *Id.* at 31.

72. *Id.* at 37 (suggesting that the Fourth Amendment is triggered first by the request to release the database lead’s name, that such a request should require probable cause, and that compelling a sample from a potential source requires corroborating evidence beyond the DNA alone). My own views on the Fourth Amendment issue are expressed in Section III.B.

73. *Id.* at 42–57.

74. Epstein, *supra* note 69, at 142.

75. *Id.* at 142–43.

76. *Id.* at 162–64 (responding that other methods of investigation are likewise discriminatory and that discrimination alone is an insufficient reason to invalidate a beneficial law enforcement technique).

77. *Id.* at 165 (arguing that the disruption primarily affects “the individual in the database,” and that it will at worst be “de minimis”).

However, at the close of this Part I do raise the question of the actual efficacy of familial searches.<sup>78</sup>

#### A. Actual and Apparent (Non-Race-Based) Discrimination

Familial searches are, by nature, arbitrary and discriminatory searches. There has been much debate over their disproportionate impact on minority communities as a result of the demographics of the criminal justice system in general, and Section II.E below addresses those concerns. But familial searches are also discriminatory in a more fundamental way: they unjustly distinguish between innocent persons related to convicted offenders and innocent persons unrelated to convicted offenders.

That is, just because a search in a database returns some partial matches does not itself make it more likely that those partial matches belong to a relative of the crime-scene sample source. Visualize it this way: imagine there are two databases, one composed of profiles of 10,000 convicted offenders and the other composed of profiles of 10,000 random people picked out of the phone book. A crime occurs, and a DNA sample is developed from the scene. In searching for an *exact* match in each database, it is arguably reasonable to expect that the convicted offender database is more likely to return a hit than the random database, on the theory that convicted offenders are more likely perpetrators of criminal offenses than those never before convicted (not, one should note, because they are more likely to have a particular genetic profile). We might also justify such a search by saying that convicted offenders, by virtue of their crimes, have forfeited the privacy to which law-abiding citizens are entitled, and thus it is legally defensible to treat them as the “usual suspects” in conducting a database search. Indeed, the logic behind the constitutional decisions embracing the collection and databasing of DNA from convicted offenders rely on precisely this argument.

But what if the search returns no exact matches? In that case, there is no reason to think that a search for *partial* matches will be more likely to find a perpetrator if conducted in the convicted offender database than in the random database. After all, the goal of the search is to find a source not otherwise in the database—whether that source is the relative of a convicted offender, or the relative of non-convicted persons. As a matter of biology, there is no reason to expect that one database is more likely to have a similar genetic profile than the other, and indeed we would expect to see an equal number of partial matches from each database search. In other words, there is nothing about biology—the profile itself—that makes it more likely to match a convicted offender database than a random persons database.

This logic fails only if, for some reason, we believe that the innocent relatives of convicted offenders are more likely *themselves* to have perpetrated a crime than the innocent relatives of unconvicted people. That is, we would have to believe as a matter of criminology or sociology that the

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78. See *infra* Section II.G.1.



relatives of criminal offenders are more likely to be criminal offenders themselves than persons without relatives that have been convicted of crime. And indeed, that is an argument that some proponents of familial searches have made.<sup>79</sup> But as this Part explains, that argument is problematic on many levels, and is certainly insufficiently supported by the empirical evidence to serve as the basis for allowing this kind of suspicionless searching. It also raises serious legal concerns, but those will be addressed in the next Part.

For instance, in one of the first articles to formally propose familial searching, Frederick Bieber, Charles Brenner, and David Lazer wrote:

Success of kinship searching depends most saliently on a close relative of the perpetrator actually being in the offender database. Studies clearly indicate a strong probabilistic dependency between the chances of conviction of parents and their children, as well as among siblings. Consistent with these studies . . . 46% of jail inmates indicated that they had at least one close relative who had been incarcerated.<sup>80</sup>

But this argument proves too much. First, even if it could be shown that relatives of convicted offenders are more likely to themselves have been convicted of an offense, then if anything that simply suggests that the offender databases are themselves a sufficient source for finding a perpetrator. After all, it will only be relatives of convicted offenders who *have themselves not been convicted*, or committed a database-qualifying offense, who are burdened by familial searches. Accordingly, a study that suggests that convicted persons are more likely to have relatives that have served time in jail only affirms the adequacy of exact matching as an investigative tool.

The more relevant statistic would study first-time convicted offenders to measure what percentage of them have relatives with prior database-qualifying offenses. An even more sensitive approach would focus specifically on first-time offenders of common DNA-amenable crimes like murder, rape, burglary, or property offenses. Alternatively, one could determine what percentage of inmates have relatives subsequently convicted as first-time offenders, again ideally focusing on crimes for which DNA databases are most likely to prove useful. All of this is to say that a study that shows that convicted persons are related to convicted persons at best suggests that DNA databases of convicted offenders should be more than adequate to identify the vast majority of unknown perpetrators.

Secondly, even assuming the relevance of the crime-runs-in-families argument, the empirical evidence is far from unambiguous on this issue. Even the sources cited in support of this proposition do not make a persuasive case for a policy grounded on a presumption of criminality among related people. For instance, Professors Bieber, Brenner, and Lazer cite two studies: a 2004 study in the *Journal of Child Psychology and Psychiatrics* and a Bureau of Justice statistical report. The latter source is fraught with problems, but perhaps most importantly, this study measured the percentage of *jail*

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79. E.g., Epstein, *supra* note 69, at 163–64; Bieber, *supra* note 39.

80. Bieber et al., *supra* note 39, at 1316.

inmates with prior incarcerated family members. But jail inmates (in contrast to *prison* inmates) include both nonconvicted and convicted persons; indeed, in the cited study, roughly 29.2% had never before been sentenced, and almost half of those appear to be in jail awaiting adjudication of their case.<sup>81</sup> Moreover, a sampling of jail inmates—even convicted ones—inevitably samples low-level offenders, since convicted serious offenders almost always are sentenced to state or federal prisons. Thus, a better interpretation of the 46% statistic is that a large fraction of a group including those accused of crime and those convicted of low-level offenses report having a relative who was previously incarcerated. Although even that summary remains undeniably crude, as it would be useful to determine whether a large fraction of the 46% belong to one population or another (that is, whether the “accused” versus “convicted” group make up a greater share of the 46%).

But even assuming the statistic did measure convicted persons, or especially prison inmates (i.e., those likely to be convicted of more serious offenses), a simple report on the percentage of inmates with a relative who had *previously been incarcerated* provides weak support for a policy presuming that never-before-convicted relatives of incarcerated persons are more likely to themselves have committed crime. In other words, this bare statistic says nothing about the number of nonincarcerated persons, or even first-time offenders, who have a relative who was previously incarcerated. Nor does the study convey any information about the likelihood that the unconvicted relatives of incarcerated persons will commit crimes in the future. It may very well be that it is more common for law-abiding people to have law-breaking relatives than for law-breaking people to have law-breaking relatives. Indeed, the cited statistic itself—46 percent—suggests as much: the majority of jail inmates, it seems, have no previously incarcerated relatives.

The second source provides better, but hardly convincing, support: it simply reports that antisocial behavior in one generation of parents predicts antisocial behavior among their children as children: when those children grow up, they are slightly more likely to become antisocial adults and those that do are themselves likely to have children with behavioral problems. Even still, as the authors cautioned, “the ‘hidden figures’ . . . need emphasis: almost two-thirds of the antisocial [second-generation] fathers (61%) did not have any [third generation] children displaying conduct problems.”<sup>82</sup> Thus, to the extent that there exists some relationship, it hardly suggests such a strong likelihood that all relatives of convicted persons should now be

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81. BUREAU OF JUSTICE STATISTICS, U.S. DEP'T OF JUSTICE CORRECTIONAL POPULATION IN THE UNITED STATES, 1996, at 58 tbl.4.12 (1999). The same study reported the percentage of convicted and unconvicted (typically awaiting trial) persons in the jails in 1996 as roughly fifty-fifty. *Id.* at 23 tbl.2.6.

82. Carolyn A. Smith & David P. Farrington, *Continuities in antisocial behavior and parenting across three generations*, 45 J. CHILD PSYCHOL. & PSYCHIATRY 230, 239 (2004). (“It thus appears that adult antisocial behavior in one or other G2 parent, rather than their childhood history of antisocial behavior, is linked to conduct problems in their G3 children.”).

treated as presumptive suspects. Moreover, the authors are careful to note that the findings are limited both by their “reliance on official records of arrests or convictions” (thus leaving open the possibility that it is the familial association that directly influences the likelihood of arrest and prosecution, rather than the risk of criminality),<sup>83</sup> and also by the “inevitable design and measurement limitations” of such a complex task.<sup>84</sup>

Moreover, logic alone suggests that *any* criminality is not a good proxy for all criminality. Most people intuitively believe that there are material differences among kinds of crimes—consider an executive convicted for driving under the influence, a poor woman convicted for welfare or check fraud, a securities broker convicted of insider trading, a man convicted of incest, a college student convicted of simple assault, and a drug dealer convicted of murder. To the extent that “crime runs in families” might have some empirical basis, then, it might first be important to determine what kind of “crime” we are talking about.

In sum, there is simply no empirically defensible reason to make suspects out of the innocent relatives of convicted offenders, while ignoring the innocent relatives of nonconvicted persons. It is largely only the coincidence of biology, or a misfortune of relation, that distinguishes the two groups—not some greater inherent criminality. Moreover, to the extent that this arbitrary and discriminatory use of DNA databases is justified on the “best available option” excuse—that convicted offender databases, while artificially narrowing the suspect pool, nonetheless are the only possible option out there—then it is critical to note the obvious alternative. If society’s commitment to DNA searches of innocent persons is so strong that such searches are perceived to be beneficial despite the attendant concerns, then the equitable and optimal route to harness the technology is to create a national, universal DNA database.<sup>85</sup> Then all innocent persons—not just those with the misfortune of being related to a convicted offender—would share equally in the burdens and benefits of DNA databases.

As a final point, it is worth refuting the argument commonly made that partial match searches are necessary for exculpatory purposes to exonerate suspects. One often cited case is that of Darryl Hunt, a North Carolina inmate convicted in 1984 on the basis of shoddy evidence.<sup>86</sup> In 1994, DNA testing on semen left by the attacker was found not to match Hunt’s, but Hunt’s efforts to clear his name went ignored by prosecutors and courts.<sup>87</sup> It was not until a database search ten years later found a near-match to an offender whose brother was also incarcerated, and who later proved to match the sample, that Hunt was released.<sup>88</sup> But such a story is hardly a ringing

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83. *Id.* at 231.

84. *Id.* at 230.

85. *See infra* Section II.G.2.

86. *See, e.g.,* Epstein, *supra* note 69, at 170–71 (discussing the Hunt case).

87. *Id.*

88. *Id.*

endorsement of familial search methods; indeed, the perversity of the case is not just that Daryl Hunt was wrongly incarcerated, but that the state refused to recognize his innocence despite his having proven that his DNA did not match. An exact DNA comparison that fails to match a suspect in a case in which an intimate sample is decisive should more than suffice to exculpate that person. To defend familial searches as necessary for exculpation is to effectively raise the standard for exculpation to a requirement that the wrongly accused affirmatively prove the guilt of another person, whether through partial match searches or any other technique. But such a move offends both the presumption of innocence and the burden of proof in the criminal justice system for those pending trial, and demands too high a price for the correction of injustice for those wrongly convicted.

### B. Accuracy

Arguably the proper place to begin a critique of familial searching is with the most central question: how well can it work? By this I do not mean, "Does familial searching have the capacity to accurately identify the source?"—a question to which, as stated earlier, this Part assumes the answer is yes. Rather, here I mean to ask, "Do familial searches help police investigations more than harm them?"

The introduction of any new technology creates the possibility of negative externalities. A transit system might install an electronic subway turnstile in order to eliminate human error in toll collection, only to discover that it loses revenue from a rise in fare jumping absent an employee's watchful eye. As one cautious proponent of familial searching has observed, "It is certainly possible that family forensic DNA, as a new technological 'toy,' [will] be overused at first, potentially at the expense of more effective, but less exciting, investigative techniques."<sup>89</sup>

The use of effective familial search methods to identify crime suspects likewise has the potential to harm, rather than aid, police investigations. The fear is essentially twofold. First, that familial searching will cause investigators to rely on genetic leads at the expense of more traditional lines of investigation—essentially a fear of overreliance. This is of gravest consequence in cases—of which there will be many—in which the familial lead does not pan out and no source is identified, particularly if critical investigative information is lost in the interim. But, second, genetic dependence can also be an issue when a source is found, because in those cases the genetic evidence may so dominate and shape the course of any subsequent investigation that it inevitably taints the results.

These two fears operate insidiously together. Imagine a world—not at all farfetched when one considers that such methods are already in development<sup>90</sup>—in which investigators are able to instantly run crime-scene

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89. Greely et al., *supra* note 20, at 258.

90. See, e.g., Jones, *supra* note 48 (describing system to do on-scene typing within an hour); Susan A. Greenspoon et al., *Microchip Capillary Electrophoresis: Progress Toward and Integrated*

samples on-site, and instantly check the results against electronic databases. A crime occurs, and detectives immediately begin “swabbing for suspects,” choosing to pursue genetic leads at the expense of tracking down eyewitnesses, since the latter is a far more laborious task with an uncertain payoff. As a result, however, those witnesses are lost.

Even if one of the five leads pans out and the ultimate source is found, the lost witnesses matter. The source could turn out to be a true source, but demonstrably not the offense perpetrator (e.g., the DNA matches the worker who was at the home installing cable), and thus the trail goes cold. Or it could be a true source who is not a perpetrator, but who lacks a solid alibi or clear proof of innocence. In such a case, evidence that might exculpate is also lost, while the suspect remains clouded in suspicion. Given the tendency of individuals to view new information in a manner tilted toward their prior expectations, a psychological phenomenon known as “confirmation bias” and well-documented with regard to forensic evidence,<sup>91</sup> the risks of wrongful accusation run high. The initial overreliance on forensic evidence enhances the danger of confirmation bias.

The scandalous wrongful identification of Oregon attorney Brandon Mayfield as a perpetrator of the Madrid subway bombings provides a helpful illustrative example. FBI authorities identified his fingerprints as a “match” to those at the scene, and from there built a damning case against him based on otherwise unremarkable facts, such as his conversion to Islam, his marriage to an Egyptian immigrant, his advertisement of legal services in a magazine owned by a suspected terrorist sympathizer, and his representation in a child custody matter of a man who later pleaded guilty to terrorist conspiracy.<sup>92</sup>

When Mayfield was exonerated and the “match” revealed faulty, a panel of experts reviewing the case “cited [the analyst’s] overconfidence in the power of [the computerized database]” as having contributed to the error.<sup>93</sup> The Office of the Inspector General (“OIG”) conducted a separate review and concluded that the examiner had prematurely turned to the computer technology without completing a thorough manual inspection. The OIG cited the analyst’s bias in “reasoning ‘backward’” from the print in order to

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*Forensic Analysis System, 10 PROFILES IN DNA 16* (2007), available at [http://www.promega.com/profiles/1002/ProfilesinDNA\\_1002\\_16.pdf](http://www.promega.com/profiles/1002/ProfilesinDNA_1002_16.pdf); Lisa Trigg, *Touch DNA forensics kits streamlining prison investigations*, INDIANA TRIB.-STAR (July 22, 2010) (detailing new testing kits that allow investigators to determine who has touched an object).

91. See, e.g., STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD (The National Academies Press 2009); David L. Faigman, *Anecdotal Forensics, Phrenology, and Other Abject Lessons from the History of Science*, 59 HASTINGS L.J. 979, 989 (2008) (“[A]necdotal forensics may be particularly susceptible to confirmation bias.”); Paul C. Giannelli, *Wrongful Convictions and Forensic Science: The Need to Regulate Crime Labs*, 86 N.C. L. REV. 163, 204 (2007).

92. OFFICE OF THE INSPECTOR GENERAL, U.S. DEP’T OF JUSTICE, A REVIEW OF THE FBI’S HANDLING OF THE BRANDON MAYFIELD CASE 1 (2006), available at <http://www.justice.gov/oig/special/s0601/final.pdf>.

93. *Id.* at 3. But see *id.* at 13 (rejecting this as a cause).

explain away discrepancies, and his overconfidence in the computerized conclusion even in the face of contrary information.<sup>94</sup>

In a much more pedestrian case, a man who volunteered his DNA sample in a dragnet conducted to find a rapist found himself later ensnared in a web of suspicion.<sup>95</sup> Although the sample did not match in the rape case, it was not destroyed but was instead entered into the database. A “cold hit” linked the sample to a 1996 rape, and the man was arrested. He was eventually released when the victim came forward to exonerate him, explaining that she and the man had engaged in consensual sex just before a stranger had raped her.<sup>96</sup> Imagine, however, if the victim had died in the attack, or had not been able to be found ten years after the offense, or if the liaison had been merely fleeting? Given that genetic evidence alone can serve as the basis of conviction,<sup>97</sup> it is easy to imagine that a grave injustice might have occurred.

Moreover, because they return lists of leads rather than a single probable source, familial searches increase the likelihood of confirmation bias and equally importantly, the likelihood of distracting from the collection of more probative or useful evidence. In other words, the availability of familial search methods exacerbates the harms of “backward” investigation. Officers may focus on the suspects identified genetically, as opposed to ferreting out and following up on leads from more traditional sources. As one police officer in the United Kingdom candidly admitted, “You can slip into this lazy approach that ‘we’ve got DNA we needn’t bother doing the rest of the work.’”<sup>98</sup>

In many cases, subsequent testing may reveal a suspected person to be innocent. But in cases in which the crime-scene sample is degraded or contains a mixture of profiles, or in which a suspect is the source but not the perpetrator, the confirmatory testing may erroneously inculcate the individual. As another commentator observed, “Police officers can rest on their laurels if they get a forensic hit . . . . Anecdotally, they will put it to the offender and hope to get an admission out of it.”<sup>99</sup> Allowing DNA to “lead the way” at the early critical stages of an investigation may result in the loss of investigative prospects to bolster or sustain a case against the actual perpetrator, or to develop exculpatory information in the event that the suspect turns out to be an innocent source.

Apart from the consequences to individuals in particular cases, overreliance on genetic evidence may also contribute to the diminution of more

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94. *Id.* at 7, 10.

95. *Advancing Justice Through the Use of Forensic DNA Technology: Hearing Before the Subcomm. on Crime, Terrorism, and Homeland Security*, 108th Cong. 46 (2003) (testimony of Peter J. Neufeld, Co-Director of the Innocence Project; member of New York State’s Forensic Science Review Board).

96. *Id.*

97. See Roth, *supra* note 31, at n.64.

98. McCartney, *supra* note 65, at 185.

99. *Id.* at 185.

traditional policing skills. That is, it is not just a matter of an officer *wanting* to investigate without technology, it is also an issue of her capability to do so. Good interviewing skills, creative problem solving, and other softer forms of investigative technique are not as easy to come by as a simple radio call to the crime-scene technician. Without robust exercise and training, such expertise may diminish. Scholars of policing already lament the loss of the “beat officer” who pounded the pavement and knew the neighborhood; now even the squad car cop could be replaced by the lab coated analyst. Yet as one commenter observed, “[T]here is a risk that faith in forensic science has been too easily used to shore up falling confidence in police investigative competence without questioning the fallibility and shortcomings of applying the technique.”<sup>100</sup>

None of this is to say that traditional or conventional policing methods are impermeable to bias, overreliance, or error. My claim is not, and could not credibly be, that eyewitnesses or video cameras or confessions or any other myriad evidentiary forms are inherently superior to DNA testing. But the particular nature of DNA evidence makes it uniquely susceptible to abuse. Unlike other forms of evidence, it is easily deployed (especially in this dawning age of miniaturization, when rank-and-file officers will be able to conduct instant on-scene DNA analysis of crime-scene samples). It is also, superficially, highly convincing. Many officers and laypeople alike think that DNA inevitably speaks the truth. As one officer remarked, “There tends to be a reliance on forensic evidence in terms of once you have it, other avenues aren’t followed up.”<sup>101</sup> The alluring nature of sophisticated techniques also can inflate their true value. Whereas an officer can intuitively assess the utility of a witness’s description of “brown hair, brown eyes,” and accordingly judge how far to push the envelope in investigating persons matching that description, it is more difficult to weigh the significance of a list of names churned out by a computer engaged in complex population genetics. With familial DNA typing, the informant comes dressed up in the omnipotent robes of technology, and so investigators that would otherwise dismiss such a vague informant as useless may in turn find it difficult to relegate technological “tips” to the rear reserves.

Some might argue that concerns about overreliance and confirmation bias apply as equally to exact-match DNA searching as they do to familial searching, and I certainly do not mean to suggest that we should wholly discontinue the use of DNA evidence. But the risks justly assumed in exact-match cases differs from those present in partial matching. In an exact-match case, the probative value of DNA typing is high, in that the person identified is almost certain to be the source. Thus, it might reasonably be determined that, because an exact match points with a high degree of confidence to the source, it is worth chancing the possibility that the source is innocent (for whatever reason) in exchange for prompt identification of a known probable source.

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100. *Id.* at 189.

101. *Id.*

Familial searches, in contrast, can only gesture toward possible sources. Rather than identify one known individual that is almost certain to have been the source of the genetic evidence, as in an exact-match case, familial searches generate only leads, which in turn point only to a list of possible suspects, all but one of whom definitely did *not* leave the evidence. As less-reliable identifiers of suspects, familial searches can in turn affect more people, because they cast the net indiscriminately and widely. The possibility for intrusive investigation is enhanced, and it is more perilous to routinely allow them to shape the course of an investigation. Familial searching is like an occasionally reliable informant who spits out several names and says one of them has a brother who maybe did it. It may be the case that, as in California's experience thus far, in one in ten instances a name spectacularly pans out to be correct, but that does not mean that familial searching should be an approved law enforcement approach.

### C. Privacy

Some might argue that in a case that is significant enough, and cold enough, even the names spewed by an unreliable informant are worth pursuing. But weighed against this enthusiasm should be the real costs that familial searches exact on individual privacy. Although it is easy to minimize privacy concerns, those doing so must reckon with the obvious alternative to familial searches: a universal database. While general opposition to a universal database may be reconciled with an endorsement of convicted offender sampling, given that offenders arguably forfeit some right to privacy as a result of their convictions, it squarely challenges arguments in favor of familial searching. If a universal database is not considered to be politically, or legally, conceivable (which it generally is not)<sup>102</sup> then that indicates the existence of some broader discomfort with the idea of expanding the DNA database to include innocent persons. Yet those persons implicated by familial searches are indistinguishable from any other individual, except for the misfortune of having a biological connection to an offender in a DNA database.

The burden of being "findable" is not insignificant. Recall the analogy in the previous section. Imagine the familial search that generates two leads, each of whom has two possible candidates for suspicion (sons or brothers, say). The most natural thing for investigators to do is simply to get a round of DNA samples from all possible suspects, either with or without the suspects' knowledge.<sup>103</sup> Indeed, without legal rules to cabin the scope of an

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102. D.H. Kaye & Michael E. Smith, *DNA Identification Databases: Legality, Legitimacy, and the Case for Population-Wide Coverage*, 2003 Wis. L. REV. 413, 440–41.

103. Indeed, as some advocates of familial searches have written, "[b]eing compelled to assist in the criminal justice system, in this or any other way, may be annoying, but is common." Greely et al., *supra* note 20, at 256. But as one recent case attests, the particular power of genetic evidence to shape and influence an investigation can prove pernicious. See *Kohler v. Englade*, 470 F.3d 1104, 1107–08 (5th Cir. 2006) (addressing the § 1983 claim of man who refused to submit a DNA sample in a six-hundred-person dragnet to catch a serial rapist-killer, gave sample pursuant to warrant found



investigation, nothing prevents law enforcement from getting samples from fifty or one hundred possible suspects (as investigators have done in the past in less-targeted DNA dragnets).

Moreover, no law prevents investigators from inquiring of family or co-workers if a suspect knew the victim or engages in certain activities (say, frequenting prostitutes), or if the suspect cannot account for where he was last week. No law requires that officers act quickly in testing the DNA sample voluntarily submitted for exclusion rather than allow the sample to get lost in a year-long backlog during which the suspect's name is muddled and tarred. And no law mandates that, once a name is formally cleared, the officer return and assure the suspect's family and coworkers that he is truly as innocent as he was the day before the investigation began. No general law requires that samples submitted in such an investigation be destroyed once a suspect is ruled out, or prohibits the person's profile from being uploaded into the national database.

The offensiveness of familial searches is not always physical in kind: consider Richard Jewell (the wrongly identified Atlanta bomber) or Stephen Hatfill (the wrongly identified anthrax mailer) or the members of the Duke University lacrosse team (falsely accused of rape). The worst indignity of an investigation can be living under a cloud of suspicion; even mere suspicion, quickly dispelled, has the potential to disrupt a career, destroy a marriage, or ruin a life. And to the extent that the alternative may be to let some crime go unsolved, it should be balanced against the claim to freedom from such victimization possessed by innocent relatives in equal proportion to the innocent victims of crime. Both have moral claims to the interests of security and liberty, whether from the perpetrators of crime or from the state itself.

This Section considers the different constituencies affected by familial searches of DNA databases, focusing in turn on (1) the databased person, (2) implicated innocent relatives, and (3) the actual source.

### 1. *Databased Persons*

Familial searches constitute a new intrusion on the interests of databased persons. When courts ruled on the constitutionality of collecting DNA samples from convicted offenders, they almost uniformly specified that the information collected was "junk" that revealed no information beyond the offender's identity.<sup>104</sup> As a way around the individualized suspicion, warrant, and probable cause requirements of the Fourth Amendment, courts cited the reduced expectation of privacy of criminal offenders and the state's interest

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to lack probable cause, was publicly labeled a suspect, and only learned two months later through a television report that he was excluded as the killer).

104. See, e.g., *United States v. Weikert*, 504 F.3d 1, 3–4 (1st Cir. 2007); *Nicholas v. Goord*, 430 F.3d 652, 670 (2d Cir. 2005). The Ninth Circuit observed, in upholding an offender collection statute, that it would be possible to locate a relative, *United States v. Kincade*, 379 F.3d 813, 818 n.7 (9th Cir. 2004), but also affirmed that the DNA profiles were to be used only for identity while rejecting the fear that retention of samples meant they "could be mined for more private information or otherwise misused in the future." *Id.* at 837–38.

in accurate tools of identification and in monitoring recidivism. Yet familial searches depart from all of these foundational assertions.

First, familial searches effectively transform the acquired information from a glorified genetic social security number into a blooming family tree. Of course, it might be argued that familial relationships are easily uncovered without conducting scientific tests: identifying an individual certainly is the first step in finding out the identities of that person's blood relatives. But in many instances, identity does not in fact reveal *biological* ties.

In our society, families are largely social, not biological, constructs.<sup>105</sup> Yet when investigators follow up on genetic familial searches by asking, "Do you have any children?" or "Who is your father?", they ask a biological, not social, question. Answering may call for the disclosure of the most intimate of information: abandoned parental bonds, adoptee relationships, children conceived through technology, even family secrets about paternal identity.<sup>106</sup> A lead may feel torn between identifying relatives, potentially exposing them to intrusive investigation, and revealing a confidence that severs the perceived biological tie. Analysts assigning value to genetic relationships may inadvertently uncover facts that even the parties do not know. For instance, consider an offender informed of a partial match who is asked about and reports no known siblings or children—but later learns that the offense was ultimately attributed to the child of his old flame, or that of his father's long-time coworker. Biological ties can be complicated matters, sometimes deliberately so.

Second, data suggests that a second round of typing, measuring Y-STRs or single nucleotide polymorphisms (SNPs), proves an essential component of an effective DNA typing program.<sup>107</sup> But judicial approval of mandatory collection statutes specifically and clearly limited the scope of testing to the thirteen CODIS STR loci, based on the noncoding or "junk" nature of those loci; courts did not issue a *carte blanche* to retype samples any time a new set of tests emerged. That Y-STR testing indisputably reveals biological relationships, and has been shown to have strong probative value even for identifying possible surnames,<sup>108</sup> means the "junk" is no longer as junky as initially contended. Exploiting earlier rulings approving DNA collection and typing, while failing to acknowledge the privacy interest implicated by

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105. Erica Haimes, *Social and Ethical Issues in the Use of Familial Searching in Forensic Investigations: Insights from Family and Kinship Studies*, 34 J.L. MED. & ETHICS 263, 270 (2006); Williams & Johnson, *supra* note 44, at 244.

106. The frequency of misattributed paternity has proven difficult to measure, but studies suggest rates as low as 1 percent or as high as 30 percent in the population, though most hover in the 2–5 percent range. Bryan Sykes & Catherine Irven, *Surnames and the Y Chromosome*, 66 AM. J. HUM. GENETICS 1417, 1418 (2000).

107. By way of illustration, a 15-allele autosomal match in a database the size of California's (over one million profiles) will turn up 1,600–4,200 potential leads. Y-STR screening of those matches, however, reduces that number to significantly fewer, on average. Murphy et al., *supra* note 39; see also Bieber et al., *supra* note 39, at 1315; Jones, *supra* note 48, at 24 (noting that the U.K. relied on Y-STR typing in recent familial search case).

108. Uta-Dorothee Immel et al., *Y-chromosomal STR haplotype analysis reveals surname-associated strata in the East-German population*, 14 EUR. J. HUM. GENETICS 577, 580 (2006).

subsequent tests conducted on retained biological samples, simply affirms the fear of “function creep,” long lodged against the government with regard to new technologies, and raised against DNA databases.<sup>109</sup>

Indeed, within the past three years, the National Institute of Justice has issued grants to projects titled “Identifying and Communicating Genetic Determinants of Facial Features,” “Determination of the physical characteristics of an individual from biological stains,” and “Gene Polymorphism and Human Pigmentation.”<sup>110</sup> Scientists increasingly search for genomic clues to other personal characteristics, such as using DNA typing to determine an individual’s age, likely ethnicity, and even bone structure.<sup>111</sup> And research for clues to psychological and disease predispositions is always underway. So long as the samples are retained, they will be available for processing using these new tests without any defined legal restrictions.<sup>112</sup>

Yet such unfettered access to the entire genome of an individual should not be presumed from the cases approving forensic databasing. By analogy, if the government gained Fourth Amendment approval for a body scanner on the grounds that it revealed only the presence of illicit narcotics, it would be improper for officials to claim authority to use BodyScan 2.0, which also renders a naked visual image of the person, by claiming that the general technology had already been approved. Indeed, the former director of the FBI’s database seemed to tacitly recognize as much when he determined to leave to legislative judgment (and presumably, to subsequent constitutional challenge) the question whether familial searching should be allowed.<sup>113</sup>

Lastly, it should be added that the DNA databases are not entirely composed of convicted offenders. Many states now include arrestee profiles, for instance.<sup>114</sup> Databases can also include individuals who either submitted DNA samples voluntarily (for instance, in a DNA dragnet or to exclude themselves in an investigation), or even as victims of crime. In one notable case, a familial search identified a source through his sibling, a victim who had submitted a sample in an unrelated case.<sup>115</sup> Familial search methods

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109. Carling, *supra* note 63, at 501; Tania Simoncelli & Barry Steinhardt, *California’s Proposition 69: A Dangerous Precedent for Criminal DNA Databases*, 34 J.L. MED. & ETHICS 199, 203 (2006) (detailing how “databases created for one discrete purpose, despite the initial promises of their creators, eventually take on new functions and purposes” and citing the archetypal example of social security numbers).

110. See *infra* note 171 and accompanying text.

111. Gautam Naik, *To Sketch a Thief: Genes Draw Likeness of Suspects*, WALL ST. J., Mar. 27, 2009, at A9. See generally Dov Fox, *The Second Generation of Racial Profiling*, 38 AM. J. CRIM. L. (forthcoming Nov. 2010) (manuscript on file with author).

112. The sole restraint would be allegations of misuse, but the statutes governing misuse are woefully inadequate. See *infra* note 171.

113. See Nakashima, *supra* note 2.

114. The legal status of arrestee collection is still uncertain in the United States, but the European Court of Human Rights has ruled that unqualified inclusion of arrestees and juveniles in the United Kingdom’s database violated international privacy protections. *S. v. United Kingdom*, 2008 Eur. Ct. H.R. 1581, available at <http://www.bailii.org/eu/cases/ECHR/2008/1581.html>.

115. Another court recently held the typing and database retention of a DNA profile recovered from a victim’s clothing without consent was a violation of the Fourth Amendment (but refused to

threaten to erode the good will between such individuals—victims, voluntary cooperators, etc.—and the state, as those persons may fear that cooperation with the government will expose their relatives or themselves to later suspicion or apprehension.

## 2. *Innocent Relatives*

Even if persons in the database have forfeited their privacy interests, they surely cannot have relinquished the interests of their father, mother, brothers, sisters, and children. Familial searches exploit the government's power to compel information from persons with diminished privacy (i.e., mandatory typing of the offender's DNA profile) to then invade the privacy of their law-abiding relatives (by drawing inferences about the relatives' profile). Familial searching effectively amounts to a law that says, "The identity and *probable* genetic markers of the close relatives of any convicted offender shall be entered into the national database."

In other words, familial searches take information obtained on one premise—diminished expectation of privacy and likely recidivism of offenders—to justify two far more dubious propositions: that investigators may justly use databases to generate suspect pools, and that any follow-up investigation is not unconstitutionally suspicionless because some degree of allelic similarity makes it conceivable that an individual is the source. But relatives possess the same privacy interest as those not related to offenders, both as a normative and descriptive matter, in not being considered suspects solely on the basis of attenuated genetic probabilities.

Most egregiously, the potential harm to relatives exceeds that of even the actual offenders. A twenty-six allele search tends to turn up one and only one match, which in turn has a high probability of belonging to the true source. Thus, any intrusions that follow, at the very least, are likely targeted to the right person. But the inferential "profile" of relatives is necessarily incomplete. The relative is not just in the database once with a precise profile, but instead is in the database multiple times with every possible profile permutation that completes the blanks of a partial match. If familial searching is to be allowed, a relative would be wise to volunteer a genetic sample (and thus be more readily excluded) rather than run the risk of repeated requests for samples that ultimately prove not to match. But these innocent persons should not have to make such a strategic election when they are, like all other persons, legally entitled to the full privacy protections of the Fourth Amendment.

Moreover, because familial searches generate only possibilities, and inherently produce false positives, the follow-up investigation will necessarily focus at times upon wholly innocent persons. Normally, resource constraints and constitutional law erect barriers to investigations conducted on the basis of tips with high false-positives in the real world. We trust as a matter of

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apply the exclusionary rule in a later prosecution against the victim). *United States v. Davis*, 657 F. Supp. 2d 630, 663 (D. Md. 2009).

efficiency that law enforcement will allocate its attention and resources to the most credible suspects, and as a matter of constitutional law that intrusions will not occur absent particularized suspicion. But technology upsets those assumptions.

Consider an intrusion as inoffensive as a *Terry* stop, which must be based on individualized suspicion. An officer who found drugs in an apartment building foyer would hardly find it worthwhile to *Terry* stop every drug dealer in sight. And if she did, the officer would have a tough time justifying those stops as a matter of law; an officer that admitted to having also stopped all the *relatives* of the drug dealers would be sent back to the academy for training. Yet the same kind of indiscriminate, suspicionless investigation is considered acceptable when cloaked in the biological terms of familial searching.

It is worth noting that some might argue that offenders routinely disclose the identities of their relatives for purposes of supervision and monitoring, and thus the added biological exposure is not that great. But several important practical limitations circumscribe the actual intrusiveness of such information. First, just because the probation office knows the name of the offenders' family members, it does not follow that the sheriff also does. As a matter of institutional arrangement, law enforcement officers often interface with probation/parole indirectly, or only through deliberate efforts. Secondly, even if such information were sought, it will inevitably reflect the social, as opposed to biological, construction of families. That is, an offender is unlikely (and in fact, may be unable) to give the name of the father he never met, or the son he does not raise, or even the sister who refuses to talk to him, and law enforcement will be unlikely to have special access to that information. But the genome speaks for itself. It tells the police that the father is not in fact the man on probation in the next county, or that the brother is not in fact a full sibling.

Third, even if criminal justice entities can easily acquire information about biological relatedness, their purpose in collecting that information, and the manner in which it is used, is rarely to cast suspicion on those relatives. Individuals are not typically suspected of a crime solely because of a related offender's criminal record, and law enforcement does not typically consider genealogy a useful approach to solving cases. Thus, as a practical matter, the use of genetic databases to conduct familial searches takes information (the identity of relatives) otherwise collected for innocuous reasons and transforms it into something more sinister. The purpose of acquiring the information changes from offender rehabilitative (environment, contacts) to generally investigative (maybe his brother is also a criminal). And that purpose, it is worth reminding, is one overtly eschewed by the cases upholding the constitutionality of offender DNA collection.

### 3. *The Source*

Of all the affected parties, perhaps the least sympathetic is the source. After all, the source—the person who actually left the crime-scene sample

identified through a familial search—may be the criminal offender. It is certainly difficult to get too exercised about the privacy rights of the actual perpetrator.

But if it is hard to muster much empathy for the source who turns out to have perpetrated the offense, then imagine instead the source who did not. In many cases, a familial search may locate the source, but the source is not, in fact, the perpetrator of the crime. At times that may be obvious. Maybe the source has an explanation, such as innocent presence at the scene or a rock-solid alibi—as in the case of the woman identified by DNA evidence who later turned out to have been in jail in another state at the time of the crime.<sup>116</sup> Maybe the source will be facially implausible as a perpetrator—such as the case of the man whose DNA was found on a rape-murder victim, but who was four years old at the time of the offense.<sup>117</sup> But it is also possible that, in a number of cases, identification of the source may start the investigation for corroborating evidence. And for innocent suspects without ironclad defenses, or those against whom charges are brought decades after the offense, that process raises the risks of overreliance and confirmation bias discussed above.<sup>118</sup>

#### D. Societal Interest in Intact Families

In addition to the particular privacy interests of affected individuals, there also exists a greater societal interest in maintaining and promoting intact, healthy family units. Family integrity and privacy are cornerstone constitutional values. Jurisdictions honor those interests in a variety of ways—for example, by authorizing spousal privilege. Yet “implicating family members in an investigation where a relative (genetic or social) might be involved is likely to have profound social, cultural and physical impacts on that family.”<sup>119</sup> Of course, in cases in which the lead turns out to point to the source, and the source is in fact the perpetrator, our sympathies may be hard won. But the nature of familial searching means that many potential leads will prove to be false leads—*after* some investigation has occurred. And the investigation alone has the capacity to deepen painful rifts within strained familial relationships.

Family members may have already suffered greatly as a result of the actions of a related convicted offender. They may have incurred financial losses due to legal costs or thefts, and have endured emotional harms from incarceration, abandonment, or betrayal. Perhaps members of the family themselves were victims of the offender—in 2005, for instance, roughly half of violent crimes occurred between nonstrangers, and roughly 26 percent of

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116. Murphy, *supra* note 22, at 754 n.149.

117. *Id.* at 755 n.151.

118. See *supra* Section II.B.

119. Haimes, *supra* note 105, at 269.

female victims were victimized by someone intimate or related to them.<sup>120</sup> In such cases, the suspicion cast on the relative as a result of the estranged offender can be especially painful. Imagine the child of a sex offender confronted with a knock on the door because the DNA of the father he has no desire ever to remember has superficially implicated him in some offense. Or the successful sibling in a family torn apart by their youngest child's drug habit similarly confronted. Criminality can tear families apart, and when the state conducts investigations based primarily on familial links, it does so with the strong probability of inflicting further damage.

Even in families in which the offender's position is reconciled, familial searching may wreak havoc by turning convicted offenders into involuntary "genetic informants."<sup>121</sup> Consider a recent case in the United Kingdom, in which a nineteen-year-old arrested for reckless driving was required to submit his DNA profile.<sup>122</sup> When a familial search was later run to find the perpetrator of rape and murder committed twenty-five years earlier (and thus clearly not committed by him), his Y chromosome matched. Investigators arrested his father and two uncles, and later testing revealed his father to be the perpetrator.<sup>123</sup>

Although such stories are powerful in that they represent the closing of long-unsolved cases, it is worth considering the harm done to the family unit if such investigations become routine. While little sympathy might rest with the father, perhaps greater concern might be mustered for the nineteen-year-old, who through one youthful indiscretion caused horrifying embarrassment and suspicion to be cast on his uncles. Such searches burden the relationship between innocent relatives and the convicted offender, as relatives find themselves suspected of a crime they did not commit by virtue of nothing other than their biological connection. Indeed, such strain can occur even absent an actual match: the mere awareness by Good Sibling that Bad Sibling's conviction now leaves her susceptible to this kind of intrusion may itself generate tension. And, of course, in many cases, the story will not end with a conviction—the familial search will prove fruitless. To the extent that the burden might nonetheless be tolerable if there were a very high rate of success in familial matching, the price seems higher if the vast majority of such leads fail to pan out.

Lastly, it is worth noting that even in cases in which the database lead does uncover the actual perpetrator, it may still be at the expense of innocent familial victims. For instance, take the first successful familial search in the United Kingdom, that of the Joseph Kappen, described in Section I.C. Kappen's crime had occurred thirty years earlier, and Kappen himself was dead, but a familial search in the database turned up his son as a potential biologi-

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120. BUREAU OF JUSTICE STATISTICS, U.S. DEP'T OF JUSTICE, CRIMINAL VICTIMIZATION, 2005, at 9, tbl.9 (2006).

121. Haimes, *supra* note 105, at 269.

122. Jones, *supra* note 48, at 24. The UK has more permissive rules surrounding DNA collection.

123. *Id.*

cal link. When investigators realized that the son's father, Kappen, had been on the original list of five hundred suspects, investigators asked his widow and siblings for DNA samples. Based on that testing, they then received permission to exhume the body, and found a match.

On the one hand, this story represents a powerful account of persistent investigation that undoubtedly provided a great sense of achievement for law enforcement and peace and closure for the victims' families. But were those families the only conceivable victims of Kappen? What about his widow or children? What if the search had not worked, and after tracking down Kappen's family, informing them of their suspicions, eliciting samples and exhuming the body, the father had turned out not in fact to be the source? Or what if the genetic link was a match and the murder was attributed to him, but lost in time and human mortality was an innocent explanation for the connection or an ironclad defense to the charge that his wife would never learn?

Perhaps most radically, even assuming that Kappen was the true perpetrator, what about his family members' own experiences of the investigation? Perhaps they were utterly unaware that their husband and father had committed such a horrible offense. If so, then his children and widow are victims of his crimes certainly as deserving of sympathy as those whom he more directly harmed. Law embodies rules of finality precisely in deference to this principle—that in some cases, it is best to let sleeping (or dead) dogs lie. This is not to trivialize the victim's interest in finality and closure, but merely to acknowledge that it can come at the expense of inflicting trauma on other innocents. At the very least, the interests of the innocent family members might enter into the calculus for consideration, even if they do not necessarily prevail.

#### *E. Actual and Apparent Ethnic and Racial Discrimination*

The concerns related to race and ethnicity are manifold, but I will focus on three here. First, familial searches of convicted offender and arrestee databases exacerbate the actual and apparent disparities of the criminal justice system, in which people of color are disproportionately represented. Second, the dependence on racial categorization in interpreting DNA typing results transmits a biological determinism about race that is not supported by science and that risks formally inscribing within the justice system inaccurate biases under the legitimizing mantle of scientific truth. And lastly, this widespread acceptance of racial and ethnic categorization as a means of quantifying DNA results (say, allelic frequencies) opens the door to a kind of twenty-first century racial eugenics in which crime and criminology are viewed largely as functions of genetics and biology. I will address each of these critiques in turn.

The most vocal opposition to familial searches tends to come from those who fear that they will exacerbate existing racial disparities in the criminal justice system. As Jennifer Mnookin eloquently observed in an op-ed against familial searches, such searches are already "discriminatory" in that



they condition criminal suspicion on nothing more than the “bad luck [of having] a close relative who has been convicted.” This effect is “exacerbated” among certain ethnic populations, “because African Americans and Latinos make up an outsized portion of the DNA database compared with their proportion in the population at large.”<sup>124</sup> Even advocates of familial searching have acknowledged that “[f]amilial searching potentially amplifies . . . existing disparities” in the criminal justice system.<sup>125</sup> Professors David Kaye and Michael Smith have noted that “on any given day, a black American is five times more likely to be in jail than is a white” and that an adult black male is “four times more likely to be under some form of correctional supervision, six-and-a-half times more likely to be incarcerated somewhere, and eight times more likely to be in prison than his white counterpart.”<sup>126</sup> While this imbalance is somewhat lessened if misdemeanants and arrestees are included, there still exist stark disparities.<sup>127</sup> Data also shows that the rate of incarceration for Hispanic males, while less than that of black males, is nonetheless almost three times that of white males.<sup>128</sup>

Given the disproportionate representation of blacks and Hispanics in the criminal justice system, the use of convicted offender databases to conduct familial searches necessarily means that the burden of such search techniques will primarily be borne by innocent relatives of those subpopulations. Quantifying the exact impact on those groups is inherently imprecise and difficult.<sup>129</sup> Most commonly cited is a figure arrived at by combining the ethnic makeup of the databases with assumptions regarding family structure, and concludes that “more than four times as much of the African-American population as the U.S. Caucasian population would be ‘under surveillance.’”<sup>130</sup>

My own research, with Dr. Montgomery Slatkin and Dr. Yun Song, slightly complicates this picture. Our modeling of the impact of the California familial search policy, for instance, yielded more sensitive data. We conclude that in California, on average, familial searches in convicted offender databases most dramatically increase suspicion on Hispanic and

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124. Jennifer Mnookin, *The perils of expanding DNA searches to relatives*, UCLA TODAY, May 8, 2007, [http://www.today.ucla.edu/portal/ut/070508\\_dna-perils.aspx](http://www.today.ucla.edu/portal/ut/070508_dna-perils.aspx); see also Greely et al., *supra* note 20, at 259–60 (expressing reservations about widescale familial searching on the basis of concerns about racial discrimination). Professor Troy Duster has contextualized various DNA policies within the larger context of systematic biases in the criminal justice system. Troy Duster, *DNA Dragnets and Race: Larger Social Context, History, and Future*, 21 GENEWATCH, Nov.–Dec. 2008, at 3, 3–5.

125. Bieber et al., *supra* note 39, at 1316.

126. Kaye & Smith, *supra* note 102, at 453 (citations omitted).

127. *Id.* at 454–55 (noting reduction from four times to two times if arrestees are included).

128. THOMAS P. BONCZAR, U.S. DEP’T OF JUSTICE, BUREAU OF JUSTICE STATISTICS, PREVALENCE OF IMPRISONMENT IN THE U.S. POPULATION, 1974–2001, at 1 (2003), available at <http://bjs.ojp.usdoj.gov/content/pub/pdf/piusp01.pdf>.

129. For example, one student note argued that the impact was likely to be greatest for Hispanics, citing larger family structures. Grimm, *supra* note 66.

130. See Greely et al., *supra* note 20, at 259.

African American populations and away from Asian American populations.<sup>131</sup> The reason relates to the use of the Y haplotype (the genetic profile found on the Y chromosome), which modeling proves to be a crucial component of search policies in order to narrow the number of leads to a manageable number. As it turns out, the Y haplotype in Asian and Hispanic populations is not terribly discriminating, whereas it is extremely powerful in the African American population, and moderately so for Caucasians. Thus, Hispanic profiles, already overrepresented in the database, are weakly affected by the Y-STR typing stage of familial searches. Asian Americans, although also weakly culled through Y-STR typing, conversely benefit from their dramatic underrepresentation in databases. African Americans, meanwhile, are overrepresented in the database, but benefit from a powerfully discerning Y-haplotype. In short, the reliance on racially disproportionate databases will on average impact the targeting of suspicion, drawing disproportionate attention toward Hispanics and African Americans and against Asian Americans, and weakly affecting Caucasians.

Second, even if searches never generated any actual discrimination, the mere reliance on offender databases raises an appearance of bias that the criminal justice system can little tolerate. Criticism of the system and its inequities has already deeply divided communities and undermined trust in and cooperation with law enforcement actors. Using offender databases to find relatives sends a message that in cases where there is no evidence of the perpetrator's identity or ethnicity, it is fair to focus suspicion on not just the usual suspects, but also the innocent relatives of the usual suspects. It is misleading for advocates of familial searches to repeatedly suggest that the technique is no more pernicious than looking in a DMV database for a match to a partial license plate.<sup>132</sup> Such an analogy is inaccurate: a search in a DMV database is a search of the entire universe of possible suspects—the DMV database is a registry of *all* license plates. Instead, a familial search is like looking for partial matches to a license plate, but in a DMV database that contains only cars registered to those with surnames starting with M through Z.

The sense that the eyes of justice are not blind is further exacerbated by the starkly racial and ethnic terms in which DNA probabilities are recited. Current CODIS protocols organize population frequencies among racial and ethnic categories. And it is true that, as a matter of probabilities, there are correlations among allelic frequencies within those categories that are distinguishable across generalized groups. However, the degree to which racial categorizations become the *lingua franca* of DNA statistics suggests a misleading amount of certainty in the connections that can be drawn between race (largely a societal construct) and biology (a more subtle genetic phenomenon that at best captures generalized notions of ancestry). As Jonathan Kahn has eloquently observed, when compared to the meticulousness with which research into the technical aspects of DNA typing was conducted:

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131. Murphy et al., *supra* note 39.

132. See, e.g., *60 Minutes: A Not So Perfect Match* (CBS television broadcast Mar. 23, 2007).

The contrasting lack of care taken in characterizing the racial identity of the genetic samples indicates an implicit assumption that such characterizations are obvious, uncomplicated, and take no special expertise. This contrast may be understood more broadly as reflecting a conceptual separation of the world of the “social” from that of the “natural,” where the former is understood to contain transparent categories accessible to all, while the latter requires specialized knowledge and expertise for proper analysis and interpretation. In other words, race is seen as easy and obvious; DNA is seen as difficult and complex.<sup>133</sup>

Indeed, on a superficial level, it ought to strike most persons as odd that the groupings are both racially *and* ethnically composed: distinct categories for “Hispanic” and “African American” make little sense when there are Hispanic persons of African, European, Asian, and Indigenous descent. Scientists simply adopted the categories used to report DNA frequency statistics from those used by the U.S. Census Bureau, despite that they are avowedly “social in character, not biological or genetic.”<sup>134</sup> They also depend on self-identification, and entirely ignore bi- and mixed-race persons. Think of the United States’ first “black” or “African American” president, Barack Obama, who identifies culturally as African American but who by ancestry is no more black than he is white, and who has written eloquently about his own complex heritage. Racial and ethnic categorizations are simply that: loose and largely social associations based on the self-identification—or the physical appearance—of a suspect.

Even if asserting actual racial identity were straightforward, it still would not definitively dictate a particular genetic profile, since genetics at best offer probabilities and likelihoods. In fact, the statistics used to compute allelic frequencies depend on the very existence of a degree of heterogeneity in the reproductive profiles of the population at large.<sup>135</sup> Endorsing an investigative method that quantifies findings in starkly racial terms conveys a sense of biological certainty that science cannot support. Such assumptions are particularly troubling given that familial searches inherently arise in cases with little to no other evidence about a perpetrator. Thus, investigators might mistakenly assume, based on nothing more than general population frequencies, that a perpetrator belongs to one group over another, and focus their attentions accordingly.

Lastly, even assuming the utility of racial categorizations in interpreting DNA results, it could be argued that overtly racializing biological evidence in the criminal justice system risks embarking on a dangerous path that bi-

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133. Jonathan Kahn, *Race, Genes, and Justice: A Call to Reform the Presentation of Forensic DNA Evidence in Criminal Trials*, 74 BROOK. L. REV. 325, 348 (2009).

134. *Id.* at 350. As one sociologist asserts, “On one hand . . . scientists routinely use racial categories in their research . . . . On the other hand, many scientists feel that racial classifications are meaningless and unscientific.” *Id.* (quoting Michael Omi, *Racial Identity and the State: The Dilemmas of Classification*, 15 LAW & INEQ. 7, 7 (1997)).

135. See Bruce Budowle et al., *CODIS STR Loci Data from 41 Sample Populations*, 46 J. FORENSIC SCI. 453, 453–89 (2001) (finding major populations in Hardy-Weinberg equilibrium).

ologizes and pathologizes crime along racial grounds.<sup>136</sup> Such language may simply bolster criminogenic views of racial or familial associations. Of course, advocates of familial search policies might argue that, to the extent that some racially discriminatory effects may occur as a result of familial searches, they are offset either by the benefits of the searches themselves or by the fact that studies that show a “strong probabilistic dependency between the chances of conviction of parents and their children, as well as among siblings.”<sup>137</sup>

Yet it is one thing to acknowledge the reality of such dependencies along with an appreciation of the “complex roles of genetics, environment, and society in criminal behavior,”<sup>138</sup> and quite another to capitalize upon it formally as a means of setting investigative priorities. Drawing suspects from a tainted pool ought not to be excused simply because there is no cleaner water. It is easy to fall into a familiar pattern of racial stereotyping without asking more difficult and nuanced questions about the social construction of crime, or conversely the distribution of privileges, along racial lines. Festooning racial assumptions in technological flourishes particularly distracts from such inquiries: a police department would readily draw criticism if it announced a policy of focusing primary attention in all cold cases on innocent minority young males, simply because statistically their rate of offending is disproportionately highest. An equivalent policy, imposed on genetic grounds, should escape no lesser opprobrium.

#### F. *Preserving Democratic Accountability over the Proper Scope of Databases*

Closely related to individual liberty concerns of those persons affected by familial searches are democratic accountability concerns about the quality of the public debate concerning the scope of the databases. DNA databases are, for the most part, creatures of legislative enactment. The federal government and each of the fifty states have laws that set out exactly who should be required to submit genetic material for testing. The courts continue to confront challenges raised by those mandated by statute to contribute DNA samples, and consensus is lacking around certain practices like arrestee sampling. Yet familial searching easily skirts such challenges by effectively adding relatives to the database not through statutory mandate, but through search technique.

The importance of regulating databases more transparently is underscored by the apparent pervasive and profound resistance to universal

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136. See, e.g., Dorothy E. Roberts, *Crime, Race, and Reproduction*, 67 TUL. L. REV. 1943 (1993) (discussing the racial construction of crime).

137. Bieber et al., *supra* note 39, at 1316.

138. *Id.*

databases.<sup>139</sup> Professors Kaye and Smith sounded the first call for a population-wide database in 2003, when they argued:

[S]ettling for a DNA identification database restricted to convicts, or to convicts and arrestees, is sure to aggravate racial polarization in society, undermine the legitimacy of law and law enforcement, and further compromise public safety by halting far short of the deterrent and investigative capability that a population-wide database would afford.<sup>140</sup>

At the same time, however, they acknowledged that public opposition to mandatory DNA collection would be strong. Indeed, this sentiment has endured despite the steady expansion of DNA collection over the past few years from serious felons to all felons to misdemeanants and now to arrestees.

Familial searching widens the net once more. As the American Society of Law, Medicine, and Ethics wrote in a report it prepared on the issue, “[l]ow stringency searches are an implicit database expansion that should be open to public debate.”<sup>141</sup> Familial search policies represent an end run around database inclusion statutes in several ways: they widen the *size* of databases by effectively including relatives within them; they widen the *types of testing* conducted on DNA samples by undertaking additional forms of genetic typing; and they widen the *scope of information* exposed by the “junk” DNA the government collects. Yet all of these expansions occur in the shadow, rather than the glare, of the public eye.

As regards the *size* of the database, familial searches effectively add the profiles of relatives to the database, even though they are not eligible for inclusion according to the established legal criteria. At the same time that social and legal debates swirl around whether persons arrested only on probable cause should be required to submit genetic samples, relatives find themselves eligible for the database based on nothing more than their relationship to a convicted offender. This *sub rosa* addition of the relatives’ profiles is particularly offensive in that, by virtue of being an incomplete or partial addition, the relatives receive less protection than the offenders required by law to contribute samples. That is, because the *actual* profile is not in the database, the relatives may in fact find themselves more likely to be erroneously suspected as the source of a crime-scene sample than if they voluntarily submitted their full forensic profile. As previously noted, many relatives might even feel it preferable, as a choice of lesser evils, to voluntarily submit their genetic information rather than run the risk of later confrontation.

Similarly, familial searches represent a widening in the *types of testing* and *scope of information* that DNA collection and typing reveals. The con-

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139. The letters in response to a recent op-ed suggesting a universal database provide anecdotal support for this observation. See Letters to the Editor, N.Y. TIMES, Mar. 20, 2010, at A16, available at <http://www.nytimes.com/2010/03/20/opinion/120dna.html>.

140. Kaye & Smith, *supra* note 102, at 459.

141. Greely et al., *supra* note 20, at 255.

stitutional challenges to DNA collection hinge in large part on the understanding that the typed DNA transmits no substantive information—that they were, in essence, “junk” identifiers.<sup>142</sup> But as explained earlier,<sup>143</sup> partial matches using only the thirteen approved CODIS loci prove insufficiently discriminating to be useful; it is necessary to conduct additional forms of testing to narrow the pool to a manageable number. Moreover, the exploitation of typed samples to make inferences about the genetic profile of family members of convicted offenders constitutes a shift in the purpose and scope of DNA databases.

Of course, this Article argues that the Constitution ought to prohibit familial searching altogether;<sup>144</sup> if, for instance, the law prevents those arrested on probable cause from inclusion in the database, it should certainly protect those on whom no suspicion has fallen at all. But at the very least, the determination to effectively include relatives in the DNA database should be a resolved by open democratic debate, not closed-door laboratory discretion.

Even assuming that the practice could in some instances be constitutional, the current lack of legislative discussion is nonetheless troubling. A wide variation exists in the technical parameters applied to searches to minimize false leads, the contexts in which familial searches occur, and the nature of the investigation permitted in following up on a match. The Colorado district attorney, for example, garnered his first conviction from a familial search in a case involving car thefts, indicating that some jurisdictions engage the technique in even relatively low-level property offenses.<sup>145</sup> As Part IV explores in detail, there are an array of restrictions and other safeguards that might be imposed to limit the scope and intrusiveness of searches and the ensuing investigations. If familial searching is to be authorized, then, the precise scope and contours of the practice is a subject worthy of public discussion and debate.

### G. Conclusion

The foregoing Part raises a series of objections to the practice of familial searching. Some of those objections are principled complaints that no amount of programmatic tailoring can remedy. For instance, even the most carefully crafted familial search policy cannot overcome concerns that familial searching arbitrarily creates suspect pools, reinforces ideas of biological determinism, or undermines the state's interest in promoting intact families. Other objections, in contrast, might be ameliorated through careful implementation of the practice—for instance, concerns about confirmation bias or privacy.

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142. See *supra* text accompanying notes 104–109.

143. *Id.*

144. See *infra* Part III.

145. Greg Griffin, *Familial DNA software may catch on in catching criminals*, DENVER POST (November 17, 2009), [http://www.denverpost.com/news/ci\\_13804045](http://www.denverpost.com/news/ci_13804045).

Both kinds of objections, however, inevitably gesture toward two responses. First, it might be argued that even principled arguments against familial searching could be overcome if its efficacy reached such a high threshold that, in essence, the trade-offs were worth it. And second, it might be argued that the obvious alternative to engaging in familial searching would be, as noted above, the creation of a universal (or population-wide) database. Before proceeding to the next Part, I will address each of these points in turn.

### 1. A Word About Actual Efficacy

Although this Part proceeded on the assumption that familial searching *can* work, it is worth spending a moment considering *how often* or *how well* it works. Unfortunately, there are no comprehensive studies of familial search methods from the field. The information that exists instead derives from two sources: anecdotal reports and scientific modeling. Anecdotal reports are difficult to judge: although there have been numerous newspaper reports of isolated successes with familial searching, it seems plausible that the sensational nature of such matches might mean that those stories are not the tip of the iceberg, but its entirety. Moreover, an equal number of sensational stories revealing laboratory corruption or malfeasance or even honest mistakes that result in erroneous arrest, prosecution, or conviction on the basis of DNA evidence weighs against viewing any anecdotal evidence as itself determinative.<sup>146</sup>

Notwithstanding the mixed anecdotal reports, it is interesting to observe that in both the United States and the United Kingdom, even those jurisdictions with aggressive policies seem to report only moderate actual success. Although by no means scientific, it is perhaps illustrative that one of the most vocal proponents of familial DNA searching, Denver DA Mitch Morrissey, maintains an online list of successful identification of suspects using the technique—culled from around the world—and it is currently only up to thirty-one.<sup>147</sup> When California was in the process of deciding whether to allow partial matches, a top legal advisor in the state's DNA unit cautioned that at least the FBI's version of partial match searching was likely to result in many "dead-end lead[s]," and it seems that so far one in ten searches has proved successful.<sup>148</sup> Simulated models likewise demonstrate that it is in fact quite difficult to strike a functional balance between setting partial match thresholds low enough to ensnare a good lead and high enough to ensure

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146. See, e.g., Murphy, *supra* note 22, at 752.

147. Denver District Attorney, Familial DNA Database Searches, [http://www.denverda.org/Familial\\_DNA\\_Database\\_Searches.htm](http://www.denverda.org/Familial_DNA_Database_Searches.htm) (last visited Sept. 9, 2010). Of course, as observed earlier, the three family search leads that caused DA Morrissey to encourage a change in the FBI rule change did not pan out. An additional twenty cases did not involve familial searching, but nonetheless involved an aspect related to partial matches. *Id.*

148. Memorandum from Michael Chamberlain, Deputy Attorney General, DNA Legal Unit, to Attorney General Brown, California Department of Justice, DNA Data Bank Program: Reporting "Partial Matches" to Law Enforcement 3 (June 6, 2007); see also Miller, *supra* note 10.

that a manageable number of overall leads are returned.<sup>149</sup> An indication that familial search methods yield limited positive results, when weighed against the series of concerns enumerated above, may thus tip the balance away from their continued use.

## 2. A Word About Universal Databases

The second response to the preceding arguments might be to concede the myriad inequities and pitfalls of familial searching, and to instead argue in favor of a population-wide DNA database. Of course, the primary obstacle to such an approach would be the Constitution—in a constitutional regime that struggles with whether to allow the state to demand a person's name without suspicion<sup>150</sup> or whether to create a national identity card,<sup>151</sup> a program that requires the compulsory submission of a DNA sample seems highly unlikely to withstand attack.<sup>152</sup>

But even assuming that such a program were to materialize, would it alleviate the resistance to familial searching expressed in this Part? The response is, of course, yes. Both the principled and utilitarian objections to familial searching would be overcome by the establishment of a universal database that, in effect, eliminated entirely the need for familial searches at all (since, in theory, every match could be made exactly). Such a database might raise other, equally perplexing questions—such as the proper boundaries for the exploitation of genetic information in criminal investigations or the manner in which such tools distract from conversations about the social construction of crime and policing (who and what society deems “criminal”). But those are objections for another paper.

That leads to the final question, which is whether a universal database is thus desirable as a way of eliminating or ameliorating the concerns of this Article. The response to that is more complicated. My own intuitions are that, in light of the issues just alluded to, including my reservations about overreliance on biological evidence in the criminal justice system, to

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149. See Curran & Buckleton, *supra* note 49; Natalie Ram, *The Mismatch Between Probable Cause and Partial Matching*, 118 YALE L.J. POCKET PART 182, 185 (2009), <http://thepocketpart.org/2009/04/13/ram.html> (noting “substantial rate of false positives” for familial matches); Thomas M. Reid et al., *Use of sibling pairs to determine the familial searching efficiency of forensic databases*, 2 FORENSIC SCI. INT’L 340, 342 (2008); Murphy et al., *supra* note 39, at 7.

150. See *Hiibel v. Sixth Jud. Dist. Ct. of Nevada*, 542 U.S. 177 (2004) (upholding statute requiring disclosure of name upon reasonable suspicion); *California v. Byers*, 402 U.S. 424 (1971) (upholding statute that requires drivers involved in accidents to stop and give name and address).

151. See ELECTRONIC PRIVACY INFORMATION CENTER, REAL ID IMPLEMENTATION REVIEW: FEW BENEFITS, STAGGERING COSTS: ANALYSIS OF THE DEPARTMENT OF HOMELAND SECURITY’S NATIONAL ID PROGRAM 4–5 (May 2008) (discussing “voluntary” nature of card).

152. It seems virtually impossible that a universal database could withstand constitutional scrutiny. The Fourth Amendment seems quite clearly, even among those who give it its least restrictive interpretation, to prohibit the compulsory genetic sampling, without suspicion, of all U.S. citizens. See *infra* note 193. At best, such a database might be compiled through a *quid pro quo*—in order to get a driver’s license, for instance, a person would have to submit a DNA sample, although even then the suspicionless use of that database for criminal justice purposes might raise constitutional problems.



implement a universal database is to take a step in the wrong direction. DNA typing is too powerful a method of identification to scrub it from investigations altogether, but its power also warrants great caution. I tend to think that a narrowly composed, scrupulously maintained database, with protections in place to prevent undue exploitation, is the most desirable means of striking the balance between the benefits of DNA databasing and its potential for harm. It also strikes me as the most sound approach given the practical constraints of limited resources to construct and maintain such databases. I would prefer a state-of-the-art database with fewer, but better-tailored, entries over a forever-flagging, backlogged repository of unmanageable numbers of low-level, one-time offenders.

If, however, the current trend of expansion were to continue—such that not just certain classes of serious offenders, or even all convicted offenders, are to be included, but also mere arrestees—then it seems to me that a certain tipping point is reached. Once databases cease to draw meaningful lines around their constituent populations—and I would classify inclusion of arrestees as such, given the large number of arrests annually—then the corresponding benefits of keeping them small fade. In the face of unmitigated enthusiasm to expand DNA databases, my intuition is to favor a population-wide register as a way of correcting for the problem of inequity, encouraging the population to attend to oversight, and avoiding the actual and expressive entrenchment of extant socioeconomic and racial disparities in the criminal justice system.

### III. CONSTITUTIONALITY

The previous Part argued against familial search practices on numerous policy grounds. As a legal matter, no court has yet ruled on the constitutionality of familial searching. Although a challenge to familial search methods might be brought under a number of constitutional provisions with varying likelihood of success,<sup>153</sup> I will focus on the most likely source: a claim raised under the Fourth Amendment. However, it is worth noting that in some respects, a plausible challenge might be raised under the Equal Protection Clause, and so that is the argument that I will briefly first address.

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153. For instance, procedural due process would require a positive entitlement of some kind, *Kentucky Dept. of Corr. v. Thompson*, 490 U.S. 454, 460 (1989), and even so might not “require the opportunity to prove a fact that is not material to the State’s statutory scheme,” *United States v. Pool*, No. 09-10303, 2010 WL 3554049, at \*11 (9th Cir. Sept. 14, 2010) (quoting *Conn. Dep’t of Pub. Safety v. Doe*, 538 U.S. 1, 4 (2003)). Substantive due process privacy claims are difficult and disfavored. *Collins v. City of Harker Heights*, 503 U.S. 115, 125 (1992) (“As a general matter, the Court has always been reluctant to expand the concept of substantive due process because guideposts for responsible decisionmaking in this uncharted area are scarce and open-ended.”). Hank Greely has raised the intriguing possibility of a claim based on “corruption of blood,” which is prohibited by the U.S. and twenty-eight state constitutions. Greely et al., *supra* note 20, at 257.

### A. Equal Protection

The most enticing claim under the Equal Protection Clause might at first glance be one based upon the disparate impact upon certain racial minorities of familial search practices. But under current doctrine, such an argument is also the least likely to prevail: disparate impact alone does not raise a colorable constitutional claim.<sup>154</sup> Rather, the stronger argument might be one based on the arbitrariness of a formal practice and policy that distinguishes between relatives of convicted offenders and relatives of nonoffenders in generating government suspicion. Of course, as such a claim does not rest on one of the “suspect categories” such as race,<sup>155</sup> it would be subjected only to rational basis review.<sup>156</sup> And, of course, the rational review test is one that is notoriously easy to meet.

However, even applying the lowest standard of review, a court might deem irrational a formal policy that effectively divides the population into two groups—those related to convicted offenders and those who are not—and then treats the former population as presumptive suspects in criminal investigations while exempting the latter population from such suspicion. It could be deemed a form of “broad and undifferentiated disability on a single named group”<sup>157</sup> in that it essentially diminishes the presumption of innocence and curtails the liberty only for relatives of offenders. The Court has also previously recognized that harms can flow from the forced disclosure of associational ties, even outside of the genetic

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154. *Arlington Heights v. Metro. Hous. Dev. Corp.*, 429 U.S. 252 (1977); *Washington v. Davis*, 426 U.S. 229 (1976). A viable equal protection claim based on racial discrimination would have to prove intentional discrimination, yet familial searching at first glance does not seem to employ racial categories. On closer inspection, however, familial searching may involve some manner of facial racial classification. That is, because in most cases the racial identity of the actual source is not known, and because allelic frequencies vary among racial subgroups, investigators typically calculate match probabilities using racial assumptions. The recommendations of the FBI Scientific Working Group in fact encourages such an approach, noting that “[b]ecause we do not know the actual ethnic composition of offender databases, we can do a pragmatic set of calculations under an assumption that the database is 100 percent of each of the four major ethnic groups in the FBI allele-frequency database.” Scientific Working Group on DNA Analysis Methods, *Ad Hoc Committee on Partial Matches, SWGDAM Recommendations to the FBI Director on the “Interim Plan for the Release of Information in the Event of a ‘Partial Match’ at NDIS”*, 11 *FORENSIC SCI. COMMUN.* (Oct. 2009), [http://www.fbi.gov/hq/lab/fsc/current/standard\\_guidelines/swgdam.html](http://www.fbi.gov/hq/lab/fsc/current/standard_guidelines/swgdam.html). The Report then recommends that the leads be considered probative only if at least one of the four racial groups shows a match likelihood greater than 1.0, and all groups return values greater than 0.1. *Id.* However, the technical intricacies of this argument might make it difficult for some courts to comprehend.

155. *Grutter v. Bollinger*, 539 U.S. 306, 326 (2003) (citing *Adarand Constructors, Inc. v. Peña*, 515 U.S. 200, 227 (1995) and *Loving v. Virginia*, 388 U.S. 1, 11 (1967)). It might be argued that it does implicate the fundamental right to liberty and free association, or even some notion of a fundamental right to familial privacy, in which case the practice would receive heightened scrutiny. See e.g., *Moore v. City of E. Cleveland*, 431 U.S. 494 (1977); *U.S. Dep’t of Agric. v. Moreno*, 413 U.S. 528 (1973) (invalidating as irrational a policy of denying food stamps to households with unrelated persons); *Wisconsin v. Yoder*, 406 U.S. 205 (1972); *Pierce v. Soc’y of Sisters*, 268 U.S. 510 (1925) (recognizing parental control over children’s education).

156. See *City of Cleburne v. Cleburne Living Ctr.*, 473 U.S. 432 (1985).

157. *Romer v. Evans*, 517 U.S. 620, 632 (1996).

context, and has been particularly protective of the familial bond.<sup>158</sup> Moreover, the Court has likewise invalidated broad, dragnet-style acquisition of physical evidence.<sup>159</sup> Familial searching, of course, both exploits familial connections and does so in a conjectural and speculative fashion.

Of course, it might be argued that police routinely make such classifications. For instance, officers may commonly assume (absent individualized suspicion) that a perpetrator of a crime is probably poor, or male, or a minority. It might even be argued that such biases are to some extent unavoidable. But it is one thing to acknowledge the common biases or predispositions of law enforcement; it is another thing altogether to enshrine them as formal investigative protocol—to announce that the police may constitutionally first investigate all poor people, or all men, or all minorities, regardless of any particularized reason to believe the suspect matches those categories. Absent evidence or a rational basis for believing that relatives of offenders are more likely to have committed a crime than relatives of nonoffenders, distinguishing between the legal protection accorded each group seems indefensible and irrational.

### B. *The Fourth Amendment*

An attack on familial searching under the Fourth Amendment presents difficult doctrinal challenges, although it is likely the more obvious means of approach.<sup>160</sup> The first difficulty is in identifying a constitutionally cognizable “search” or “seizure.” A familial search is composed of a sequence of steps—offender sample collection, sample testing, sample retention, sample databasing, database searching, possible sample retesting, and so on.<sup>161</sup> Which of these steps invokes constitutional scrutiny?

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158. See, e.g., *Roberts v. U.S. Jaycees*, 468 U.S. 609, 619–20 (1984) (“[T]he personal affiliations that exemplify [the constitutional values deserving protection] are those that attend the creation and sustenance of a family.”).

159. *Davis v. Mississippi*, 394 U.S. 721 (1969) (invalidating fingerprint dragnet of roughly seventy-five black youth on the grounds that it was intrusive and insufficiently tailored). The Court did, however, suggest that a more limited detention of persons for purposes of fingerprinting, especially if done with judicial approval, might survive constitutional scrutiny. *Id.* at 727–28.

160. It is the most natural amendment under which such a challenge would arise, however, especially given the Supreme Court’s position that “if a constitutional claim is covered by a specific constitutional provision, such as the Fourth or Eighth Amendment, the claim must be analyzed under the standard appropriate to that specific provision, not under the rubric of substantive due process.” *United States v. Lanier*, 520 U.S. 259, 272 n.7 (1997) (clarifying *Graham v. Connor*, 490 U.S. 386, 394 (1989)).

161. DNA must be physically collected in a biological sample from an individual; it must then be typed and analyzed; that entry must be uploaded into a database, with possible retention of the physical sample; a search must be conducted of the database using a particular stringency; the search must return a list of leads; and then that list must be winnowed down, possibly by additional forms of testing (such as Y-STR typing).

In the series of cases largely rejecting constitutional arguments against mandatory collection,<sup>162</sup> courts have not undertaken such sensitive and scrupulous analyses.<sup>163</sup> Instead, they focus most of their attention solely on the moment of collection and ruled it lawful.<sup>164</sup> Indeed, a plausible argument might be made that the Constitution regulates only the moment of sample acquisition—in this case, the lawful collection of DNA from the convicted offender—and nothing further. In support of this argument, it would be noted that there is some indication that it is only acquisition that triggers constitutional scrutiny, not use. For instance, in *Ferguson v. City of Charleston*, Justice Scalia (although writing for himself alone) suggested in a urine drug-testing case that there was “only one act that could conceivably be regarded as a search . . . the taking of the urine sample.”<sup>165</sup>

The D.C. Circuit in *Johnson v. Quander* has similarly held that “accessing the records stored in the CODIS database is not a ‘search’ for Fourth Amendment purposes. As the Supreme Court has held, the process of matching one piece of personal information against government records does not implicate the Fourth Amendment.”<sup>166</sup> A review of the Supreme Court’s history on the issue suggests an uncertain approach: at times the Court has acknowledged that the act of generating and searching large, computerized databases implicates constitutional interests, even when the information compiled is otherwise publicly available, and at times it has suggested the opposite.<sup>167</sup>

Even the courts that have acknowledged possible constitutional claims based on sample retention or profile databasing have not analyzed those moments separately. For example, the First Circuit in *United States v. Weikert* simply conditioned its holding on the right to undertake further

162. Compare *United States v. Pool*, No. 09-10303, 2010 WL 3554049 (9th Cir. Sept. 14, 2010) (analyzing arrestee sampling using totality-of-circumstances test and finding limited collection reasonable under Fourth Amendment), and *Anderson v. Commonwealth*, 650 S.E.2d 702 (Va. 2007) (upholding state arrestee statute), with *United States v. Mitchell*, 681 F. Supp. 2d, 597 (W.D. Pa. 2009) (holding federal arrestee collection statute unconstitutional), *In the matter of the Welfare of C.T.L.*, 722 N.W.2d 484 (Minn. Ct. App. 2006) (finding arrestee collection unconstitutional), and *Gorman v. Minnesota*, 52-CV-05-684 (Minn. 5th Judicial Dist. Court. Dec. 15, 2005) (finding pre-conviction collection of DNA a constitutional violation). The U.S. District Court for the Northern District of California also recently denied a motion to enjoin the state statute providing for mandatory sampling of felony arrestees in California. See *Haskell v. Brown*, 677 F. Supp.2d 1187 (N.D. Cal. 2009) (order denying motion for preliminary injunction on grounds that claim lacked substantial likelihood of success).

163. The inadequacy of the typical approach is in part revealed by cases such as *United States v. Davis*, 657 F. Supp. 2d 630 (D. Ct. Md. 2009), in which the court had to conduct a detailed, sensitive inquiry due to the unusual factual circumstances. There, a crime victim’s clothing was collected but not tested. It was later tested when the victim became a suspect (but then ultimately exculpated) in another offense, and the profile was placed in the database. Later still, the profile turned up as a database lead. Thus, disaggregating the inquiry was all but impossible to avoid.

164. See, e.g., Erin Murphy, *Paradigms of Restraint*, 57 DUKE L.J. 1321, 1329–30 (2008).

165. *Ferguson v. City of Charleston*, 532 U.S. 67, 92 (2001) (Scalia, J., dissenting).

166. *Johnson v. Quander*, 440 F.3d 489, 498 (D.C. Cir. 2006) (citing *Arizona v. Hicks*, 480 U.S. 321 (1987)).

167. See Erin E. Murphy, *Databases, Doctrine & the Future of Constitutional Criminal Procedure*, 37 FORDHAM URB. L.J. 803, 810–21 (2010).

review if the sample and profile were retained in the database after the period of supervision ended, or should changes occur with regard to the particular loci tested (and even developments in the known functionality of those loci).<sup>168</sup> If this singular attention on acquisition continues, then constitutional review of familial searching would be wholly unavailing. If the database lead was collected lawfully, then any searches or additional testing that followed (such as familial searches or Y-STR typing) would raise no constitutional issues. Lawful collection simply ends the analysis: anything further is fair play.

Moreover, even assuming that the running of a crime-scene profile in a DNA database were to be considered a constitutional “search,” then the question remains: What constitutional interest does the lawfully databased person, or that person’s relatives, have in that search? The most direct answer is to say under conventional doctrine, none. Doctrinally speaking, it is unlikely that the search itself (or any subsequent testing) raises constitutional problems. Courts upholding laws requiring a convicted person to provide a DNA profile to law enforcement for databasing presumably understood that those profiles may and will be searched, but did not conduct detailed analyses of the scope or manner of such searches.

In addition, standing problems might prevent any person from raising a cognizable claim. The relatives (who suffer the harm of being “found”) cannot easily claim that the harm stemmed from a violation of their own rights, as required by established doctrine,<sup>169</sup> because it was the lead whose genetic information was subjected to additional search and testing. Yet the real harm affects not the lead, but the lead’s relatives, especially one identified as a source. As regards the lead, a court might readily dismiss the additional testing and searching as harmless, and characterize them simply as inferences arrived at by investigators using lawfully obtained information that are not regulated by the Constitution at all.

So as should by now be evident, familial searches fall between the cracks of a range of uncertain constitutional doctrines with regard to even the most preliminary question of whether the Fourth Amendment applies. They start with the search of a lawfully compiled database, although using a novel method, but searches are not clearly constitutional moments. They may require Y-STR testing of retained physical samples from offenders, in order to narrow the number of leads, but it is not clear that such additional testing requires legal authorization. Even if the testing and searching violated a right, it is not clear it would be the relative’s right (and not the

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168. *United States v. Weikert*, 504 F.3d 1, 13, 5–17 (1st Cir. 2007); *see also* *United States v. Pool*, No. 09-10303, 2010 WL 3554049, at \*15 (9th Cir. Sept. 14, 2010) (Lucero, J., concurring) (“Yet I stress that we do not purport to decide the hypothetical case in which a future litigant may demonstrate that CODIS loci do code for RNA . . . nor do we consider a case in which the nature of the genetic information stored in the CODIS database is changed from present practice.”); *United States v. Amerson*, 483 F.3d 73, 86 (2d Cir. 2007). Given that new loci are already under development by the FBI, and that Y-STR typing has become common and widespread (and necessary in the case of familial searching), such reservations seem wise.

169. *See, e.g.,* *Steagald v. United States*, 451 U.S. 204, 219 (1981) (noting Fourth Amendment rights are “personal in nature”); *Rakas v. Illinois*, 439 U.S. 128, 133–34 (1978).

original database lead's). And familial searches alone require no new sample collection or testing from the relatives—that would only occur later, and would in all likelihood be readily regulated by current Fourth Amendment doctrine requiring either abandonment (as in the case of the Grim Sleeper), consent, or some form of suspicion and maybe a warrant. In sum, as the Ninth Circuit recently stated, “[I]t is not clear that familial comparisons raise a constitutional privacy issue or, if they do, whose interests are violated.”<sup>170</sup>

But the foregoing reasoning in the end makes little sense. Particularly with DNA, it simply cannot be that so long as DNA samples are lawfully collected, the government may do whatever it wants with them—ranging from testing for particular genetic predispositions to creating elaborate cross-referenced databases, to cloning the person into an army of warriors.<sup>171</sup> Indeed, in a variety of drug-testing cases, a majority of the Court has endorsed the notion that testing a biological sample is a “search” for constitutional purposes, separate from the question of collection.<sup>172</sup> And even those courts that have focused wholly on collection of DNA, and remained largely untroubled by the retention of physical samples, have still always taken great pains to explain that the tests and databases are kept in such a way as to foreclose the obtaining of sensitive or private information or to prevent misuse that would violate the Fourth Amendment.<sup>173</sup> In essence, these courts have tied the constitutionality of taking the sample to the constitutionality of the manner in which the sample will be used—finding, in other words, that collection is acceptable because the databases are secure and the rationale for searching solid. Thus, there is some support for use

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170. *Pool*, 2010 WL 3554049, at \*6 (“It is questionable whether the rights of the perpetrator (if ultimately identified through the use of familial comparisons) are violated.”).

171. In response to the complaint, often made by courts, that scenarios of such governmental exploitation constitute “Hollywood fantasies,” *United States v. Kincade*, 379 F.3d 813, 838 (9th Cir. 2004) (en banc), three points might be made. First, there is nothing in the misuse statutes that directly prohibits such activity. The federal statute limits disclosure of information for “law enforcement identification purposes,” but nothing about “identification purposes” limits typing to the noncoding regions of the genome. 42 U.S.C. § 14132(b)(3)(A) (2006). In fact, the attorney general is specifically vested with the authority to perform “analysis of the deoxyribonucleic acid (DNA) identification information in a bodily sample,” 42 U.S.C. § 14132(b), (c), without any requirement that such analysis be on the “junk” regions, and section (d) expressly allows further research for identification purposes, 42 U.S.C. § 14132(d). Second, recent grants from the National Institute of Justice affirm law enforcement’s interest in broader aspects of genetic research, such as “Identifying and Communicating Genetic Determinants of Facial Features,” “Determination of the Physical Characteristics of an Individual from Biological Stains,” and “Gene Polymorphism and Human Pigmentation.” See generally *DNA.gov: Alternative Genetic Markers*, DNA Initiative, [http://www.dna.gov/research/alternative\\_markers/](http://www.dna.gov/research/alternative_markers/) (last visited Sept. 9, 2010). And third, the vast majority of states either have no misuse statutes or else word their misuse statute almost as broadly as the federal government. Only eight states have express prohibitions on testing offender DNA for medical, psychological or phenotypical information. See generally *id.*

172. *Ferguson v. City of Charleston*, 532 U.S. 67, 76 n.9 (2001); *Chandler v. Miller*, 520 U.S. 305, 313 (1997); *Vernonia Sch. Dist. 47J v. Acton*, 515 U.S. 646, 652 (1995); *Skinner v. Ry. Labor Exec.s Ass’n*, 489 U.S. 602, 616 (1989); *Nat’l. H. Treasury Emp.s Union v. Von Raab*, 489 U.S. 656, 665 (1989).

173. See, e.g., *Nicholas v. Goord*, 430 F.3d 652, 670 (2d Cir. 2005); *Kincade*, 379 F.3d at 837–38.

scrutiny and not just acquisition scrutiny—for the idea that the Constitution has something to say about further testing, databasing, and searching of lawfully acquired DNA profiles.

What might such scrutiny look like? In the simplest incarnation, we can imagine a court finding that a familial search is a suspicionless search in violation of the Fourth Amendment. The partial match search itself constitutes the unauthorized act.<sup>174</sup> Its unreasonableness would hinge upon the arbitrariness of casting suspicion on offender relatives, as well as the impermissibility of exploiting databases compiled on the premise of lessened privacy of offenders to access the fully protected DNA profiles of relatives. The interest infringed is therefore both that of the lead, whose profile is actually searched, and of the relative, whose own privacy right is violated by the search.

Alternatively, we might articulate a relatives' protectable interest in the privacy of their half of the databased kin's genetic code. In this sense, the relative has a protected right not to have her own genetic information exposed, if you will, by the fact of her kin's conviction. Such an interest could be likened to the joint interest held by property owners who share common space. As the Court made clear in *Georgia v. Randolph*, consent by one co-occupant cannot vitiate the constitutional interest asserted by the other co-occupant. In that case, the Court drew a formal line between a consenting occupant and a present but nonconsenting co-occupant.<sup>175</sup> Indeed, to the extent that one occupant *could* provide consent in the absence of the nonconsenting co-occupant, it was because the co-occupant assumed the risk of such an eventuality upon agreeing to share the space.<sup>176</sup> Where the co-occupant was present and denying entry, however, "the cooperative occupant's invitation adds nothing to the government's side to counter the force of an objecting individual's claim to security against the government's intrusion . . . ."<sup>177</sup>

We might likewise say that the convicted offender's diminished privacy cannot in turn diminish the privacy of his or her relatives. Unlike the occupant, even, the relative never "assumed a risk"—we all well know that we do not choose the families into which we are born. Moreover, the individual "waiving" the privacy right of the relative is not even voluntarily waiving that right—the offender is typically in the database by dint of a statutory

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174. Such reasoning encounters difficulties with regard to inadvertent partial matches (as opposed to intentional ones). Inadvertent partial matches might be distinguished, and permitted, as a form of "plain view," in the sense that a lawful search for an exact match revealed a close partial match. But given the hazards of such an approach, see *infra* Section IV.B, and the ease of tailoring software and reporting requirements to conform to a constitutional standard, separate approaches for intentional and inadvertent matching need not be necessary.

175. 547 U.S. 103, 106 (2006).

176. *Id.* at 111.

177. *Id.* at 115. Interestingly, by way of additional comparison, the Court rejected the claim that one occupant's consent could overcome the other's nonconsent even though the consenting person might wish to "deflect suspicion raised by sharing quarters with a criminal." *Id.* at 116. The co-occupants right to exonerate, then, did not seem to overcome the other occupant's right to privacy from government intrusion.

mandate, not voluntary consent. Thus, the constitutional authority to search for exact matches (i.e., the diminished privacy of the offender) is wholly absent with regard to the relative (who retains full privacy entitlements).<sup>178</sup>

In stark terms: the partial match search, and the inference drawn from the match itself, invoke constitutional scrutiny because they intrude on the legitimate expectation of privacy held by the relative in her half of the offender's genetic code, and are impermissible because they do so without individualized or particularized suspicion. The rationale justifying such warrantless, suspicionless searches in the case of a direct match—namely, the diminished expectation of privacy and recidivist threat of convicted offenders—is absent when it comes to relatives, who retain the full force of Fourth Amendment protection.

One argument against this position might be to cite cases such as *Samson v. California*, which hold that probationers and parolees can be subjected to warrantless and suspicionless searches at any time.<sup>179</sup> The authority to search presumably applies even in the event that the parolee shares space with another.<sup>180</sup> However, whereas such implied consent might have some intuitive force with regard to physical co-occupation—a voluntary and intentional decision to expose oneself to risk by cohabitating with a parolee—surely it cannot carry the day with regard to biological association. After all, we cannot choose the persons with whom we share our genetic code. In some cases, the relative may have entirely disavowed the wayward convicted offender whose profile is in the database, or not even know of his or her identity. In light of the involuntariness and intractability of the genetic link, then, it seems indefensible to claim a voluntary relinquishment of privacy by the relative on account of mere biology.

The Tenth Circuit, in *Poolaw v. Mercantel*, relied on a variation of this argument to invalidate both a stop and a search warrant.<sup>181</sup> In that case, the parents-in-law and sister-in-law of a murder suspect were searched and stopped primarily because of their familial relationship to the suspect.<sup>182</sup> Finding the police actions unconstitutional, the court cited a range of authority to “discern a clear rule: A familial relationship to someone suspected of criminal activity, without more, does not constitute probable cause to search

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178. A further analogy might be drawn to *Steagald v. United States*, 451 U.S. 204, 219 (1981), 451 U.S. at 219, in which the Court noted that the Constitution may require a search warrant to execute an arrest warrant for an individual in the home of a third party. Just as the law-abiding individual does not forfeit personal privacy merely by associating with the potential arrestee, so too should the law-abiding relative not be deemed to forfeit personal privacy by mere accident of biological relation.

179. 547 U.S. 843 (2006).

180. See, e.g., *Thornton v. Lund*, 538 F. Supp. 2d 1053, 1058–59 n.4 (E.D. Wis. 2008) (reviewing cases and noting that prior to *Randolph*, many courts assumed that a co-occupant with a parolee was subject to the same expansive search scope, whereas *Randolph* called that presumption into doubt); *Donald v. State*, 903 A.2d 315, 321 (Del. 2006); cf. *Brendlin v. California*, 551 U.S. 249, 251 (2007) (holding that all occupants of a stopped vehicle, not just the driver, are “seized” under the Fourth Amendment).

181. *Poolaw v. Mercantel*, 565 F.3d 721, 725 (10th Cir. 2009).

182. *Id.*



or arrest.”<sup>183</sup> *Poolaw* answers a slightly different question than that raised by familial searching, because although the relatives’ interests were infringed, they were not the ones who were suspected of a crime. But its reasoning is apt: the privacy rights of an individual cannot be diminished simply because that person is related to a person whose own privacy rights are diminished by dint of committing a crime. If anything, the claim to diminish the relatives’ rights would be stronger in a *Poolaw* situation—in that case, the suspect’s identity is certain, and the relatives have an established relationship to the suspect. In the case of familial searching, there will be relatives that investigation reveals have no association whatsoever with the crime or the perpetrator; namely, the relatives of false leads that turn up in a familial search.

Finally, we might wholly bypass this kind of sensitive analysis and simply liken familial DNA searches to unofficial, shadow databases.<sup>184</sup> That is, it might be (and has successfully been) argued that DNA databases are permissible because offenders have diminished expectations of privacy, and therefore sampling, typing, and databasing their genetic information does not offend the Constitution.<sup>185</sup> But allowing a familial search is like saying that the sampling, typing, and databasing the innocent relatives of convicted persons is acceptable. The latter “shadowbasing” is offensive in two respects. First, those innocent relatives have not forfeited their interests in privacy, and therefore should not have the privacy of their genetic identifiers compromised. Second, the information “collected” is partly speculative; analysts cannot say with certainty what the actual genetic profile of the relative is, but simply draw inferences based on the partial match. In this respect, “shadowbasing” is even more intrusive than offender databasing, which at least links an offender to one known profile.

Of course, there remains another route of analysis altogether. This Part has argued that if the relatives have a cognizable interest, as both a matter of standing doctrine and substantive Fourth Amendment expectation-of-privacy tests, then familial searching (which is by nature random and suspicionless) infringes that interest. But the mere existence of a Fourth Amendment interest does not necessarily render the familial search invalid. To be sure, in all likelihood it does: it is hard to conceive of how the courts could defend a search that essentially creates suspects from an artificial pool compiled on no other basis than that they, rather than the rest of the population with the

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183. *Id.* at 730. The court cited to *Ybarra v. Illinois*, 444 U.S. 85, 91 (1979) for the principle that “mere propinquity to others independently suspected of criminal activity does not, without more, give rise to probable cause,” and noted that “propinquity” need not be physical or geographical, but also included kinship and relatedness. *Id.* at 729–30.

184. See *Murphy*, *supra* note 22, at n.76 (describing informal databases, such as those collected in Excel spreadsheets or desktop programs).

185. *United States v. Weikert*, 504 F.3d 1, 12 (1st Cir. 2007); *United States v. Amerson*, 483 F.3d 73, 85 (2d Cir. 2007); *Nicholas v. Goord*, 430 F.3d 652, 670 (2d Cir. 2005); *United States v. Kincade*, 379 F.3d 813, 839 (9th Cir. 2004).

same characteristics, happen to have kin in the offender database.<sup>186</sup> Indeed, the cases upholding warrantless, suspicionless searches have almost uniformly done so in part with reference to fact that such searches are indiscriminate—they randomly subject every person to equal intrusion.<sup>187</sup>

But it is possible that the Supreme Court might view the intrusion as constitutionally permissible so long as it is done according to a plan or policy that limits its intrusiveness. The Court has previously acknowledged, especially with regard to burgeoning technologies, that although the Fourth Amendment does not entirely forbid the search in question, its constitutionality hinges on the development of a regulatory superstructure. Specifically, in *Berger v. New York*<sup>188</sup> and *Katz v. United States*,<sup>189</sup> the Court held that the Constitution does not prohibit wiretapping, but that it does require “precise and discriminate procedures” to safeguard against abuse.<sup>190</sup> And, despite those who warned “that neither a warrant nor a statute authorizing eavesdropping can be drawn so as to meet the Fourth Amendment’s requirements,”<sup>191</sup> in fact the Court approved “Title III,” Congress’s comprehensive regulation of wiretaps.<sup>192</sup> The Court has likewise allowed under the Fourth Amendment searches conducted according to specific, tailored legislative or administrative regimes.<sup>193</sup> Accordingly, the next Part explores the

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186. Cf. *Davis v. Mississippi*, 394 U.S. 721 (1969) (invalidating fingerprint dragnet on the grounds that it was intrusive and insufficiently tailored).

187. See, e.g., *Mich. Dep’t of State Police v. Sitz*, 496 U.S. 444, 454 (1990).

188. 388 U.S. 41 (1967).

189. 389 U.S. 347 (1967).

190. *Berger*, 388 U.S. at 58–60.

191. *Id.* at 63.

192. Pub. L. No. 90-351, tit. III, 82 Stat. 212 (codified as amended at 18 U.S.C. §§ 2510–2522 (1996)); see also Anuj Desai, *Wiretapping Before the Wires: The Post Office and the Birth of Communications Privacy*, 60 STAN. L. REV. 553, 588–89 (2007) (recounting the history of communications privacy before *Olmstead*, *Berger*, and *Katz*). A “super-statute” such as Title III has the capacity not only to shape the actions that it directly regulates, but also to embody and impart fundamental precepts of society. William N. Eskridge, Jr. & John Ferejohn, *Super-Statutes: The New American Constitutionalism*, in *THE LEAST EXAMINED BRANCH: THE ROLE OF LEGISLATURES IN THE CONSTITUTIONAL STATE* 325 (Richard W. Bauman & Tsvi Kahana eds., 2006). A comprehensive regulatory regime for DNA investigations might likewise help to “introduce or consolidate a norm or principle as fundamental,” and to stabilize debates that arise as a result of the rapid pace of scientific development and inherent pressures to exploit new technologies. *Id.*

193. See, e.g., *Florida v. Wells*, 495 U.S. 1 (1990) (invalidating search under inventory exception where officer opened container despite absence of “standardized criteria or established routine”); *New York v. Burger*, 482 U.S. 691 (1987) (inspection program of closely regulated junkyard business constituted “constitutionally adequate substitute” for warrant requirement); *Camara v. Mun. Court of San Francisco*, 387 U.S. 523 (1967) (conditioning constitutionality of housing inspections on probable cause as defined by existence of legislative or administrative standards). The terms of particular familial search policies or orders might be reviewed under conditions such as described by Professor Paul Giannelli in his thoughtful review of the issue, namely, where “[s]uch orders satisfy the Fourth Amendment reasonableness requirements if they are based on a carefully drawn statute or rule that provides certain safeguards.” Paul C. Giannelli, *Nontestimonial Identification Orders For DNA Testing*, 44 CRIM. L. BULL. 590, 608 (2008). Giannelli relied on statutes along with *Hayes v. Florida*, 470 U.S. 811, 817 (1985) and *Kaupp v. Texas*, 538 U.S. 626 (2003). In *Kaupp*, the Court left “open the possibility that, ‘under circumscribed procedures,’ a court might validly authorize a seizure on less than probable cause when the object is fingerprinting.” 538 U.S.

possible limitations that might circumscribe the intrusiveness—whether as a matter of constitutional necessity or political choice—of familial search methods.

#### IV. POSSIBLE PARAMETERS

Should familial searches be deemed constitutional, the arguments advanced in Part II support their close regulation. The goal is three-fold: to minimize their intrusiveness, optimize their efficacy, and ensure their legality. Accordingly, this Part outlines some loose contours to be addressed by a statutory regime or administrative policy for familial searches.

##### A. *What Legal Form Should Familial Search Guidelines Take?*

Police investigative practices, especially as regards new technologies, are often regulated in diverse and informal ways.<sup>194</sup> Forensic DNA methods conform to this expectation and are governed formally by a patchwork of law that includes the federal Constitution, federal statutes and administrative regulations, state statutes and regulations, and local administrative policies.<sup>195</sup> The opening anecdote of this Article illustrates the resulting tensions: whereas the FBI database director preferred congressional authorization to change the information-sharing policy, the FBI director ultimately authorized it without formal legislative approval.

Another anecdote illustrates this point more forcefully. In April of 2007, the administrator of the DNA database in Massachusetts, Robert Pino, was fired for alleged misconduct.<sup>196</sup> One of the allegations against him was that he prepared four reports on near-match searches in violation of laboratory regulations. However, Pino alleged that such searches were permissible, citing in part an email from the legal counsel to the state police.<sup>197</sup> The state spokesperson, in contrast, said that “the crime lab had no written policy banning familial searching,” but that “[i]t is prohibited because the policy did not address it.”<sup>198</sup> That such ambiguity existed around a practice that im-

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at 630 n.2 (citing *Hayes*, 470 U.S. at 817). The concurring opinion in the Ninth Circuit case approving pretrial sampling likewise cited the existence of a “programmatically” regime as critical to finding the search constitutional. *United States v. Pool*, No. 09-10303, 2010 WL 3554049, at \*17–18 (9th Cir. Sept. 14, 2010) (Lucero, J., concurring).

194. Murphy, *supra* note 164, at 1345–46.

195. Examples include statutory provisions; the National DNA Index System Procedures Board, which is responsible for crafting the procedures and regulations governing both the acceptance and search of DNA profiles in the database; scientific working groups of the FBI (such as SWGDAM for DNA analysis methods); the National Institute of Standards and Technology, a non-regulatory federal agency within the Department of Commerce; and FBI executive regulations.

196. Jonathan Saltzman, *State Police may hunt for a suspect using kin’s DNA*, BOSTON GLOBE, Apr. 17, 2007, at A1.

197. *Id.* Pino had also been quoted a year earlier in an article about familial searching, in which he stated that that technique was legal, but not used, in Massachusetts. Gareth Cook, *Near match of DNA could lead police to more suspects*, BOSTON GLOBE, May 12, 2006, at A1.

198. Saltzman, *supra* note 196.

plicates such fundamental values underscores the need for express legislative action, as opposed to implied silences or informal policies.

However, the state's reasoning was sound. Because partial match searches are effectively de facto expansions of the DNA database and transform the storage of "junk" genetic identifiers into valuable familial genealogical charts, they should be presumptively impermissible absent express and tailored legislative approval at both the state and federal level. The legislative process helps offset concerns about a lack of transparency and accountability in such searches and ensures that appropriate safeguards are put in place to address issues related to accuracy, privacy, and ethnic discrimination. Allowing executive branch officials—whether a governor, attorney general, or state laboratory administrator—to unilaterally authorize such a wide-sweeping and politically contentious form of searching is to grant the executive unchecked authority to dramatically expand the size and character of the DNA database.<sup>199</sup> Just as neither sound public policy nor constitutional doctrine would permit wiretaps to be decided on an ad hoc, informal basis—whether by an individual investigator, by a department chair, or by an executive official—so too should it forbid the delicate questions surrounding the implementation of familial search methods to be resolved in such an informal and opaque manner.

#### B. *Should Different Standards Govern Intentional and Fortuitous Partial Matches?*

As both a practical and political matter, the distinction between intentional and inadvertent partial match searches should be considered largely artificial. Rather, the relevant question is whether or not the search returns exact/perpetrator matches or partial/familial matches, regardless of whether it was the analyst's subjective intention to do so. Permitting inadvertent matches while prohibiting intentional partial matches invites strategic behavior,<sup>200</sup> while ignoring the more pressing question of what the parameters of partial match searches should be.

To the extent that jurisdictions should desire to draw such a distinction (as New York recently did), however, it may benefit from considering the literature on incidental findings in medical research—such as when a

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199. Jessica Gabel, in her article on familial searching, sets forth a detailed set of proposed guidelines that she seems to suggest serve as ethical rather than legal constraints. Gabel, *supra* note 69, at 53–56. These recommendations are in some respects far more detailed than those I make here, which function more as points for debate or consideration than specific terms, but many concur with my own, including an exhaustion requirement, destruction of samples, and so on. *Id.* In addition, I make recommendations not covered in her article, while also agreeing with some recommendations that are not made here—such as a right of access for defense testing and a cause of action for damages in event of abuse. I differ with Professor Gabel on several points. For instance, she sets a sixteen-loci minimum and includes a battery of confirmatory processes (including kinship analysis, direct comparison, likelihood ratios, prioritization, and Y-STR testing). *Id.* at 55. I do not ultimately recommend one method over another. In addition, her proposal requires only "immediate" notification upon exclusion, whereas I would specify a time frame and numerical limits for testing for exclusion. *See id.* at 54.

200. *See generally* Ram, *supra* note 8.

participant in a brain imaging study is found to have a tumor.<sup>201</sup> Although that literature is far from unified in recommending an approach, it provides a rich resource for guidance on how to construct conditions of knowledge that help implement concerns related to privacy. As noted below in Section IV.F, this literature also has specifically grappled with the question of incidental findings of nonpaternity.<sup>202</sup>

### C. When May Familial Searches Occur?

Any authorization for familial search methods must specify when such searches will be permitted. Part II identified five concerns raised by familial searches, all of which are amenable to amelioration through closer regulation: discrimination, accuracy, privacy, family disruption, and democratic accountability.

The most direct way to minimize the intrusion of familial search methods is to strictly circumscribe the number of times such searches occur. This is best effectuated by identifying the cases in which familial searches reap the greatest social benefit in terms of need and likely effectiveness. Thus, familial searches might be restricted to cases involving the most serious charges—say, homicide, sexual assault, and violent robberies. Moreover, they might be permitted only as a matter of last resort—for instance, only in those cases in which all other leads have been pursued and no suspect has been identified. They could be limited to cases in which the crime-scene sample is single source, or clearly points toward one perpetrator (rather than a mixture with several possible profiles present). And finally, they could be allowed only in cases in which the issue of identity is dispositive or strongly indicative of guilt.

Of course, imposing such strictures requires an oversight structure to safeguard their implementation. Such oversight could be done by various entities, most likely judicial or executive branch (either prosecutorial or police) officials. The California policy lodges its oversight responsibilities with the attorney general, who must review all determinations to release information where a committee cannot reach a consensus.<sup>203</sup> However, the danger of such an approach is that the attorney general arguably shares the same zeal for the “competitive enterprise of ferreting out crime” as do investigative officers. Vesting the courts with this authority would have the salutary effect of interposing a neutral decision maker and of deterring a high volume of requests (arguably preventing the process from becoming a bureaucratic rubber stamp), but it saddles already-overburdened courts with additional responsibilities. I think the ideal arbiter would be a committee or commission charged with reviewing such requests, perhaps composed of an

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201. My thanks to Glenn Cohen for this suggestion.

202. See generally Susan M. Wolf et al., *Managing Incidental Findings in Human Subjects Research: Analysis and Recommendations*, 36 J. L. MED. & ETHICS 219 (2008) (noting that studies suggest, with varying reliability, roughly a 10 percent rate of misattributed paternity).

203. California Policy, *supra* note 6.

interdisciplinary team of scientists and statisticians, executive officers, and prosecuting and defense attorneys. The risk, of course, would be that there might not be sufficient volume to keep such an entity fully occupied. Nevertheless, because familial searches ought to be a last resort rather than the first line of inquiry, they may be less time sensitive and thus monthly or intermittent review periods would suffice. Such a commission might also be charged with oversight of other aspects of forensic DNA management, such as quality assurance or protocol development, that would further occupy their time.

*D. What Should Be the Technical Parameters Delimiting  
the Scope of the Search?*

Perhaps the most critical aspect of a familial search policy is its technical dimensions. Scientific questions raise some of the most difficult and dynamic issues: difficult because they hinge on empirical questions that have not yet been fully answered, and dynamic because those answers may change as the technology continues to evolve. Nevertheless, it is possible to fix some parameters in light of the current state of research.

Only a handful of studies examine the relationship between search stringency and likely returns, but all that do affirm the clear problems with autosomal matching alone.<sup>204</sup> A strict match requirement—say, twenty-two of twenty-six alleles—is likely to provide more reliable leads, and fewer leads overall, but it is also more likely not to capture a good lead that otherwise might have been found in the database.

It is thus necessary to narrow autosomal leads in some way other than simply setting high match thresholds. Studies have considered a variety of approaches. Adding subsequent typing (typically Y-STR) is the most common means of winnowing the number of matches, thereby reducing the false leads without decreasing the probability of finding a true lead to the source.<sup>205</sup> The main drawbacks of this approach are three-fold: first, Y-STR typing is applicable only to investigations of male samples; second, there are potential legal obstacles to retyping samples to generate Y-STR profiles; and third, the additional testing may be costly or infeasible given a large number of leads.

Another popular alternative, either alone or in combination with autosomal and Y-STR typing, is to use a likelihood ratio to prioritize matches. This approach looks not just at the number of matching alleles, but also their specific character.<sup>206</sup> That is, some alleles are more common in the population

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204. See *supra* text accompanying notes 39–42.

205. *Id.*; Curran & Buckleton, *supra* note 49, at 164 (“[The] most straightforward way that genetics can contribute to lowering the impact on wrongly investigated families is by increasing the power of the technique by either adding further autosomal loci or by the use of mitochondrial DNA or the Y chromosome.”).

206. See, e.g., Cowen & Thomson, *supra* note 20, at 643; Curran & Buckleton, *supra* note 49, at 165; Reid et al., *supra* note 40, at 342.

than others, and thus a fifteen allelic match of one set of alleles can be more- or less-discriminating than a fifteen allelic match of a different constellation of alleles. Investigators may even go one step further, and calculate likelihood ratios for false matches based on specific database characteristics, which may help them to judge whether a lead is more or less likely to be false.

All of these parameters are easily implemented, and science will inevitably bring still more options to refine search results. The important thing is to recognize the value of stated procedures for minimizing false starts. The Grim Sleeper investigation discussed in the Introduction illustrates the utility of calculated efforts to reduce false leads. In that case, California law enforcement officials used both autosomal and Y-STR matching, as well as developed likelihood ratios, and their efforts reduced the returns to one possible lead.<sup>207</sup> A subcommittee of the FBI's scientific working group on DNA evidence similarly recommended that additional testing (such as Y-STR or mitochondrial typing) be conducted "whenever possible," that allelic frequency be taken into consideration, and that likelihood ratios be used to help assess the probative value of a match.<sup>208</sup> In sum, in order to avoid dragnets, a familial search policy must take the quality of the match, and not just the quantity of alleles, into consideration.

#### E. Which Databases May Be Searched?

Limiting the databases that may be trolled for leads offers another way of minimizing the intrusiveness of familial searches. Recall, for instance, the earlier example of a familial match made to the profile of a crime victim. As the categories of samples collected expand, DNA databases include not only genetic material from convicted offenders, but also from an assortment of other sources. The national database is divided into indexes for convicted offenders, forensic stains (victims and crime scene), arrestees, and missing persons. It could be argued that limiting searches to databases of convicted offenders—excluding arrestees, missing persons, armed services members, voluntary contributors, and victims—for instance, minimizes the harms of familial searching. It both reduces the sheer number of persons affected by such searches and minimizes collateral consequences, such as victims expressing reluctance to cooperate in investigations.

But these limitations may be difficult to enforce, especially if a state or local database is kept in a way that does not distinguish clearly among different populations. More importantly, there is an undoubted artifice in permitting such searches of convicted offenders but not victims, say, when the ultimately affected party—the lead's relatives—are equally innocent.

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207. Miller, *supra* note 10.

208. Scientific Working Group on DNA Analysis Methods, Ad Hoc Committee on Partial Matches, *SWGDM Recommendations to the FBI Director on the "Interim Plan for the Release of Information in the Event of a 'Partial Match' at NDIS*, 11 FORENSIC SCI. COMMUN. (Oct. 2009), [http://www.fbi.gov/hq/lab/fsc/current/standard\\_guidelines/swgdam.html](http://www.fbi.gov/hq/lab/fsc/current/standard_guidelines/swgdam.html).

Why should the brother of a convicted offender be treated any differently than the brother of a crime victim, given that both brothers are equally innocent? If the legal and moral justification for familial searching is that maximizing information held by law enforcement (known DNA profiles) does not impermissibly infringe on the right of law-abiding relatives of those persons, then it should not matter whether those law-abiding relatives were accessed via the profile of an offender, victim, military member, or missing person. In this regard, it seems legally, logically, and morally unjustified to limit the search to particular databases. Indeed, broadening the categories of search-eligible databases may help offset some of the concerns of discrimination. To the extent that the intrusion is ultimately on the relatives, and not the database lead, then concentrating its effects on one population (relatives of offenders) but not another (relatives of victims or arrestees) seems indefensible.

*F. What Regulation Is There of the Follow-Up  
After a Potential Familial Match?*

It is equally if not more important to regulate the aftermath of a familial search as it is to superintend the search itself. Current constitutional law already addresses restraints on police investigation, whether in the form of surveillance, interrogation, or the taking of confirmatory biological samples. It might be easy to treat a genetic tip as the equivalent of a tip from a human informant and discount the need for added safeguards. But technologies challenge our intuitive reliance on the physical world to inhibit investigative intrusiveness, and therefore their use merits particular attention. By analogy, it would clearly be inadequate to analyze the constitutionality of the taking of a biological sample as a purely physical matter without also recognizing the potential intrusions enabled by scientific development—say, typing for identification versus ascertainment of physical characteristics versus disease prediction versus personality traits versus cloning. Likewise, a thorough analysis demands recognition of the special risks posed by familial searches, including concerns related to equity, overconfidence, confirmation bias, and so on.

Accordingly, the preferred approach is to circumscribe the range of permissible investigative practices stemming from a familial search, whether framed as a policy choice made by legislators or as a legal restraint imposed by the Constitution.<sup>209</sup> Such restrictions should apply throughout the investigative process, such that genetic testing of a relative-suspect is the last step, rather than the first task upon uncovering a list of potential leads. For instance, a statutory regime might require initial investigation of familial match suspects using public sources, and prohibit

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209. Indeed, the two may correlate. The Supreme Court has shown deference to the legislature in such situations, espousing a “strong presumption of constitutionality due to an Act of Congress, especially when it turns on what is ‘reasonable.’” *United States v. Watson*, 423 U.S. 411, 416 (1976).



direct investigation or genetic sampling absent some threshold corroborative showing. A statutory regime ought also to address the confidentiality concerns raised by familial testing, and impose ethical and legal constraints on an analyst's ability to disclose sensitive information—for example, should the analyst learn that the lead's son is not in fact biologically related to the lead at all.<sup>210</sup>

Additional regulation should govern the collection, testing, and retention of samples from suspects (i.e., the leads' relatives). Statutes could prohibit confirmatory testing unless the number of leads was narrowed to (say) three, so as to prevent indiscriminate sampling.<sup>211</sup> Another possible safeguard might include imposing a layer of oversight on collection decisions, such as requiring a court order or subpoena before seeking biological samples. A regime might prohibit surreptitious or dragnet sampling. The efficacy of such rules would of course in part depend on whether it remained permissible to collect samples that are "voluntary,"<sup>212</sup> or "abandoned,"<sup>213</sup> or in the custody of third parties.<sup>214</sup> Practically speaking, an elaborate, informed consent system, perhaps modeled on research study participant waivers, might be a preferable means of ensuring that suspects are treated fairly.

Moreover, to prevent relatives from suffering under a cloud of suspicion while caught in testing backlogs, a regime might require confirmation or exclusion testing of relative samples to occur within a set period of time, such as one week. Such a rule might also have the salutary collateral effect of incentivizing the prioritization and winnowing of sample-taking from suspects. If investigators have only a limited window in which to conduct tests once a sample is procured, then they might be more inclined to collect samples on a "rolling" basis rather than attempt blanket collection from all possible suspects.

Regulations should also mandate the destruction of both the genetic profile and the physical sample after testing, assuming the suspected relative turns out not to have in fact been the source. Maintenance of such

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210. Such questions arise frequently in the field of genetic testing, and that literature could illuminate the legal discussion. See, e.g., Anneke Lucassen & Michael Parker, *Revealing false paternity: some ethical consideration*, 357 LANCET 1033 (2001).

211. California's policy has a form of such restraint, in that it permits the release of names only for "manageable" results. California Policy, *supra* note 6.

212. One jurisdiction has even begun dropping charges in exchange for a voluntary DNA sample. Debra Cassens Weiss, *Calif. DA Dismisses Misdemeanor and Drug Charges in Exchange for DNA*, A.B.A. J., Apr. 15, 2009, available at [http://www.abajournal.com/news/article/calif\\_da\\_dismisses\\_drug\\_and\\_misdemeanor\\_charges\\_in\\_exchange\\_for\\_dna/](http://www.abajournal.com/news/article/calif_da_dismisses_drug_and_misdemeanor_charges_in_exchange_for_dna/) (describing the "spit and acquit" practice in Orange County, California).

213. Courts have approved the use of deliberate deception, such as agents posed as Taco Bell workers or sweepstakes officials, to collect DNA. See, e.g., *Commonwealth v. Cabral*, 866 N.E.2d 429 (Mass. App. Ct. 2007). But see Tom Jackman, *No Court Order Issued for DNA in Rape Case*, WASH. POST, Jan. 18, 2002, at B8 (reporting court's refusal to order girl to preserve tissue from abortion in order to aid in sexual assault prosecution of her father).

214. Nakashima, *supra* note 2, at A1 (describing the apprehension of the BTK killer through DNA of daughter's pap smear).

genetic information, whether in the national database or in state, local, or even “rogue” informal databases, is indefensible given that the sole basis for suspicion arose from a probabilistic similarity that did not pan out. Such restrictions might also encourage cooperation by suspects, who would otherwise fear getting caught in the net of eternal genetic surveillance. Return of the physical sample to the suspect, while no guarantee of privacy, might also reassure individuals that their Fourth Amendment rights have been honored and respected.

### *G. What Structural Oversight Exists?*

Perhaps most importantly, concerted effort to regulate familial searches should embed structures for general quality control and oversight. One great advantage of using technology, and investigative techniques based on quantitative as opposed to qualitative information, is that the relevant outcomes are more easily measured, monitored, and assessed. By building into any statutory regime a parallel requirement of data collection and analysis, interested parties will be able to review—and improve upon—the efficacy of such programs over time. Section IV.C already explored the use of advisory boards to respond to developing legal, moral, and technological issues. But measurement and assessment of fundamental metrics should be built into the statutory scheme itself.

For instance, “hits” could be tracked at various stages of the investigation. Analysts could record the parameters of their searches (in terms of stringency), the number and character of profiles returned based on each stage of technical development (autosomal matching, Y-STR testing, and the likelihood ratio rankings). Investigators could document additional steps taken to separate good leads from bad leads, and to narrow the pool of leads’ relatives into viable suspects. Records could reflect the number of potential sources checked or contacted, and the results of any confirmatory tests. A record of arrests or convictions directly attributed to familial search investigations would also prove immensely beneficial and mark a significant advance in quantifying the actual rather than anecdotal utility of this method. Moreover, with such information, investigators might learn how to refine and narrow such searches to yield optimal results, or even whether to discontinue (or perhaps even expand) familial searching after weighing its liabilities and its benefits. Finally, such information would be indispensable to courts assessing the constitutionality of various statutory constraints.

### CONCLUSION

Sophisticated technological methods of investigation call for sophisticated means of coordination and control. Familial search methods show promise for aiding investigations, but they also raise serious concerns of fairness, equality, civil liberty, and governmental accountability. The criminal justice system all too often embraces new technologies haphazardly and with blind

enthusiasm. By cataloging both the possible concerns raised by familial search methods, arguing against the practice on a variety of grounds, and then ultimately proposing policy limitations that might mitigate some of those concerns, this Article aims to avoid making the same mistake in the context of familial searching.