

## Notes

# Familial DNA Testing, House Bill 3361, and the Need for Federal Oversight

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*Recent developments in DNA testing have enabled forensic scientists to make DNA matches from crime scene samples to family members of criminals in the national DNA database. It is now possible to take a DNA sample from a crime scene, match that sample to a relative of the perpetrator within a DNA database, and locate the criminal based on this familial association. These “partial-match” searches have facilitated the apprehension of criminals that would have previously escaped detection, but these techniques also raise numerous concerns about privacy, accuracy, and the inequalities of racial representation within the national DNA database. Moreover, there exists no national consensus on the type or degree of offense for which this technology might be used.*

*Representative Adam Schiff of Los Angeles County recently proposed legislation that would nationalize the presently state-based systems for partial-match searches. While this legislation holds the promise to expand the public awareness and debate around an existent forensic technique, the legislation must be implemented with an eye toward the increasing critical discourse surrounding the use of partial-match searches already in practice. This Note details the science behind the technique, examples in which the technique has been implemented, and the critical concerns raised by the use of this emergent forensic science. This Note analyzes Schiff’s proposed legislation in light of the critical concerns raised by legal commentators and makes practical suggestions for the implementation of partial-match DNA searches on a national scale.*

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## TABLE OF CONTENTS

|  |     |
|--|-----|
| INTRODUCTION.....  | 500 |
| I. AN OVERVIEW OF HOUSE BILL 336I.....   | 503 |
| II. THE SCIENCE BEHIND THE TECHNIQUE .....   | 505 |
| III. THE ADMINISTRATION OF FAMILIAL DNA SEARCHES ACROSS STATE<br>LINES.....              | 511 |
| A. DELIBERATE VERSUS FORTUITOUS PARTIAL-MATCH<br>SEARCHES .....                          | 513 |
| B. WHERE THINGS STAND: A COMPARISON OF STATE POLICIES<br>ON PARTIAL-MATCH SEARCHES.....  | 515 |
| C. THE CRITICAL RESPONSE: POTENTIAL AREAS OF CONCERN<br>FOR POLICYMAKERS .....           | 518 |
| 1. <i>Familial Searches and Minorities</i> .....   | 519 |
| 2. <i>The Accuracy of Familial Searches</i> .....  | 520 |
| 3. <i>Familial Searches and Privacy</i> .....  | 521 |
| 4. <i>Societal Interest in Intact Families</i> .....                                     | 522 |
| 5. <i>Non-Race-Based Discrimination in Familial Searches</i> .....                       | 523 |
| 6. <i>Democratic Accountability Surrounding the Scope of<br/>        Databases</i> ..... | 523 |
| IV. ANALYSIS AND RECOMMENDATIONS FOR HOUSE BILL 336I .....                               | 524 |
| CONCLUSION .....   | 527 |

## INTRODUCTION

In late 2011, the “Grim Sleeper” killer, Lonnie Franklin Jr., was linked to three new homicides: Sharon Dismuke, Regina Theresa Beaty, and Georgia Mae Thomas.<sup>1</sup> Police linked these homicides to Franklin through ballistic analysis of the small-caliber firearm found inside Franklin’s home.<sup>2</sup> This utilization of conventional forensic police work represented a conventional end to a highly unconventional case, the first of its kind in California.

Franklin killed between 1985 and 2007 and earned the moniker “The Grim Sleeper” because of an apparent fourteen-year hiatus from murder in the middle of this period.<sup>3</sup> Traditional police methods, including a \$500,000 reward and at one point as many as thirty detectives, failed to

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1. Christine Pelisek, *Grim Sleeper Case’s New Bodies*, DAILY BEAST (Nov. 3, 2011, 2:51 AM), <http://www.thedailybeast.com/articles/2011/11/03/grim-sleeper-case-3-more-murders-linked-to-alleged-serial-killer.html>.

2. *Id.*

3. *California: Ex-Mechanic Charged in ‘Grim Sleeper’ Slayings*, N.Y. TIMES, July 8, 2010, at A16.

apprehend the fifty-seven-year-old, retired police mechanic who dumped at least twelve bodies in alleys near downtown Los Angeles.<sup>4</sup> When traditional forensic methods failed, investigators turned to novel partial-match DNA search methods authorized in 2008 by then California Attorney General, Jerry Brown.<sup>5</sup> Investigators linked Franklin to more than a dozen Los Angeles County homicides after their partial-match DNA search produced a positive result, not to Franklin, but to the DNA of Franklin's son, who had recently been incarcerated.<sup>6</sup>

A partial-match DNA search produces results by making less-than-perfect identifications in DNA databases to persons who may or may not have a familial connection to the source DNA.<sup>7</sup> Franklin was arrested in July 2010 after police investigators matched crime scene DNA to DNA that police retrieved from a piece of pizza that Franklin had discarded.<sup>8</sup> The "closely guarded" procedures<sup>9</sup> the state used between the discovery of the partial match to Franklin's son and Franklin's eventual arrest sparked immediate, if restrained, controversy.<sup>10</sup>

To a lay observer, the arrest of a notorious serial killer makes familial DNA testing<sup>11</sup> seem non-controversial. Contrast Franklin's case, however, with the case of either Marcus Philips or Luis Jaimes-Tinajero in Colorado.<sup>12</sup> Both men were arrested through familial DNA database searches in separate investigations for breaking into cars, a far more pedestrian crime than murder.<sup>13</sup> Despite qualms about the privacy concerns with familial and partial-match DNA searches, catching a serial killer of Franklin's magnitude cannot reasonably be questioned. Catching relatively petty criminals with such technology, however, does not have the same tenor of moral certitude, and the technique has proven increasingly controversial to critics who voice concerns about privacy,

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4. *Arrest Made in L.A. Serial Killing of 10 People*, USA TODAY (July 7, 2010, 8:05 PM), [http://www.usatoday.com/news/nation/2010-07-07-LA-serial-killer\\_N.htm](http://www.usatoday.com/news/nation/2010-07-07-LA-serial-killer_N.htm).

5. EDMUND G. BROWN, JR., CAL. DEP'T OF JUSTICE, NO. 2008-BFS-01, INFORMATION BULLETIN: DNA PARTIAL MATCH (CRIME SCENE DNA PROFILE TO OFFENDER) POLICY (2008), available at [http://ag.ca.gov/cms\\_attachments/press/pdfs/n1548\\_08-bfs-01.pdf](http://ag.ca.gov/cms_attachments/press/pdfs/n1548_08-bfs-01.pdf).

6. *Arrest Made in L.A. Serial Killing of 10 People*, *supra* note 4.

7. See discussion *infra* Part II.

8. Pelisek, *supra* note 1.

9. See Jennifer Steinhauer, 'Grim Sleeper' Arrest Fans Debate on DNA Use, N.Y. TIMES, July 9, 2010, at A14; see also discussion *infra* Part III.C.

10. See, e.g., Steinhauer, *supra* note 9.

11. Familial DNA testing is a form of partial-match DNA searching, but the terms are arguably not synonymous. Whereas a partial-match search may produce results that indicate a biological relationship between two or more persons, a familial DNA search implies an intentional search for such a match. *Frequently Asked Questions (FAQs) on the CODIS Program and the National DNA Index System*, FBI, <http://www.fbi.gov/about-us/lab/codis/codis-and-ndis-fact-sheet> (last visited Dec. 7, 2012).

12. Mitchell R. Morrissey, *Familial DNA Database Searches*, DENV. DA, [http://www.denverda.org/DNA/Familial\\_DNA\\_Database\\_Searches.htm](http://www.denverda.org/DNA/Familial_DNA_Database_Searches.htm) (last visited Dec. 7, 2012).

13. *Id.*

racial inequality, statistical accuracy, and criminal procedure.<sup>14</sup> Moreover, partial-match DNA searches have the potential to produce hundreds or even thousands of matches, raising the question of how many of these leads should be pursued and how intrusive such investigations should be; the lack of national uniformity in the techniques used in such searches has also raised concerns about the breadth and potential intrusion of these methods into the lives of innocent persons.<sup>15</sup>

Citing the success of California's familial DNA testing protocol<sup>16</sup> in the "Grim Sleeper" case,<sup>17</sup> Democratic Congressman Adam Schiff of Pasadena introduced the Utilizing DNA Technology to Solve Cold Cases Act of 2011 in the U.S. House of Representatives.<sup>18</sup> The Bill was sent to the Judiciary Committee for review.<sup>19</sup> The Judiciary committees in both Minnesota<sup>20</sup> and Tennessee<sup>21</sup> are considering similar bills. At the same time, many states, including California,<sup>22</sup> Virginia,<sup>23</sup> and Colorado,<sup>24</sup> actively pursue familial DNA testing without legislative authority. Many other states, such as Nebraska and Texas, practice familial DNA testing without any official sanction.<sup>25</sup> Some states, however, do not comport with this trend: Maryland and the District of Columbia, for example, explicitly outlaw partial-match searches.<sup>26</sup> This Note explores the Bill

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14. See discussion and notes *infra* Part III.C.

15. See discussion *infra* Part III.C.

16. California's system establishes conditions whereby a partial-match search might be pursued. BROWN, *supra* note 5. First, the source DNA must come from one person. *Id.* Second, the case must be unsolved and without investigative leads. *Id.* Third, the protocols call for the investigators to pledge to pursue the case. *Id.* The fourth and fifth elements of the protocols require Y-STR testing of the crime scene evidence. *Id.* (Y-STR testing involves identifying paternally transmitted genetic material found on the male-specific Y chromosome). Sixth, a committee of laboratory, prosecutorial, and local law enforcement officials convene to discuss the release of the offender's name to the investigating agency. *Id.* Interestingly, Y-STR testing can only be conducted on men—the only persons with Y chromosomes. Presumably, the California protocols assume that only men will turn up as suspects in partial-match searches. Seventh, should the committee disagree on the propriety of releasing the name, the final decision will be made by the Attorney General (or a designee of the Attorney General). *Id.*

17. Press Release, Congressman Adam Schiff, Schiff Introduces Utilizing DNA Technology to Solve Cold Cases Act of 2011: Bill Would Instruct the FBI to Expand the Availability of Familial DNA Testing (Nov. 4, 2011), <http://schiff.house.gov/index.cfm?sectionid=49&sectiontree=6,49&itemid=865>.

18. Utilizing DNA Technology to Solve Cold Cases Act of 2011, H.R. 3361, 112th Cong. (2011).

19. *Id.*

20. S. 1257, 87th Leg., 1st Reg. Sess. (Minn. 2011).

21. S. 1831, 107th Gen. Assemb., 1st Reg. Sess. (Tenn. 2011).

22. Erin Murphy, *Relative Doubt: Familial Searches of DNA Databases*, 109 MICH. L. REV. 291, 293 (2010).

23. Virginia Enacts Familial DNA Testing Law, Post to *Innocence Blog*, INNOCENCE PROJECT (Mar. 24, 2011, 5:43 PM), [http://www.innocenceproject.org/Content/Virginia\\_Enacts\\_Familial\\_DNA\\_Testing\\_Law.php](http://www.innocenceproject.org/Content/Virginia_Enacts_Familial_DNA_Testing_Law.php).

24. Natalie Ram, *Fortuity and Forensic Familial Identification*, 63 STAN. L. REV. 751, 755 (2011).

25. *Id.* at 780.

26. *Id.* at 755. Information on why Maryland and the District of Columbia have outlawed familial

before the House Judiciary Committee and makes suggestions for emendations to the Bill in light of the increasing use of this technology at the state and federal levels.

This Note briefly introduces the Bill in Part I to contextualize the discussion to follow. Part II outlines the science behind familial testing. Because of the prominence of DNA testing in the popular imagination, DNA matches assume an aura of irrefutability as a forensic identification. However, by definition partial-match DNA testing operates at a lower frequency of certainty, and understanding the mechanics of this statistical inferiority serves as a prerequisite for any discussion of the policies surrounding its use. Part III describes the methodology and the critical reception of familial DNA testing in individual U.S. jurisdictions. Specifically, Part III.A outlines a critique of the distinction between so-called “deliberate” and “fortuitous” partial-match searches. Part III.B examines the differing manners in which states have enacted their partial-match policies and how those policies have worked out in practice. Part III.C outlines the basic critiques of familial DNA testing made in the burgeoning critical literature on this technique. Finally, Part IV analyzes the proposed Congressional legislation to nationalize familial DNA search processes. The conclusion of this Note defends a national protocol for partial-match DNA testing as the only means to ensure transparency in the use of a technology that is as controversial as it appears to be inevitable. While House Bill 336I makes overtures toward these goals, this technology is too powerful to be instituted without substantive procedural safeguards to ensure that the technology is not abused.

### I. AN OVERVIEW OF HOUSE BILL 336I

Representative Adam Schiff introduced House Bill 336I in November 2011,<sup>27</sup> following similar legislation he introduced in the House the previous year.<sup>28</sup> The legislation represents a step forward in the transparency of familial and partial-match searches, primarily by specifying the crimes for which such searches might be employed.<sup>29</sup> However, the legislation also has certain shortcomings which should be addressed before the Bill moves out of Congress.

While House Bill 336I does include certain safeguards, those safeguards warrant close scrutiny. The Bill specifies that only data collected from crime scenes can be subject to a partial-match search of the

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DNA testing is scant. The D.C. law consists of one line tagged onto the end of a list of crimes for which DNA sample collection is enforced. *See* D.C. CODE § 22-4151 (LEXIS through Sept. 19, 2012). The Maryland Code is set to expire in 2013. Ram, *supra* note 24, at 755.

27. Utilizing DNA Technology to Solve Cold Cases Act of 2011, H.R. 3361, 112th Cong. (2011).

28. Utilizing DNA Technology to Solve Cold Cases Act of 2010, H.R. 6011, 111th Cong. (2010).

29. H.R. 3361 § 2(a)(2)(B).

national database.<sup>30</sup> The legislation explicitly authorizes states to request partial-match searches from the federal Combined DNA Index System (“CODIS”).<sup>31</sup> The Bill states that the privacy of persons identified through a partial-match search should be “carefully protected,” but it does not spell out the extent of this protection or how it should be enforced.<sup>32</sup> The Bill next delineates the crimes that qualify for a partial-match search.<sup>33</sup> The text limits the use of partial-match searches to crimes such as murder, voluntary manslaughter, kidnapping, and any attempt to commit these offenses.<sup>34</sup> The Bill also includes crimes or attempted crimes that require registration as a sex offender under 42 U.S.C. § 16911(7).<sup>35</sup>

The legislation requires participating states<sup>36</sup> to have written policies on partial-match searches that comport with any regulations the Attorney General might place on such searches and that the identities of persons turned up in these searches be carefully protected.<sup>37</sup> The Bill further authorizes states to use CODIS to search the databases of other states, a capability that Congress has not hitherto sanctioned.<sup>38</sup> Two years after the legislation is enacted, the statutory language requires the reporting of the number of state searches of CODIS, the number of federal searches, the number of family matches that result from these searches, and the “status of any case in which such a familial match was found.”<sup>39</sup>

House Bill 3361 warrants serious consideration and commendation for its attempt to increase transparency in familial partial-match searches. The Bill proposes that states have access, not only to the federal CODIS system, but to the records of other states as well.<sup>40</sup> One of the implicit consequences of this access would be to partially nationalize the regulations and parameters that states would need to follow to participate in the national system.<sup>41</sup> In order to access CODIS and other states’

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30. *Id.* § 2(a)(1).

31. *Id.* For a discussion of the jurisdictional reach of CODIS, see *infra* Part III.

32. H.R. 3361 § 2(a)(1).

33. *Id.* § 2(a)(2).

34. *Id.*

35. *Id.* Interestingly, this list of crimes strongly resembles the crimes to which DNA databases were originally limited.

36. Not every state has the interest or capability to conduct partial-match searches. For a discussion of the jurisdictional disparities in CODIS at the state level, see *infra* Part III.

37. H.R. 3361 § 2(a)(3). The Bill has the same language in this line that it has in section 2(a)(1). The Bill does not enumerate how the searches might be protected.

38. *Id.* § 2(a)(4).

39. *Id.* § 2(b).

40. *Id.* § 2(a)(3). The distinction between the state and the federal databases is one of stringency. See Ram, *supra* note 24, at 762. While all federal samples must meet a certain bar, states and localities can set their own, lower standards for both matching and the quality of samples. *Id.*

41. H.R. 3361 § 2(a)(3).

databases, an individual state would be required to have written criteria that establish the state's policies, procedures, and methodologies for evaluating familial DNA.<sup>42</sup> Moreover, the Bill would require that these written criteria be consistent with (proposed) Attorney General regulations.<sup>43</sup> The Bill, however, does not list any of these regulations, nor does it specify a timeline for such regulations.<sup>44</sup> This aspect of the Bill, in order to be effective, assumes an intellectually honest Attorney General with an interest in the centralization of familial DNA regulation. Such centralization could improve transparency, but it also risks partisan political influence and pitfalls.<sup>45</sup>

House Bill 3361 requires serious consideration because it mirrors efforts being made in a plurality of states.<sup>46</sup> The efforts of the states, however, have been inconsistent, and a body of critical literature has developed around the perceived harms of partial-match searches.<sup>47</sup> Understanding the potential pitfalls of this technology requires understanding how the methodology of partial-match testing is distinct from traditional DNA matching. Only through understanding these differences can an informed consensus be reached on the possibilities and risks of a technology with the potential to transform our notions of criminal investigation and surveillance.

## II. THE SCIENCE BEHIND THE TECHNIQUE

Craig Harman had been drinking.<sup>48</sup> He and a friend had tried, and failed, to steal a Renault Clio, and Harman bloodied his hand in the debacle.<sup>49</sup> The two men gathered a couple bricks and wandered over to a bridge spanning the M3 roadway in Surrey, England.<sup>50</sup> The two men each hurled bricks off the bridge.<sup>51</sup> Harman's brick went through the window of a semi-truck headed toward London and struck fifty-three-year-old

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42. *Id.* The Bill does not specify whether states' participation will be mandatory. It could be that all states are required to draft policies or that only states that wish to access the databases of other states will be required to draft policies.

43. *Id.*

44. This is not unusual. Much legislation is enacted through administrative regulations.

45. There is a broad range of regulation possible here. Possible partial-match DNA searches could vary greatly because of the stringency of the searches performed. For a discussion of these concerns, see generally *infra* Part III and accompanying notes.

46. See *infra* Part III.B and accompanying notes.

47. See, e.g., Ram, *supra* note 24.

48. Craig Harman—Family DNA Link Offers Crime Breakthrough, FORENSIC SCI. SERVICE (Dec. 17, 2008), <http://web.archive.org/web/20081217140623/http://www.forensic.gov.uk/html/media/case-studies/f-39.html>.

49. *Id.*

50. *Id.*

51. *Id.*

Michael Little in the chest.<sup>52</sup> Little heroically maintained control of the semi, pulled it over to the side of the road, and died of heart failure at the scene.<sup>53</sup> The police obtained two DNA samples from the brick, one from Little, and one that matched DNA recovered from blood left in the nearby Renault.<sup>54</sup>

The DNA sample did not match any offenders in the British DNA database.<sup>55</sup> Police obtained voluntary DNA samples from 350 local men and compared them to the unidentified sample from the brick to no avail.<sup>56</sup> Police then decided to see if the DNA matched any samples in the database at a lower level of accuracy.<sup>57</sup> This DNA sweep uncovered twenty-five near matches in the Surrey area.<sup>58</sup> The police interviewed the person with the closest match, and it turned out that he had a brother living near the scene of the crime.<sup>59</sup> Police obtained a DNA sample from the brother, Craig Harman, which matched the sample from the brick.<sup>60</sup> Thirteen months after throwing a brick off of a bridge,<sup>61</sup> Craig Harman began a six-year term for manslaughter in the United Kingdom's first prosecution based on familial DNA evidence.<sup>62</sup>

Since the Harman case, police in the United Kingdom and the United States have increasingly employed familial DNA searches as a means to apprehend criminals through the DNA of close relatives.<sup>63</sup> However, before such techniques are sanctioned on the federal level in the United States, the technical limitations of the methodology must be understood more clearly. The accuracy of familial DNA searches is nowhere near the accuracy of traditional DNA searches,<sup>64</sup> and the shortcomings of the

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52. *Id.*

53. *Id.*

54. *Science of the Future: Identifying Criminals Through Their Family Members*, DNA FORENSICS, <http://www.dnaforensics.com/FamilialSearches.aspx#harman> (last visited Dec. 7, 2012).

55. Henry T. Greely et al., *Family Ties: The Use of DNA Offender Databases to Catch Offenders' Kin*, 34 J.L. MED. & ETHICS 248, 248 (2006).

56. *Id.*

57. *Id.*

58. *Id.*

59. *Id.* at 248-49.

60. *Id.* at 249.

61. *Id.*

62. *Science of the Future*, *supra* note 54. Harmon, however, was not the first killer to be detected through this technology. That dubious honor falls upon Joseph Kappen, who was identified when Joseph Whitaker tested semen samples in 2000 from the 1973 rape and murder of two sixteen-year-old girls, Geraldine Hughes and Pauline Floyd, in Llandarcy, South Wales, U.K. See Robin McKie, *Did a Killer Evade Justice Due to Withheld Evidence?*, THE GUARDIAN (Sept. 15, 2007), <http://www.guardian.co.uk/science/2007/sep/16/dna>. When the National DNA Database turned up no hits, Whitaker reasoned that he might find a partial match to a near relative. *Id.* He found Paul Kappan, a local car thief, whose father had been questioned in the 1970s murders. *Id.* Joseph Kappen had died, but investigators exhumed his corpse and found that his DNA matched the DNA from the semen sample. *Id.*

63. Greely, *supra* note 55, at 249.

64. By definition, a traditional DNA match seeks to identify one person, whereas a familial DNA

partial-match methodology must necessarily inform any legislation that sanctions such searches.

At the most basic level, humans have two sets of twenty-three chromosomes that are comprised of various genes. All genetic testing comes down to variations in genes, called alleles. Genetic variation results from a process called recombination that occurs at conception.<sup>65</sup> Recombination creates new and unique DNA that is different from that of strangers but that can be similar to close relatives. Germ cells (eggs and sperm) each consist of one set of twenty-three chromosomes that contains half of the component parts of the original two sets of chromosomes.<sup>66</sup> Eggs and sperm come together to form a full complement of twenty-three pairs of chromosomes in a genetically novel combination that produces individuals who may be better adapted to their environment and whose genetic material may be naturally selected for further transmission.<sup>67</sup> However, not all genetic variation produces perceptible human difference, such as the non-coding “short tandem repeat” (“STR”) sections, and the resultant proliferation of genetic mutation and difference have resulted in a boon for forensic researchers.<sup>68</sup> In essence, an infant’s DNA contains matches to both parents that produce a unique DNA combination that nonetheless will partially match with the infant’s parents.

Current familial DNA testing arises from a variation in DNA analysis that focuses on STR sections of repetitive DNA,<sup>69</sup> which one researcher has lauded as “God’s gift to forensics.”<sup>70</sup> Without going into too much detail, STR sections have proven a boon to forensic scientists for two reasons: First, the DNA sections do not seem to contribute much to our genetic landscape.<sup>71</sup> Consequently, mutations in this DNA can proliferate without identifiable detriment to the human host—that is, the genes can be passed on without being subject to natural selection.<sup>72</sup> As a result of this proliferation, the variations in the alleles that compose these genetic sections are quite broad and therefore well distributed throughout the

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search may result in thousands of possible matches. DAVID H. KAYE, *THE DOUBLE HELIX AND THE LAW OF EVIDENCE* 187 (2010).

65. *Id.* at 38.

66. *Id.*

67. *Id.* at 39.

68. *Id.* at 187.

69. *Id.* More specifically, because these sections of DNA do not seem to have any import on our survival or reproductive capacities, mutations in these DNA sections will be passed down to succeeding generations without detriment to the hosts. As a result, these mutations will be seen with varying degrees of frequency across the human population.

70. *Id.*

71. This assertion has recently been called into question. See Ashley Eiler, Note, *Arrested Development: Reforming the Federal All-Arrestee DNA Collection Statute to Comply with the Fourth Amendment*, 79 GEO. WASH. L. REV. 1201, 1224 (2011).

72. KAYE, *supra* note 64, at 187.

population.<sup>73</sup> In other words, because this DNA does not appear to have any great significance, mutations can be passed from generation to generation without significant detrimental effect. These mutations are often specific enough to identify potential relatives within a given DNA database. Second, because these sections of DNA are “short” (relative to other DNA sections), they can be “amplified” through a process that replicates miniscule traces of DNA into a large sample size.<sup>74</sup> With a larger sample size, forensic scientists can run comparative tests with greater ease and frequency.<sup>75</sup> In lay terms, these sections of DNA differ across populations enough to potentially identify related persons, and recent techniques have made it much easier to use these DNA sections in a forensic context.

Basic DNA testing involves the comparison of different alleles at specific sites, called loci, which scientists have selected to form the sample sets for different DNA databases. Each locus has two alleles, one from each parent, and a series of loci form a DNA profile.<sup>76</sup> Different countries use different loci, and the FBI has settled on a set of thirteen loci to use for the national DNA database.<sup>77</sup> Because of a statistical method called the product rule, an individual sample approaches uniqueness and can be compared to other individual samples in a database to identify specific people.<sup>78</sup> While no DNA testing method is infallible, if two samples match allele for allele at each locus, the probability of a mismatch is extremely low.<sup>79</sup>

The science behind partial-match searches rests on some basic DNA facts. Because humans inherit DNA from their parents, DNA similarities run in families.<sup>80</sup> Two people that share a close familial relation are likely to share more alleles than two randomly selected persons.<sup>81</sup> The closer a familial tie, the higher the likelihood an allelic similarity will be evident.<sup>82</sup>

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73. *Id.*

74. *Id.*

75. *Id.*

76. *Id.* at 38.

77. *Id.* at 189.

78. *Id.* While a fingerprint match is an imperfect analogy, it may be the easiest way to conceive of the product rule. In lay terms, the product rule calculates the possibility of a match at one locus and then multiplies that fraction by the possibility of a match at the next locus and then the next locus, et cetera. *Id.* While a two-loci match has a high possibility of occurring in many persons in a large enough sample group, increasing the number of locus matches decreases that possibility.

79. *Id.* While a thirteen-loci, twenty-six-allele match is very reliable, matches of degraded samples (that is, samples that have fewer than thirteen usable loci) have also been used in DNA testing. While it is beyond the purview of this Note, fewer available loci result in a lower degree of accuracy for the resulting DNA match.

80. Greely, *supra* note 55, at 251.

81. *Id.*

82. *Id.* at 251–52.

Familial DNA testing based on these matches remains an inexact science, however, because it is possible for two persons to match without any direct familial relation. For example, two random Britons can be expected to match at six or seven alleles out of the twenty alleles used in the United Kingdom's system.<sup>83</sup> So-called "first degree relatives" (i.e., parents, children, and direct siblings) share 50% of their alleles on average.<sup>84</sup> Second degree relatives (i.e., aunts, uncles, half-siblings, and grandparents) share 25% on average, and third degree relatives (i.e., first cousins, great-grandparents, and great-grandchildren) share an average of one-eighth of their alleles.<sup>85</sup>

These percentages differ by the nature of the relationship.<sup>86</sup> A parent and a child have the closest DNA relationship. Because of the manner in which germ cells are produced—where thirteen alleles come from each parent<sup>87</sup>—a parent must share a minimum of thirteen of the twenty-six alleles tracked within the U.S. system, CODIS.<sup>88</sup> Because some alleles are more common than others, parents and children frequently match at fourteen, fifteen, or sixteen<sup>89</sup> alleles of the twenty-six measured in CODIS. Siblings could potentially match at zero alleles, but on average match at between sixteen and seventeen.<sup>90</sup> While the average allelic match is higher for a sibling than for a parent, there is no minimum allelic match for a sibling.<sup>91</sup>

While these numbers seem promising, the potential for a person to match someone else at thirteen or more of the twenty-six alleles tracked in CODIS remains high. Two random people meeting on the street have a 3% chance of sharing thirteen or more alleles.<sup>92</sup> However, this number obfuscates the fact that those matches need not occur at distinct loci—remember that there are two alleles at each locus, one coming from each parent, and that matches that occur at each locus in a given sample will be less likely to be coincidental. Even so, the odds that two random people meeting on the street will match thirteen alleles with one match

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83. *Id.* at 251.

84. *Id.*

85. *Id.* at 252. While the math on this and the text surrounding *supra* note 81 may seem contradictory, the distinction lies in the methodology. The former does not discount contradictory matches precluded by a more rigorous familial screening. For example, while random persons might match at two alleles on one locus, a familial test might screen multiple allelic matching from either the paternal or maternal line.

86. *Id.*

87. *See supra* text accompanying notes 74–67.

88. *See infra* Part III.A.

89. Greely, *supra* note 55, at 252.

90. *Id.* at 253.

91. Because humans receive one allele from each parent at a given locus, the possibility exists that two siblings can inherit the exact opposite alleles from their respective parents at each locus.

92. *Id.* at 252.

occurring at each of thirteen loci stands at one in two thousand.<sup>93</sup> This means that with a DNA database of around eleven million people,<sup>94</sup> twenty-two thousand people might match at thirteen distinct loci. While a statistical regression analysis that examines the specifics of these figures lies outside the scope of this Note, such a high number of potential matches raises the risk that the public will perceive partial-match searches as broadly inaccurate.<sup>95</sup>

All alleles are not equally common, however, and allelic frequency greatly affects the number of likely matches that might occur. A person having the least common alleles at each locus has a one in ten trillion quadrillionth ( $10^{28}$ ) chance of randomly encountering another person with one allele matching at all thirteen loci, whereas a person with the most common alleles at each locus has about a 1% chance of encountering someone randomly matching alleles at each locus.<sup>96</sup> Moreover, while there exists ample evidence of a sizeable percentage of partial matches existent within CODIS, states and the FBI have refused in recent years to allow outside statistical analysis of CODIS data.<sup>97</sup> This policy has done little to quiet critiques of the accuracy and scope of partial-match searches.<sup>98</sup>

Because of the tremendous disparities resulting from the spectrum of allelic frequencies and the impact of these frequencies on partial matches, familial DNA matching within offender databases remains an inexact science. A familial search can turn up anywhere from zero to thousands of hits depending upon the size of the database, the frequency of the alleles being searched for, and the sensitivity of the search parameters being used to examine the database. Complicating this calculus, the most advanced searching software—software that filters search results based on the frequency of allelic distributions across populations—can only detect a sibling as a “top match” in 42% of cases.<sup>99</sup> Familial DNA searching remains an inexact science governed by probability and luck and does not yet have the same accuracy or finality as a well-executed direct DNA identification.

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93. *Id.*

94. See *CODIS-NDIS Statistics*, FBI, <http://www.fbi.gov/about-us/lab/codis/ndis-statistics> (last visited Dec. 7, 2012).

95. See generally David H. Kaye, *Trawling DNA Databases for Partial Matches: What Is the FBI Afraid of?*, 19 CORNELL J.L. & PUB. POL'Y 145 (2009). Moreover, this is not the manner in which a search would be conducted. Just because a sample could turn up that many matches does not mean an individual search will do so. Partial-match searches are, however, more effective when limited to specific regions and populations.

96. Greely, *supra* note 55, at 252.

97. See generally Kaye, *supra* note 95 (outlining the roadblocks that the FBI has established for researchers).

98. See generally *id.*

99. Ram, *supra* note 24, at 765.

Because partial-match DNA searches are not as conclusive as standard DNA searches, great care must be taken to evaluate the data being analyzed, the methods used to approach the data, and the database itself. While House Bill 3361 requires states to have policies in place that establish criteria whereby a familial search might be conducted, the parameters for those policies are not enumerated.<sup>100</sup> Given the disparities in the administration of partial-match searches across state lines and the critical and popular concerns about the potential misadministration of such searches,<sup>101</sup> any legislation that seeks to nationalize partial-match searching capabilities must be enacted with great care. The House Bill should be amended to require uniform procedures across federal and state lines that explicitly outline the protocols and parameters for a partial-match search. Without this modicum of deference to uniformity and the privacy of individuals who are subject to searches conducted through an inexact scientific procedure, states will have too much leeway to manipulate a technology whose potential they are only now starting to grasp.<sup>102</sup>

### III. THE ADMINISTRATION OF FAMILIAL DNA SEARCHES ACROSS STATE LINES

Different DNA database protocols at the local, state, and federal levels complicate the creation of a nationalized familial search protocol. In 1989, Virginia started the first DNA database in the country.<sup>103</sup> CODIS started as a pilot program by the FBI in 1990<sup>104</sup> and was authorized by Congress in 1994.<sup>105</sup> In addition to the national CODIS, every state and the District of Columbia have their own databases.<sup>106</sup> These databases are not limited to convicts. Congress followed the lead of several states in passing the DNA Fingerprint Act of 2005, which allowed for the collection of DNA samples from all arrestees and certain classes of detainees.<sup>107</sup> The Department of Justice implemented the collection of DNA from all arrestees and certain detainees into practice in 2009.<sup>108</sup>

The scope of genetic surveillance by the FBI has trended toward inclusivity.<sup>109</sup> Collection of DNA was initially limited to deal with a very

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100. Utilizing DNA Technology to Solve Cold Cases Act of 2011, H.R. 3361, 112th Cong. § 2(a)(3) (2011).

101. See generally *infra* Part III.

102. For a discussion of this and other recommendations to H.R. 3361, see *infra* Part IV of this Note.

103. Ram, *supra* note 24, at 760.

104. Eiler, *supra* note 71, at 1205.

105. Murphy, *supra* note 22, at 296.

106. Eiler, *supra* note 71, at 1205–06.

107. 42 U.S.C. § 14135a (2006).

108. Eiler, *supra* note 71, at 1207–08.

109. Solomon Moore, *F.B.I. and States Vastly Expand DNA Databases*, N.Y. TIMES (Apr. 18,

narrow subset of crimes—homicides and violent sexual offenses—but has rapidly expanded in recent years.<sup>110</sup> The FBI and virtually every state require DNA collection from every convicted felon,<sup>111</sup> and courts generally uphold this collection on the grounds that criminal acts reduce the scope of privacy rights.<sup>112</sup> The Supreme Court has not granted certiorari on a case that tests the scope of individual privacy interests with regard to widespread DNA collection.<sup>113</sup>

Federal and state policies, however, go beyond collecting the DNA of convicted felons. At least sixteen states collect DNA from some misdemeanants, and at least twenty-one states and the federal system collect DNA from arrestees yet to be convicted.<sup>114</sup> Congress has also authorized the collection of DNA samples from foreign detainees.<sup>115</sup> Federal agencies have no expungement requirement, and the burden rests on criminal defendants to attempt to have their DNA samples removed from CODIS.<sup>116</sup>

While the FBI and each state have their own databases, not all databases are created equal. CODIS has three tiers—NDIS, SDIS, and LDIS—with each tier corresponding to the geographic scope of the database—that is, national, state, and local, respectively.<sup>117</sup> Each level of database has different requirements for the quality of inclusion. Whereas federal statutes and regulations create certain minimum standards for the type and quality of genetic information that can be uploaded to the NDIS,

2009), <http://www.nytimes.com/2009/04/19/us/19DNA.html>.

110. *Id.*

111. Ram, *supra* note 24, at 762.

112. *See, e.g.*, Banks v. United States, 490 F.3d 1178 (10th Cir. 2007); Nicholas v. Goord, 430 F.3d 652 (2d Cir. 2005); Padgett v. Donald, 401 F.3d 1273 (11th Cir. 2005); United States v. Kincaid, 379 F.3d 813, 862 (9th Cir. 2004); Green v. Berge, 354 F.3d 675 (7th Cir. 2004); People v. Travis, 139 Cal. App. 4th 1271 (2006).

113. Eiler, *supra* note 71, at 1208.

114. Ram, *supra* note 24, at 762. This number will soon be twenty-two. John Eligon & Thomas Kaplan, *New York State Set to Add All Convict DNA to Its Database*, N.Y. TIMES (Mar. 13, 2012), <http://www.nytimes.com/2012/03/14/nyregion/dna-database-pensions-and-redistricting-are-part-of-talks-on-major-albany-deal.html>.

115. 42 U.S.C. § 14135a(a)(1)(A) (2006) (“The Attorney General may, as prescribed by the Attorney General in regulation, collect DNA samples from individuals who are arrested, facing charges, or convicted or from non-United States persons who are detained under the authority of the United States.”).

116. Eiler, *supra* note 71, at 1202. The FBI lists two scenarios where expungement can occur:

1. For convicted offenders, if the participating laboratory receives a certified copy of a final court order documenting the conviction has been overturned; and
2. For arrestees, if the participating laboratory receives a certified copy of a final court order documenting the charge has been dismissed, resulted in an acquittal or no charges have been brought within the applicable time period.

*Frequently Asked Questions*, *supra* note 11.

117. Ram, *supra* note 24, at 761.

the state and local tiers may operate their databases under less stringent standards.<sup>118</sup> State and local governments can, however, upload DNA profiles to CODIS notwithstanding the federal stringency requirements.<sup>119</sup> States are permitted to request and share partial-match DNA at the SDIS level within certain administrative parameters.<sup>120</sup> However, the disparities between these systems represent a point of concern for House Bill 3361. While different state standards may be the inevitable result of differences in legislative focus and financial resources, a more nationalized system capable of familial searches across state lines requires a heightened degree of transparency and uniformity in its methodology.<sup>121</sup>

#### A. DELIBERATE VERSUS FORTUITOUS PARTIAL-MATCH SEARCHES

The practical irrelevance of the distinction between deliberate and fortuitous partial-match searches has been admirably elucidated by other scholars.<sup>122</sup> In order, however, to make clear the necessity of a national policy on familial partial-match searches, this argument bears review. The ability of House Bill 3361 to restrict the capability of individual states to manipulate partial-match searches represents one of the most promising aspects of the legislation. By eliminating the distinction between deliberate and fortuitous partial-match searches, the Bill increases transparency and oversight by setting parameters for all familial DNA searches. While the distinction between deliberate and fortuitous partial-match searches seems clear in theory, the difference is more difficult to elucidate in practice.

A deliberate partial-match search consists of an investigator or lab technician choosing to conduct a DNA trawl<sup>123</sup> with the intent of finding a partial match. Searches (or trawls) through a database can be conducted at a high, medium, or low stringency.<sup>124</sup> High stringency searches must match perfectly at all twenty-six alleles, medium stringency searches allow for analysis of “mixed samples” (that is, samples where more than one person’s DNA might be present),<sup>125</sup> and low frequency searches are

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118. *Id.*

119. 42 U.S.C. § 14132(b)(3).

120. See CODIS, BULLETIN NO. BT072006, INTERIM PLAN FOR THE RELEASE OF INFORMATION IN THE EVENT OF A “PARTIAL MATCH” AT NDIS (2006).

121. See *infra* Parts III.B and III.C for a discussion of the specific concerns raised by differences in state databases and methodologies.

122. See generally Ram, *supra* note 24.

123. A DNA trawl consists of taking an unidentified DNA sample and running it through a database in the hope of getting a match. This is to be distinguished from a standard DNA test which compares a known sample with another sample. See, e.g., Kaye, *supra* note 95, at 155–58.

124. Murphy, *supra* note 22, at 297.

125. This can occur in situations common to a wide array of violent crimes where there may be multiple offender DNA, DNA from bystanders, or DNA from a victim and a suspect, or in any situation where any permutation of the above is possible.

explicitly partial-match searches.<sup>126</sup> Rhetorically, there is a clear distinction between fortuitous and deliberate partial-match searches. Fourteen of the nineteen states that have permitted partial-match information to be released to investigators have forbidden the deliberate search for such matches.<sup>127</sup> In practice, however, the distinction remains murky.

A fortuitous partial-match search occurs when a laboratory technician employs a lower level stringency database search for purposes not directly related to partial-match searching.<sup>128</sup> Such a search would be appropriate where concerns about allelic dropout<sup>129</sup>—which can occur naturally and because of sample size and treatment—combine with practical concerns about finding a match for a given crime scene sample. The critical factor in fortuitous partial-match searches lies in the fact that there exists no state-by-state standard to distinguish a “routine” fortuitous match from a match a laboratory technician deliberately sought.<sup>130</sup>

Presently, a federal CODIS search requires at least moderate stringency (allowing for mixed samples, but not low stringency searches), and thus can state that there are no familial searches of the federal system conducted by the FBI.<sup>131</sup> This, however, is misleading, because the federal system allows partial matches that occur in mixed samples (like in a rape or another violent crime) to be pursued. In this manner, a mixed sample (or a suspected mixed sample) that results in a partial match will *always* be a fortuitous match. States, however, are not bound by federal policy and can set their own stringency requirements, or else leave stringency requirements to the discretion of the individual laboratory technician.<sup>132</sup> Moreover, while the FBI has not sanctioned deliberate familial partial-match searches, the Bureau does facilitate the interstate transmission of information gathered through such searches.<sup>133</sup>

Natalie Ram has discussed the perverse incentive toward “fortuity” by individual lab technicians analyzing data.<sup>134</sup> Since the technicians do not operate with complete autonomy from law enforcement, there is always the possibility of inadvertent influence.<sup>135</sup> Additionally, Ram’s

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126. *Id.*

127. *See generally* Ram, *supra* note 24, at 783.

128. *See generally id.*

129. *DNA Analyst Training: Allele Drop-Out*, NAT’L FORENSIC SCIENCE TECH. CTR., [http://www.nfstc.org/pdi/Subject06/pdi\\_s06\\_m02\\_09.htm](http://www.nfstc.org/pdi/Subject06/pdi_s06_m02_09.htm) (last visited Dec. 7, 2012). Allelic dropout occurs when a sample is taken and one or more alleles fail to appear in the resultant data. *Id.* This can occur because of small sample size, because of a mutation in the primer binding site, or because the allele does not fall within the typical size for a given locus and is thus undetected. *Id.*

130. Ram, *supra* note 24, at 784.

131. *Frequently Asked Questions*, *supra* note 11.

132. Ram, *supra* note 24, at 783–84.

133. CODIS, *supra* note 120.

134. Ram, *supra* note 24, at 783–84.

135. *Id.*

nuanced analysis of the perverse incentives of policymakers in this debate bears close consideration.<sup>136</sup> Ram has argued that the distinction the FBI maintains—facially allowing only moderate stringency searches while allowing states to perform low stringency searches—creates a misleading dichotomy between deliberate and fortuitous partial-match searches.<sup>137</sup> Creating what appears to be a bright line distinction between beneficent fortuitous searches (which the FBI countenances) while awaiting Congressional approval for familial searches,<sup>138</sup> the Bureau invites inferences about the brightness of this line as well as the relative ethicality of the two approaches. The Bureau's policy suggests that there exists a clear distinction between deliberate and fortuitous testing, and that the former is more ethically fraught. The practical distinction between the two forms of searching remains at best hazy, and at worst subject to deliberate manipulation.<sup>139</sup>

Without making an ethical or political judgment about partial-match DNA testing, the inferences raised in the preceding paragraph highlight the necessity of a third option. The present system, where a fortuitous-versus-deliberate distinction is articulated by federal practice but undermined by conventional practice and the rules of individual states, should be replaced with a uniform policy that creates a more transparent privacy regime with regard to the collection of genetic material. Conditioning states' use of interstate partial-match searches in compliance with a national standard could go far to increase the transparency of methodologies that are at best ill-understood by the general public. Before analyzing the Utilizing DNA Technology to Solve Cold Cases Act of 2011 in this vein, however, the rapid proliferation of state action on the legality of partial-match DNA searches must be analyzed with an eye toward measuring the emergent uses of this powerful surveillance technology. The range of state responses to partial-match searches must be understood before a uniform policy can be attempted.

#### B. WHERE THINGS STAND: A COMPARISON OF STATE POLICIES ON PARTIAL-MATCH SEARCHES

Federal policy on CODIS searches allows partial-match searches that result from moderate stringency database searches,<sup>140</sup> but publically disavows familial DNA searches.<sup>141</sup> State policies differ widely.<sup>142</sup> Twenty

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136. *Id.* at 784–86.

137. *Id.* at 785–86.

138. Ellen Nakashima, *From DNA of Family, a Tool to Make Arrests; Privacy Advocates Say the Emerging Practice Turns Relatives into Genetic Informants*, WASH. POST, Apr. 21, 2008, at A1.

139. See generally Ram, *supra* note 24.

140. See *supra* text accompanying notes 112–126.

141. *Frequently Asked Questions*, *supra* note 11.

states publically permit some form of partial matching, but the source of this authority differs broadly by jurisdiction.<sup>143</sup> Fifteen states explicitly permit fortuitous searches but are unclear on deliberate searches.<sup>144</sup> Four states prohibit deliberate searches but are unclear on fortuitous searches.<sup>145</sup> Four states have a policy in progress; of these, Minnesota, Pennsylvania, and Tennessee are considering draft legislation allowing deliberate and fortuitous searches.<sup>146</sup> Twenty-four states either have an unknown policy or prohibit partial searches of any kind.<sup>147</sup>

The eighteen states that have a uniform policy (whether written or unwritten) that prohibits partial-match searching have widely divergent rationales (or lack thereof) for their policies.<sup>148</sup> New Hampshire, Utah, West Virginia, and North Dakota (at least) maintain a uniform policy on partial matches because these states have not encountered a sufficiently close match to raise the question in the first place.<sup>149</sup> Ostensibly, without a known or public occasion to use partial-match testing, no policy has yet been considered in these states. Georgia does not yet have sufficient technology to perform confirmative Y-STR tests.<sup>150</sup> Michigan's labs await guidance from a uniform FBI policy.<sup>151</sup> Statutorily, Massachusetts allows partial and deliberate testing, but investigators have refused to implement the investigative tool.<sup>152</sup>

States also differ broadly on the transparency of their policies. Six states have readily accessible, written policies outlining their rules on partial-match searches—including four of the six states that explicitly allow deliberate partial-match searches.<sup>153</sup> Sixteen states have guidelines

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142. See generally Ram, *supra* note 24. This text will utilize Ram's collection of state laws and policies with some emendation. Ram was not able to include Virginia's new policy endorsing deliberate partial-match searches. *Id.* at 774 n.112. Minnesota, Pennsylvania, and Tennessee are also considering draft legislation that would enable law enforcement officials in those states to pursue deliberate partial-match searches. See S. 1257, 87th Leg. (Minn. 2011); S. 775, 2011 Gen. Assemb., Reg. Sess. (Pa. 2011); S. 1831, 107th Gen. Assemb. (Tenn. 2011); S. 0260, 107th Gen. Assemb. (Tenn. 2011).

143. See Ram, *supra* note 24, at 771, 783–84.

144. *Id.* at 771.

145. *Id.*

146. *Id.*; see also sources cited *supra* note 142.

147. Ram, *supra* note 24, at 771 (omitting the actual practices of the states that do not have stated methodologies).

148. *Id.* at 774–76.

149. *Id.* at 774.

150. *Id.* at 774–75. Y-STR testing serves to exclude persons from the possibility of genetic matching on the basis of the Y chromosome. See, e.g., State v. Truitt, No. 25527, 2011 WL 6749811, at \*1 (Ohio Ct. App. Dec. 21, 2011). The Y chromosome passes largely unchanged from father to son, so Y-STR testing can eliminate a patrilineal line from the possibility of genetic matching. *Id.* at \*6. The test can exclude persons from a genetic match, but Y-STR testing is generally too broad to be relied upon solely for a genetic match. *Id.*

151. Ram, *supra* note 24, at 775.

152. *Id.*

153. *Id.* at 776.

only in lab manuals.<sup>154</sup> At least eighteen states have no written policy.<sup>155</sup> While a national policy would be ideal, House Bill 3361 does at least require states to put their policies in a reviewable, written format.<sup>156</sup>

On balance, the technology involved in partial-match searches appears to outpace the capacity of states to utilize that technology. The responses of most states appear either measured or underinformed and underfunded. Some states have investigated the California and Colorado models—the first two states to implement deliberate partial-match testing—and the states that endorse deliberate partial-match testing generally have the most public and transparent policies.<sup>157</sup> In totem—with the notable exceptions of the District of Columbia and Maryland—increased information about partial-match testing has led to greater acceptance of the technology.

The efficacy of partial-match testing remains an open and charged question. Denver District Attorney Mitchell Morrissey, a fervent advocate of partial-match DNA testing and by no means an impartial observer,<sup>158</sup> tracks convictions that can be traced to familial partial-match searches.<sup>159</sup> Morrissey's website currently features a picture of himself smiling next to a model of DNA's double helix structure, and the site itself hosts a broad array of advocacy materials on familial DNA testing.<sup>160</sup> Despite his partiality, Morrissey does provide one of the few records of the efficacy of partial-match DNA testing. According to Morrissey's survey of criminal proceedings globally, thirty-eight cases have been resolved based on familial DNA testing.<sup>161</sup> The vast majority of these cases (thirty-four) resulted in male culprits, one in a female culprit, and one revealed the joint parentage of the body of a baby found encased in a cement block.<sup>162</sup> Thirty of the cases were resolved in the United Kingdom, two in New Zealand, two in Colorado, and two in California.<sup>163</sup> Notably, the only four U.S. cases resolved through familial DNA testing occurred in states with public and explicit policies allowing deliberate familial DNA searches in certain prescribed situations.

Only a doctrinaire approach would exculpate the two men whom familial DNA testing brought to justice in California. Lonnie Franklin Jr.

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154. *Id.*

155. *Id.*

156. Utilizing DNA Technology to Solve Cold Cases Act of 2011, H.R. 3361, 112th Cong. § 2(a)(3) (2011).

157. *See generally* Ram, *supra* note 24.

158. *See* Morrissey, *supra* note 12.

159. *Id.*

160. *Id.*

161. *Id.*

162. *Id.*

163. *Id.*

killed more than a dozen people in California over a twenty-five year period.<sup>164</sup> Elvis Lorenzo Garcia raped a woman at knifepoint in Santa Cruz, California.<sup>165</sup> Colorado's two arrests, however, were for the far more pedestrian crime of breaking into cars.<sup>166</sup> Strikingly, neither state has a requirement for the categories of crime covered by deliberate familial DNA database searches. California requires simply that investigative leads have been "exhausted,"<sup>167</sup> and Colorado, which also requires exhausted leads, adds that the case must have "significant public safety concerns."<sup>168</sup> Part IV examines the policy considerations raised by these divergent results, highlighting the fact that that resources, policies, politics, and practical considerations can result in vastly different crimes being prosecuted under strikingly similar state policies.

This Part has not demonstrated a broad utilization of deliberate familial searches in the United States. The reasons for this reticence may include the lack of funding, the lack of technological capability, constitutional concerns, and a general unease with the implications of policies that appear to institute a regimen of genetic surveillance. Notwithstanding this reticence, deliberate familial DNA database searches undertaken with the guidance of explicit public policies have successfully identified at least four criminals. The trend line bends toward states' acceptance—either legislative or administrative—of partial-match searches as knowledge of the technology's potential grows. Tentatively, such searches can work, but active policies face significant critical resistance.

#### C. THE CRITICAL RESPONSE: POTENTIAL AREAS OF CONCERN FOR POLICYMAKERS

Recent concerns about familial DNA searches center on six areas: (1) the impact of such searches on minorities, (2) the accuracy of such searches, (3) familial searches and privacy, (4) a societal interest in intact families, (5) actual and apparent non-race-based discrimination in familial searches, and (6) democratic accountability with regard to the scope of databases generally.<sup>169</sup> This Part addresses each of these concerns in light of their possible implications for a national familial testing policy and House Bill 3361.

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164. Steinhauer, *supra* note 9.

165. Stephen Baxter, *Santa Cruz Coffee Shop Rape Arrest Hinged on State DNA Lab*, SANTA CRUZ SENTINEL (Apr. 9, 2011, 4:54 PM), [http://www.santacruzsentinel.com/localstories/ci\\_17809194](http://www.santacruzsentinel.com/localstories/ci_17809194).

166. Morrissey, *supra* note 12.

167. BROWN, *supra* note 5, at 1.

168. RONALD C. SLOAN, COLO. BUREAU OF INVESTIGATION, DNA FAMILIAL SEARCH POLICY (Oct. 22, 2009), available at [http://www.denverda.org/DNA\\_Documents/Familial\\_DNA/CBI%20DNA%20Familial%20Search%20Policy%20Oct%202009%20-%20Signed.pdf](http://www.denverda.org/DNA_Documents/Familial_DNA/CBI%20DNA%20Familial%20Search%20Policy%20Oct%202009%20-%20Signed.pdf).

169. See generally Greely, *supra* note 55; Murphy, *supra* note 22; Ram, *supra* note 24.

### I. *Familial Searches and Minorities*

The concern about familial searches and DNA comes down to some pretty basic math. As of January 2012, the NDIS contained 10,484,400 offender profiles and 412,500 forensic profiles<sup>170</sup>—roughly 4% of the U.S. population.<sup>171</sup> While African-Americans constitute about 13% of the general population, African-Americans constitute 40% of those convicted of felonies in the United States each year.<sup>172</sup> Based on these numbers, the percentage of total African-Americans who might be identified as suspects through this method could potentially be four to five times higher than for Caucasians,<sup>173</sup> and potentially higher still in areas that collect upon arrest and not conviction. Remember that the NDIS does not contain the totality of U.S. DNA samples because of the heightened stringency of federal quality requirements.<sup>174</sup> The actual number of samples in CODIS could well exceed the number of samples in the NDIS, and the representation of African-Americans within DNA databases may be higher than the above figures indicate.

Assume, conservatively, that the average person has three living first degree relatives (i.e., parents and siblings), and the number of people identifying as African-American in the United States is roughly 42,000,000.<sup>175</sup> Even a highly conservative tally of the total percentage of African-Americans in the offender database would extend the reach of the familial searches to 20–25% of the African-American population. Hispanic males, while incarcerated at a lower rate than African-Americans, are still three times as likely as Caucasians to be incarcerated.<sup>176</sup> Conversely, Asian-Americans and Caucasians benefit from underrepresentation in CODIS.<sup>177</sup> While these numbers result in a higher percentage of certain minority groups being subject to DNA searches, courts have given little to no indication that disparate impact alone warrants an Equal Protection violation.

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170. A forensic profile is a DNA profile from a crime scene that does not belong to an offender.

171. *CODIS-NDIS Statistics*, *supra* note 94. 11,000,000 people is roughly 3.5% of the approximately 315,000,000 people living in the United States. See *U.S. & World Population Clocks*, U.S. CENSUS BUREAU, <http://www.census.gov/main/www/popclock.html> (last visited Dec. 7, 2012).

172. Greely, *supra* note 55, at 258.

173. *Id.* at 259 (stating that “U.S. Caucasians” and “African American” (without a hyphen) are the terms used in the CODIS system).

174. See *supra* notes 111–114.

175. SONYA RASTOGI ET AL., U.S. CENSUS BUREAU, C2010BR-06, THE BLACK POPULATION: 2010 (2011), available at <http://www.census.gov/prod/cen2010/briefs/c2010br-06.pdf>.

176. Murphy, *supra* note 22, at 322.

177. *Id.* 322–23 (stating that despite overrepresentation in the database, African-Americans “benefit” from having a more diverse Y haplotype range that increases internal diversity within that database).

Mere reliance on a racially slanted database, however, creates the public perception of bias notwithstanding the presence or absence of real disparate treatment. While these inequalities form a cogent critique of DNA databases generally, this does not represent a critique specific to familial testing. Inequalities in representation within DNA databases have a palpably negative effect on those groups who are unduly represented within those databases: The higher the frequency of representation, the higher the possibility of a match occurring. This is a problem that should be fully countenanced on every level of policy. While familial testing might extend the reach of these databases, a national system with broader accountability is potentially better positioned to counter the impact of these inequalities than individual state systems without such national transparency. That said, while House Bill 3361 provides some oversight on state policy in the form of requiring those policies be placed in writing, a uniform national policy would increase the transparency of partial-match searches by reducing the discretion of individual technicians and policymakers by removing local, often non-public standards for searches. Such a step, though incremental, could advance transparency at other levels of CODIS policy.

## 2. *The Accuracy of Familial Searches*

This critique represents an amalgam of concerns about overreliance upon and the accuracy of familial DNA searches, as well as the impact of such searches on investigations generally. First, overreliance on familial DNA searches might potentially detract resources and energy from traditional forensic approaches.<sup>178</sup> This concern remains hypothetical at this juncture, as there exists little evidence that states have made a wholesale commitment to familial searches at a fiscal or tactical level. Moreover, the perceived efficacy and benefits of DNA databases generally (for example, exonerations through such groups as the Innocence Project), may blunt criticisms on this front.<sup>179</sup>

Second, and more significantly, familial searches that produce suspects without further corroborating evidence might serve to “taint” investigations.<sup>180</sup> “Confirmation bias”—a psychological phenomenon whereby information confirming one’s suspicions and/or worldviews is psychologically treated as more accurate—may lead investigations to falter if, as in the first concern outlined above, investigators over-rely on familial searches at the expense of other methods.<sup>181</sup> Third and finally,

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<sup>178</sup> *Id.* at 309.

<sup>179</sup> The Innocence Project has worked to exonerate hundreds of inmates through DNA evidence. See INNOCENCE PROJECT, <http://www.innocenceproject.org> (last visited Dec. 7, 2012).

<sup>180</sup> Murphy, *supra* note 22, at 309.

<sup>181</sup> *Id.* at 310.

the possibility exists of matches occurring in certain situations wherein other factors should but may possibly fail to exculpate an innocent person (e.g., multiple semen samples and a deceased victim who might exonerate one of the sample sources).<sup>182</sup> These situations include the typical concerns over laboratory techniques and degraded samples, but also might include situations wherein exculpatory evidence has been lost due to the passing of time and/or the deaths of witnesses to a given crime.

Taken together, these three concerns are not particular to familial genetic testing, and they reflect doubts about DNA databases generally. Nonetheless, these concerns must necessarily be incorporated into any policy that seeks to implement familial DNA testing. This type of critique, however, requires an analysis of the manner in which the implementation of familial testing plays out over time. The provision of House Bill 3361 that requires a review of implementation practices within two years of the Bill's passage appears to address this concern, albeit indirectly, but review protocols should be spelled out more concretely. Ideally, review protocols should probe practical and potential failures in implementation, and thus the Bill should from the outset delineate a comprehensive review procedure that measures missteps along with successes.

### 3. *Familial Searches and Privacy*

Recent court decisions have held that prisoners have a diminished right to privacy and that therefore the inclusion of their DNA in CODIS does not raise privacy concerns.<sup>183</sup> The privacy rights of non-felon family members, however, do raise constitutional concerns.<sup>184</sup> Forensic scientists are fully capable of collecting DNA from persons through their garbage and may do so with reasonable suspicion or less (depending on where the garbage is placed).<sup>185</sup> Moreover, a person who would be subject to a familial DNA search would not have the diminished right to privacy of a

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182. A person may be implicated by a partial-match search whom a deceased victim or witness might have otherwise exonerated.

183. *See generally* Banks v. United States, 490 F.3d 1178 (10th Cir. 2007); Nicholas v. Goord, 430 F.3d 652 (2d Cir. 2005); Padgett v. Donald, 401 F.3d 1273 (11th Cir. 2005); United States v. Kincade, 379 F.3d 813, 861 (9th Cir. 2004); Green v. Berge, 354 F.3d 675 (7th Cir. 2004); People v. Travis, 139 Cal. App. 4th 1271 (2006).

184. *See generally* Haskell v. Harris, 669 F.3d 1094 (9th Cir. 2012) (affirming the lower court ruling denying an injunction against DNA collection for mere arrestees).

185. *See generally* Beltz v. State, 221 P.3d 328 (Alaska 2009) (requiring reasonable suspicion of a serious crime to conduct DNA searches from a person's garbage while simultaneously finding that it would be "naïve" not to believe DNA collection from garbage and registries created by DNA in garbage are in Alaska's future).

felon by the very nature of the search—the person would already be in the database had they been arrested or convicted of a felony.

By and large, however, these privacy concerns will need to be individually litigated, and courts have not been eager to constrain this budding forensic technology.<sup>186</sup> Courts have not yet ruled that a suspect's DNA left at a crime scene entitles that as-yet-anonymous suspect to have a privacy interest in the genetic material of another person. If a person is suspected of a genetic connection to a suspect but is not negatively impacted by that suspicion, then it may be difficult to establish standing in a civil suit. While respect for privacy remains a significant issue, privacy concerns may be more quickly addressed by procedural limitations on the practice of familial DNA testing than on the slow machinations of the judicial system. Both proponents and opponents of familial DNA searches would be best served by uniform national procedures on such searches that might serve as a focal point for a more public debate on the pros and cons of a surveillance method whose methodologies now vary widely across state lines.

#### 4. *Societal Interest in Intact Families*

At a basic policy level, familial DNA testing has the potential to degrade desirable social bonds between families.<sup>187</sup> This argument follows a predictable trajectory: If a family member becomes the suspect of a crime because of a familial search, family bonds might become strained.<sup>188</sup> More insidiously, should a family member be identified through a familial DNA search, the family member from whom the partial match was derived would become an “involuntary genetic informant[] of their kin.”<sup>189</sup> While one can imagine that this scenario would create unique strains on a familial relationship, one can also construct countless scenarios in which ordinary police investigative tactics and procedures would produce similar results. It is difficult to imagine that this particular category of concern would have an impact that would be worse than typical police procedure or whose hypothetically greater evils might not be restrained by procedural safeguards to personal privacy.<sup>190</sup> Nonetheless, this policy concern bears consideration.

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186. This may be because of the paucity of case law in this area.

187. Ram, *supra* note 24, at 793–94.

188. *Id.*

189. *Id.* at 793 (internal quotation marks omitted).

190. Privacy is not the crux of this Note, but greater procedural safeguards to protect the rights of those implicated in partial-match searches will doubtless be a concern in the critical debate surrounding this issue.

##### 5. *Non-Race-Based Discrimination in Familial Searches*

Innocent people who are related to persons in the database might be unjustly distinguished from those persons who are not related to a person in CODIS.<sup>191</sup> Similar to the argument in Part III.C.3, the persons in the database already have a diminished expectation of privacy, but their relatives who are not in the database do not have this diminished expectation. While an argument can be made that such a search does indeed unfairly include some people where others are not included, to succeed this argument requires either discrimination against a protected class,<sup>192</sup> or else the violation of a specific privacy interest.<sup>193</sup> While it certainly may be unfair to those persons whose relatives are in the database to be subject to familial DNA searches, remedying such a problem requires nothing short of either a radical democratization of CODIS to include all persons, or else a radical reform of the racial and socioeconomic inequalities that beset our criminal justice system generally. Both of these solutions are, like the underlying privacy concern, beyond the purview of this Note.<sup>194</sup>

##### 6. *Democratic Accountability Surrounding the Scope of Databases*

Of all the above concerns, the critique of the democratic accountability of DNA databases and familial searches appears to be the most remediable by more transparent public policies. As noted in Part III.B, the public accountability of partial-match searches—and DNA databases more generally—differs widely by jurisdiction and approaches transparency in only a handful of those jurisdictions. Partial-match searches greatly expand the scope of such databases and policies, and the public generally remains only tangentially aware of the existence, scope, and effects of these policies.<sup>195</sup>

At present, policy on partial-match DNA searches is determined through a hodge-podge of administrative and legislative directives that vary from jurisdiction to jurisdiction. There is no guarantee that a forensic investigator in one jurisdiction will share a common methodology with an investigator in another. Partial-match DNA testing lies outside of the public eye precisely because the use of this technology is not widely acknowledged or regulated. Because of this lack of transparency and a

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191. Murphy, *supra* note 22, at 305.

192. *See supra* Section III.C.1.

193. *See supra* Section III.C.3.

194. This is not to say that such a radical democratization has not been called for. *See* Michael Seringhaus, Op-Ed., *To Stop Crime, Share Your Genes*, N.Y. TIMES (Mar. 14, 2010), <http://www.nytimes.com/2010/03/15/opinion/15seringhaus.html?pagewanted=all>.

195. Ram, *supra* note 24, at 794.

public understanding informed more by crime show television dramas than actual policy, the expansion of databases and partial-match searching within these databases requires both special care and the awareness that such searches might affect fundamental rights without a popular understanding of the implications of those expansions. Regardless of one's stance on the technique, raising this debate to the national level will bring attention to a technology that is already being increasingly employed in jurisdictions across the country. While the lack of transparency and public understanding surrounding familial searches is not unique to this topic, the paucity of public policy awareness on this issue merits caution. Countenancing this concern, as well as the five concerns enumerated above, should inform the development of forensic policies. This, in turn, could serve to either exacerbate or alleviate critical concerns and the litigation which may well attend the heightened public awareness surrounding the advent of a national policy on partial-match testing.

#### IV. ANALYSIS AND RECOMMENDATIONS FOR HOUSE BILL 3361

The concerns about familial and partial-match searches are numerous and not without merit. That said, a partial-match search remains an unavoidable reality in crime scene DNA analysis because the frequency of mixed samples within crime scenes requires that laboratory technicians have leeway to conduct less stringent database searches. Currently, states can administer searches within their own databases, but require permission from the federal government to conduct searches across state lines. Moreover, the federal system has far more sensitive and advanced equipment and resources than many states, and can thus conduct searches that are simply not possible for certain states. Because CODIS takes samples from the states but is administered at the federal level, the database represents a rare opportunity for a federal criminal policy to have an impact on every level of law enforcement.

The nationalization of familial DNA testing and searching protocols could potentially result in greater transparency in regulating the new forensic technology. Such a national scope would hopefully serve as a model to other forensic sciences that also lack common standards or implementation. As laudable as this effect of the Bill might be, there are still several practical aspects of the Bill that should be clarified. For example, the Bill limits familial testing to samples found at crime scenes.<sup>196</sup> Often, violent crimes result in detectable genetic samples from both the victim and the perpetrator. Does this mean that familial testing

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<sup>196</sup> Utilizing DNA Technology to Solve Cold Cases Act of 2011, H.R. 3361, 112th Cong. § 2(a)(1) (2011).

can be employed to search for members of the family of the victim as well as the perpetrator?

Consider a hypothetical where a violent crime yields a mixed sample that includes the DNA of the victim. Since family members commit a significant proportion of violent crimes, would familial testing result in an undue suspicion or burden being placed on family members of the victim? The critical literature on privacy concerns surrounding partial-match searches has thus far not broached this concern, but this scenario lies in a more nuanced privacy realm than the traditional constitutional arguments surrounding DNA databases. House Bill 3361 should institute an advisory committee—similar to that in place in California<sup>197</sup>—that evaluates partial-match search results on a case-by-case basis. While this level of scrutiny may seem onerous, this policy would help to ensure that only the crimes that most warrant such an inexact forensic technique would be pursued in this manner. Acceptance of this technique will potentially be much greater if the technique is used to pursue “Grim Sleeper”-type killers rather than more common criminals. Moreover, the collective decisions of such a committee should themselves also be subject to review by Congressional committee. House Bill 3361 should incorporate these two levels of review into the annual review strategy the Bill already envisions.<sup>198</sup> In this manner, Congress could maintain oversight and accountability over an emergent technology whose ramifications have not been fully vetted.

Second, the Bill requires that “the privacy interests of persons identified in familial searches are carefully protected.”<sup>199</sup> How? This aspect of the legislation seems far too open-ended for a technology that can produce anywhere from a few to hundreds of matches for a DNA sample depending on the amount and relative commonality of the alleles to be tested.<sup>200</sup> There are many levels of protections that ought to be considered to protect privacy. At the least, the Bill should address certain basic questions: (1) Should investigators be able to approach persons solely on familial DNA evidence; (2) what are the protocols for investigating persons only connected to a crime through familial DNA evidence; (3) who should have access to this information; and (4) what repercussions are possible for those who violate the privacy interests of those persons identified in familial DNA testing? Being falsely implicated in an egregious crime can have devastating consequences, and House Bill

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197. See BROWN, *supra* note 5.

198. H.R. 3361 § 2(b).

199. *Id.* § 2(a).

200. Greely, *supra* note 55, at 253.

3361's blithe assurance that privacy interests should be protected is not commensurate with those consequences.<sup>201</sup>

Third, the Bill's selection of possible crimes defines the types of crime subject to familial DNA testing. The Bill provides that murder, voluntary manslaughter, kidnapping, or attempts at any of these three crimes qualify a crime for familial testing.<sup>202</sup> Defining the crimes that are subject to this type of search is imperative to assuage public concerns of a genetic surveillance state. Neither the California nor the Colorado policy enumerates the types of crime subject to these searches, and the disparity between the types of crimes pursued in the respective states—murder and rape versus breaking into cars—underscores the need to delineate when such a search might or might not be appropriate.

Further, House Bill 3361 also allows for familial testing for any crime or attempted crime that would qualify an offender for the Sex Offender Registry.<sup>203</sup> My research has not uncovered any existing state statutes that allow for familial searches for attempted crimes. This dramatically expands the familial search universe. While individual departments might not have the resources to investigate familial DNA positive identifications for lesser crimes, House Bill 3361 has the potential to greatly expand the universe of people who are exposed to such investigations. The full scope of this possibility cannot be totally ascertained or controlled by the language of the proposed statute. There exists a broad spectrum of crimes that qualify an offender for the Sex Offender Registry, and to sanction a familial DNA search for an attempt at a lesser gradient of these offenses—which include misdemeanors such as statutory rape between persons of a similar age—may reach too far. The Bill would benefit from greater clarity on the severity of offense required for consideration for familial DNA testing.

Lastly, the need for transparency in familial and partial-match searches can be linked to the need for transparency in DNA databases generally. The potential privacy concerns inherent to this type of forensic technology underscore the need for transparency of practice at all levels. Moreover, openness about the functioning of the database and the manners in which the data can be used would do much to assuage the privacy concerns of the public at large.<sup>204</sup> To fully countenance the privacy concerns raised by this technology, House Bill 3361 should allow (at least) academic access to the raw, non-individuated data in CODIS. In this manner, public awareness can complement governmental oversight to

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201. H.R. 3361 § 2(b).

202. *Id.*

203. *Id.* § 2(a)(2).

204. See generally Kaye, *supra* note 95 (outlining the roadblocks that the FBI has established for researchers).

assuage reservations about the potential of partial-match DNA testing. Only through heightened transparency might the potential dangers of intrusive genetic surveillance be countered.

#### CONCLUSION

There are difficulties inherent in House Bill 3361, but the potential benefit of having a national system warrants sorting out those difficulties. Such a system might serve as a model for other forensic sciences, like fingerprinting, which would benefit from the increased transparency and codified standards of a national system with at least the potential for regulation and oversight. The potential for abuse remains inherent in any forensic science. Moves to nationalize these sciences, however, could potentially reduce the provincialism of forensic sciences within individual investigative departments. A national model for familial testing with rigorous national standards might be a step forward in realizing such a goal. The importance of this step underscores the primacy of getting this particular legislation right. House Bill 3361 should pass, but only with appropriate oversight mechanisms in place.