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UTILIZING DNA TECHNOLOGY TO SOLVE COLD CASES ACT OF 2011

HEARING

BEFORE THE

SUBCOMMITTEE ON CRIME, TERRORISM, AND HOMELAND SECURITY

OF THE

COMMITTEE ON THE JUDICIARY
HOUSE OF REPRESENTATIVES

ONE HUNDRED TWELFTH CONGRESS

SECOND SESSION

ON

H.R. 3361

APRIL 25, 2012

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APRIL 25, 2012

UTILIZING DNA TECHNOLOGY TO SOLVE COLD CASES ACT OF 2011

WEDNESDAY, APRIL 25, 2012

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON CRIME, TERRORISM,
AND HOMELAND SECURITY,
COMMITTEE ON THE JUDICIARY,
Washington, DC.

The Subcommittee met, pursuant to call, at 10 a.m., in room 2141, Rayburn House Office Building, the Honorable F. James Sensenbrenner, Jr. (Chairman of the Subcommittee) presiding.

Present: Representatives Sensenbrenner, Goodlatte, Lungren, Scott, Johnson, Chu, Quigley and Conyers.

Also Present: Representative Schiff.

Staff Present: (Majority) Sam Ramer, Counsel; Arthur Radford Baker, Counsel; Lindsay Hamilton, Clerk; (Minority) Bobby Vassar, Subcommittee Chief Counsel; Ashley McDonald, Counsel; and Veronica Eligan, Professional Staff Member.

Mr. SENSENBRENNER. The Subcommittee will come to order. Welcome everyone to today's hearing on H.R. 3361, the Utilizing DNA Technology to Solve Cold Cases Act of 2011. It is hard to remember a time in law enforcement before DNA searches became commonplace. In 1953, when Watson and Crick published their Seminal paper on the fundamental building blocks for an individuals entire genetic makeup, few could have imagined the investigative potential that would be unleashed. Law enforcement officials have since used this evidence to capture criminals and enhance public safety. It may have used it to exonerate the innocent.

DNA is a powerful tool for law enforcement investigations because each person's DNA is different from that of every other individual except for identical twins. It cannot escape our notice that in the past 20 years, there has been a dramatic decrease in crime levels across the United States. According to the FBI, violent crime in the U.S. have dropped by almost 50 percent in the last 20 years. DNA is a part of new arsenal of tools that may have contributed to the capture and imprisonment of repeat offenders, and may have enhanced the Nation's safety.

Federal law authorizes the FBI to operate and maintain a National DNA database called CODIS where our DNA profiles generated from samples collected from people under applicable legal authority and samples collected at crime scenes can be compared to generate leads in criminal investigations.

Statutory provisions also authorize the collection of DNA samples from Federal offenders and arrestees, D.C. offenders and military offenders. State laws dictate which convicted offenders. And sometimes people arrested for crimes have will have profiles entered into state DNA databases while Federal law dictates the scope of the national database.

Some jurisdictions have started to use their DNA databases for familial searching. Familial DNA searches scan the database for individuals related by some degree to the target suspect. By broadening the search parameters of the DNA code, investigators can find the siblings, children or more distant relatives of an individual. Some jurisdictions have started to use their individual State DNA databases for familial searching. So far two States, Colorado and California make the most use of familial DNA.

In March 2011 Governor McDonnell announced that the Virginia Department of Forensic Science would begin using familial DNA searches in Virginia. Several States, however, including Alaska, Maine, Michigan and Vermont include prohibitions on either partial, match or familial match searching in lab manuals. The FBI currently does not permit familial DNA searches of the CODIS databank.

In a recent publicized case in California, a serial killer suspect in Los Angeles was identified using this method. The police called him the Grim Sleeper because he seemed to go dormant in between murdering at least 10 women over more than 20 years. Saddled with an ice cold case, California authorities decided to run DNA samples from saliva left on the bodies through a familial DNA search. They identified a young man named Christopher who was in the system serving a prison sentence on a felony weapons charge.

Further investigation led police to 57-year-old Lonnie David Franklin, Christopher's father. Once police had him as a suspect, an undercover detective posing as a waiter collected the older Franklin's plate, utensils and leftover food from the restaurant, and the suspect's DNA was found on a discarded pizza crust matched the DNA left long ago on the bodies of the dead women. The case suddenly came back to life. Franklin is now awaiting trial on multiple charges of murder. This case has brought significant attention to the technique of familial DNA searches.

H.R. 3361 utilizing DNA Technology to Solve Cold Cases Act requires the Attorney General to adopt policies and procedures to permit the FBI to conduct familial searches for DNA samples collected from crime scenes and Federal investigations, and that a State administrator or State Attorney General may request that the FBI conduct familial searches for DNA samples collected from crime scenes and State investigations, and that the privacy interest of persons identified in familial searches are carefully protected.

The Act imposes restrictions on such familial DNA searches. For example, it limits the familial search to cases where there is no identical match from the crime scene with someone in the offender database. In addition, the bill limits a familial DNA search to the investigation of the following crimes: First, an offense of murder, voluntary manslaughter, kidnapping or any attempt to commit murder, voluntary manslaughter, or kidnapping. Second, a speci-

fied offense against a minor or an attempt to commit such a specified offense, or third, an offense for which an offender would be required under the Sex Offender Registration and Notification Act, 42 U.S.C. 16-901, and seek to register as a tier 3 sex offender, or an attempt to commit such an offense.

In addition, the States are required to have written policies in place that are consistent with those of the Attorney General. The bill also has reporting requirements to the House and Senate Judiciary Committee so that the use of familial searches would have significant oversight.

Today we will look at familial DNA searches looking at the efficacy of the technique, the ethical and privacy issues that it may entail. Modern 21st century law enforcement has improved and reduced many of the problems we were concerned about back in the 20th century. As the crime rate continues to fall we should make sure that our attack has continued to evolve and target criminals with continued respect for our citizens privacy, interest and civil liberties so that we may protect Americans without sacrificing the values that we all hold sacred.

I looked forward to hearing more about this issue and thank all of our witnesses for participating in today's hearing. And now I recognize the gentleman from Virginia, Mr. Scott for an opening statement.

[The bill, H.R. 3361, follows:]

I

112TH CONGRESS
1ST SESSION

H. R. 3361

To direct the Attorney General to design and implement a procedure to permit enhanced searches of the National DNA Index System.

IN THE HOUSE OF REPRESENTATIVES

NOVEMBER 3, 2011

Mr. SCHIFF introduced the following bill; which was referred to the Committee on the Judiciary

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A BILL

To direct the Attorney General to design and implement a procedure to permit enhanced searches of the National DNA Index System.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Utilizing DNA Technology to Solve Cold Cases Act of 2011".

SEC. 2. ENHANCED SEARCHES.

(a) FAMILIAL SEARCHES.—

(1) IN GENERAL.—Not later than one year after the date of enactment of this Act, the Attorney

General shall adopt policies and procedures in accordance with this section to ensure that—

(A) the Federal Bureau of Investigation may conduct familial searches for DNA samples collected from crime scenes in Federal investigations;

(B) subject to paragraph (5), a CODIS State administrator or State attorney general may request that the Federal Bureau of Investigation conduct familial searches for DNA samples collected from crime scenes in State investigations; and

(C) the privacy interests of persons identified in familial searches are carefully protected.

(2) SEARCH REQUIREMENTS.—Familial searches conducted by the Federal Bureau of Investigation under this section shall be conducted only under the following circumstances:

(A) No identical match for the DNA sample collected from a crime scene can be identified in the offender index.

(B) The investigation for which DNA samples are collected at a crime scene involves one or more of the following offenses under Federal or State law:

(i) An offense of murder, voluntary manslaughter, kidnapping, or any attempt to commit murder, voluntary manslaughter, or kidnapping.

(ii) A specified offense against a minor (as such term is defined in section 111(7) of the Sex Offender Registration and Notification Act (42 U.S.C. 16911(7))), or an attempt to commit such a specified offense.

(iii) An offense for which an offender would be required, under the Sex Offender Registration and Notification Act (42 U.S.C. 16901 et seq.), to register as a tier III sex offender (as defined in section 111(4) of such Act (42 U.S.C. 16911(4))), or an attempt to commit such an offense.

(3) REQUESTS BY STATES.—A CODIS State administrator or State attorney general making a request for a familial search under this section shall—

(A) before making such request, have in place a written policy that—

(i) establishes the criteria and procedures for requesting a familial search and for evaluating a familial match;

(ii) is consistent with any regulations issued by the Attorney General pursuant to this section; and

(iii) ensures that the privacy interests of persons identified in familial searches are carefully protected; and

(B) each time a familial search request is made, make such policy available to the Attorney General.

(4) STATE ASSURANCES REQUIRED.—A CODIS State administrator or a State attorney general may request from the Federal Bureau of Investigation familial searches for DNA samples collected from crime scenes in State investigations only if the requesting State has provided an assurance to the Attorney General that—

(A) the requesting State will take such steps as the Attorney General determines to be necessary and appropriate to facilitate the investigation of familial matches from other States; and

(B) the requesting State will investigate possible familial matches in the State before requesting assistance from other States.

(5) REPORTING OF MATCHES.—Any familial match resulting from a request for a familial search that complies with the requirements of this section shall be reported to the CODIS State administrator or State attorney general requesting information related to such match.

(b) REPORT.—Not later than 2 years after the date of enactment of this Act, and annually thereafter, the Attorney General shall submit to the chair and ranking member of the Committee on the Judiciary of the House of Representatives and the Committee on the Judiciary of the Senate a report on compliance with this section. Each such report shall contain the following information:

(1) The number of familial searches requested by CODIS State administrators or State attorney generals.

(2) The number of familial searches conducted under this section.

(3) The number of familial matches found as a result of such searches.

(4) The status of any case in which such a familial match was found.

(c) REGULATIONS.—Not later than one year after the date of enactment of this Act, the Attorney General shall issue regulations to carry out this section.

(d) DEFINITIONS.—In this section:

(1) The term "CODIS State administrator" means the individual designated by a State to coordinate and communicate with local CODIS administrators in the State and to be responsible for entering data from the State in the National DNA Index System, in accordance with the procedures established by the National DNA Index System Procedures Board and published by the Federal Bureau of Investigation in the NDIS Policies and Procedures.

(2) The term "familial search" means a search of the offender index in which a DNA sample from an unknown source collected from a crime scene is compared to such offender index to determine if a familial match exists between the DNA profile contained in such index and the DNA sample collected from the crime scene.

(3) The term "familial match" means a genetic association determined by the Attorney General to present a high probability of familial relation between a DNA profile in the offender index and a DNA sample collected at a crime scene.

(4) The term "offender index" means the database containing information on individuals convicted

of sex offenses and other violent crimes in the National DNA Index System established under section 210304 of the Violent Crime Control and Law Enforcement Act of 1994 (Public Law 103–322, 108 Stat. 1796).

(5) The term "State" means each of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the United States Virgin Islands, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands.

○

Mr. SCOTT. Thank you, Mr. Chairman. I am pleased to join you in this hearing on the familial DNA testing. I think it is wise that we have a hearing about this bill and the issue before moving legislation on it. DNA is a powerful enforcement tool, but when not used carefully and with proper procedures in place, it can do great harm to privacy and other constitutionally-protected rights. As I expect to hear from our witnesses, familial DNA searching differs from traditional DNA searching in that law enforcement is not seeking from the database one direct match, but rather, a match from a familial search is actually only an investigatory tool because it is a close match, not an exact match. It directs law enforcement to a person who is not a perpetrator, but who is said likely to be a relative.

For example, for a given crime the crime scene sample matches no one in the database, partially matches person X who is in the database because he has been arrested for—was once arrested for a felony.

If person X has three brothers, a father and two sons, all six of those relatives, or possibly, five out of six of those relatives are actually innocent of the crime, but those five relatives will now be—all six relatives now subject to police investigation and including questioning, request for DNA samples, and/or surreptitious collection of DNA samples merely because they are related to someone whose DNA looks a lot like but is not identical to the DNA found at a crime scene.

This way, the search leads investigators to the doors of many people who are, in fact, innocent of the crime, but only come under suspicion by happenstance of being related to someone who is in the DNA database. This investigative method, if used, will undoubtedly resolve in apprehending some additional perpetrators who might not have otherwise been caught, just as it happened in the Grim Sleeper case. But before we rush to authorize this kind of testing, we need to closely examine the societal costs and the societal harms.

One of the costs is invasion of privacy I alluded to earlier, a familial DNA searching involves identifying and investigating a group of people, all of whom or all but one of whom are innocent of unconnected to the crime being investigated. One of the primary privacy concerns regarding the use of this kind of testing is that it will put innocent people under genetic surveillance because they are related to someone whose profile is in the DNA database.

Another societal cost is the impact it will have on minority communities, African-American and Hispanics are disproportionately represented in the DNA index system because they are disproportionately arrested and convicted. Now, that is not always related to the incidents of criminal activity, because we have found that African-American represent 40 percent of the drug arrests compared to 13 percent of the general population where there is no reason to believe that Blacks are actually committing more drug offenses than Whites.

Third, the societal cost is the number of false positives that will result. False positives include both long lists of partial matches that could be investigated, again, any number of relatives for each partial match who will be investigated. These false positives will be

financially costly for law enforcement and will further increase privacy concerns and will impact minority communities disproportionately.

I, therefore, have grave concerns about the societal costs of this kind of testing. The only way to completely eliminate the problems associated with that would be to prohibit it altogether, as Maryland and District of Columbia have done. And if a familial DNA testing is to be conducted, which should be done on a State-by-State basis among the States and not as a national or Federal program. DNA continues to evolve as a technology, and may some day evolve to the point of great enough certainty and sufficient safeguards to justify its use. I am concerned we are not quite at that point yet. I look forward to the testimony of our witnesses on whether technology is and whether it is sufficient enough to be developed to go national or Federal at this time.

Mr. Chairman, I would like to welcome one of the witnesses Pete Marone from Virginia. Virginia has a long history of being in the forefront of DNA technology and the Virginia forensic lab is one of the best and it is great to have him here. I also want to recognize the chief sponsor of the legislation we are considering, a gentleman from California, Mr. Schiff, a former Member of this Committee and a former prosecutor. I yield back.

Mr. SENSENBRENNER. The gentleman from Michigan, Mr. Conyers, the Ranking Member of the full Committee is recognized for an opening statement.

Mr. CONYERS. Thank you, Chairman Sensenbrenner. I join in welcoming Adam Schiff for the discussion today. I wish he was back on the Committee.

I agree with all the comments that the Chairman and the Ranking Member have made, so I will put my statement in the record and just add these couple comments. It seems to me, at first blush for this discussion, that the cost outweigh the benefits, and that we need more safeguards. Attorney Michael Risher will probably expand on that, representing the American Civil Liberties Union. And I had an opportunity to talk with the Wayne County prosecutor of Michigan, Ms. Kym Worthy, about this hearing this morning. And she was telling me about the backlog of 11,000 untested rape kits that are on their shelves right now. Some of them clearly unusable because of the expiration of the statute of limitations. These kits, to my surprise, cost $1,500 each. And they have only funding for a very small number of them.

So we have a problem here, as Bobby Scott has already indicated, that African-American and Hispanics are already overrepresented in the national DNA index system, because they are disproportionately arrested and convicted. And it seems inescapable to me, and our distinguished witnesses can give me their view on this, that this disparity will probably go up the more we use this system.

So I merely wanted us all to appreciate that this may be an idea that we will have to examine far more carefully than merely one case. It involves a serious problem of expanding the invasiveness of the criminal justice system. And by the way, this hearing comes along at a very appropriate time for me because I was just reading recently of a former United States Supreme Court Justice that was

talking about the breakdown of the criminal justice system in our country, and the problems that are attendant with that, and this could be moving us in the wrong direction.

I want to commend the Subcommittee for taking this up, and I hope that the two leaders of the Subcommittee will allow us to begin to make some other inquiries about the criminal justice system in general and in particular, as the session moves on.

Thank you very much, Mr. Sensenbrenner.

[The prepared statement of Mr. Conyers follows:]

Prepared Statement of the Honorable John Conyers, Jr., a Representative in Congress from the State of Michigan, and Ranking Member, Committee on the Judiciary

In the past decade, DNA technology has become increasingly vital to ensuring accuracy and fairness in the criminal justice system. Where biological evidence exists in an unsolved "cold case," such evidence can be a powerful tool to help investigators solve the crime. DNA can also be used to clear suspects and exonerate people wrongly accused or convicted of crimes.

Because DNA is such a powerful tool, however, we must be careful how we use it. H.R. 3361 deals with familial DNA searching. A familial search refers to searching in a DNA database not for the person who left the DNA sample at the crime scene but for a relative of that person.

In familial DNA searching, law enforcement is no longer seeking from the database one direct match between a crime scene sample and a perpetrator's sample. The "match" that results from a familial search is merely an investigative lead that directs law enforcement to a person who is not the perpetrator but who may be a relative of the perpetrator.

This is a dramatic expansion of a traditional DNA search. Before we rush to authorize familial DNA testing, we need to closely examine the individual, familial, and societal costs and harms.

FIRST, minority communities are disproportionately impacted by familial searching. African Americans and Hispanics are over-represented in the National DNA Index System (or "NDIS") because they are disproportionately arrested and convicted. Professor Henry Greeley has estimated that using the NDIS for familial searching could mean that approximately 17% of the African American population in the United States would be "findable" through the database, compared to approximately 4% of the white population. This means that, by far, the majority of the innocent people who will be affected by familial searching will be African American and Hispanic.

SECOND, a high number of false positives will result from familial testing. False positives include both long lists of partial matches that could be investigated by local law enforcement and also many relatives for each partial match who could be investigated. These false positives will be financially costly for local law enforcement to investigate. This takes resources away from other important law enforcement activities. Kym Worthy, the prosecutor of Wayne County, Michigan, informs me that there is a backlog of 11,000 untested DNA rape kits in her county. She tells me it costs approximately $1500 per rape kit to test. If she had the funding, she would test all of those rape kits. Diverting scarce resources to familial DNA searches means fewer resources for other important law enforcement activities.

FINALLY, familial searching invades the privacy of innocent people. Familial searching subjects relatives of convicted offenders to potential law enforcement scrutiny, without probable cause, and puts innocent people under "genetic surveillance" merely because they are related to someone whose profile is in a DNA database.

I therefore have tremendous concerns about the societal costs of familial DNA searching. These individual, familial, and societal concerns must be balanced against the benefits when we decide whether to enact legislation that will permit familial searching on a federal level. I believe the costs of familial DNA searching

might outweigh the benefits, and we need more safeguards if we are going to enact federal legislation.

If we decide that, on balance, we want a federal law permitting familial searching, we still must ensure that there are adequate safeguards in place, such as requirements that all other investigative leads have been exhausted and that any familial searching only be permitted to help solve major violent crimes where there is a continuing and serious risk to public safety. The witnesses testifying today will address some of the other safeguards that need to be in place and that H.R. 3361 lacks.

I applaud Chairman Sensenbrenner for calling a hearing today about this bill and this is issue that merits further, careful study before we act. I yield back.

Mr. SENSENBRENNER. I thank the distinguished Ranking Member for his statement. Without objection, all Members opening statements will appear in the record. It is now my pleasure to introduce today's witnesses: Detective Dennis Kilcoyne is a supervising detective for the Los Angeles Police Department. He has been a member of the LAPD for over 35 years. Twenty-seven of those years have been dedicated to investigating homicides and major crimes. Since 1994, Detective Kilcoyne has worked for the LAPD's elite robbery homicide division. He currently serves as the president of the California Homicide Investigators Association, a position he has held for the past 8 years. This association is made up of local law enforcement investigators, prosecutors and death investigation professionals from throughout California.

Peter Marone has been the director of the Virginia Department of Forensic Science since 2007. He has been with the Department since 2005, previously serving as the director of technical services. From 1998 to 2005, Mr. Marone was the central laboratory director at the Division of Forensic Science. And for 1986 to 1998 he previously held the position of assistant division director and program manager.

Previously, he had been a forensic scientist at the Virginia Bureau of Forensic Science and a criminologist at the Allegheny County Crime Laboratory in Pittsburgh. He received his bachelor of science in chemistry in 1970, and his Masters in for forensic chemistry in 1971 from the University of Pittsburgh.

Henry Greely is the Deane F. and Kate Edelman Johnson Professor of law and professor by courtesy of genetics at Stanford. He chairs the California Advisory Committee on Human Stem Cell Research and steering committee of the Stanford University Center for Biomedical Ethics, and directs the Stanford law or Stanford Center for Law and biosciences. Before starting his career at Stanford in 1985, Professor Greely served as a law clerk for Judge John Minor Wisdom of the U.S. Court of Appeals and for Justice Potter Stewart of the U.S. Supreme Court.

After working during the Carter administration in the Departments of Defense and Energy, he entered private practice in Los Angeles in 1981 as a litigator with the law firm of Tuttle & Taylor, Inc. He graduated from Stanford in 1974 and from Yale Law School in 1977.

Michael T. Risher is a staff attorney for the ACLU in northern California, the Nation's largest ACLU affiliate. Before joining the ACLU NC, Mr. Risher was a deputy public defender in Alameda County from 1998 to 2005. He also served as the legal affairs advi-

sor for the Linda Smith Center and a clerk to Judge Karen Nelson Moore of the U.S. Court of Appeals. He is a graduate of Harvard and Stanford Law School.

The witnesses written statements will be entered into the record in their entirety. I ask that you summarize your statements in 5 minutes or less. You all know about the green, yellow and red, and the Chair has the big gavel. Detective Kilcoyne, you are first.

TESTIMONY OF DENNIS P. KILCOYNE, DETECTIVE, ROBBERY AND HOMICIDE DIVISION, LOS ANGELES POLICE DEPARTMENT

Mr. KILCOYNE. Thank you, Mr. Sensenbrenner and Committee Members for allowing Los Angeles Police Department to comment on this bill. In May of 2007, detectives from Los Angeles Police Department's robbery homicide division received information from the forensic lab regarding case-to-case hits, which are linked by DNA matches to two LAPD murders as well as 2002 Inglewood murder of a 14-year-old girl. All three cases involved young women and were unsolved. Biological evidence returned to one individual, however, his identity was absent from any databank.

The Department established a task force to investigate the series of crimes, and within the first months of research into years of cold cases, a similar series involving nine cases between 1985 and 1988 were connected to the current series. One of the nine cases included a surviving victim, who 25 years earlier, had been sexually assaulted, photographed and left for dead by a lone male gunman. During the 1980's, a 200-member task force had investigated these heinous crimes and not been able to identify the suspect. DNA, as an investigative tool, had yet to be developed for law enforcement at that time.

The task force renewed the effort to identify and apprehend the suspect, and there was widespread media attention and public outreach campaign for information that led to over a 1,000 tips provided by the community. For the next 2 years, detectives pursued leads all over the Nation. Sadly, detectives were no closer to identifying the suspect than the original detectives were decades earlier. During the summer of 2008, detectives developed a partnership with the California Department of Justice Bureau of Forensic Services, regarding the Bureau's development of new software to search California's convicted felon databank for matches that have a familial genetic connection to the crime scene evidence.

The creation of this program was based on a series of crimes that LAPD was investigating and was the model for its uses. A strict protocol was established by the Department of Justice to set guidelines for the usage of a familial search. Case consideration must meet the following: Number 1, there must be a crime of violence that includes critical public safety implications; number 2, all reasonable and viable investigative leads have been exhausted, and the biological evidence is from a single source profile exhibiting a minimum of 15 genetic markers.

The requesting investigative agency, prosecutor and DOJ, then enter into a signed memorandum of understanding. All requests, analysis results and disclosure of findings are handled by DOJ familial search committee. If a familial match is found, the com-

mittee determines if the information warrants further inquiry. The information is then investigated by DOJ's Bureau of Investigation using public databanks to verify the findings through State identification, birth records, property records, et cetera.

This information is then presented to the committee for additional review, all of this review takes place without the knowledge or communication with the requesting police agency or prosecutor. When the familial connection is verified and approved, a formal meeting is called with the lead law enforcement agency investigators and prosecutors. In the case of the series I have described, the information was only shared with me and the Chief of Police, Charlie Beck.

The next step is to conduct surveillance on the suspect and obtain publicly discarded items containing DNA. Such items are submitted to the forensic lab for analysis. When a match between the DNA sample and the individual is made, probable cause has been established for detention. After the suspect is detained, a court order confirmation DNA swab is obtained directly from the suspect and is confirmed as a direct match to the crime scene evidence prior to formal charges being filed.

In November of 2008, the first familial search run was done with the eyes of the forensic world watching. Unfortunately, no match was made at this time. The detective work continued for another year and a half including renewal of reward officers, billboard campaigns, and continued investigation of tips that were pursued all over the country. With the passage of so much time, investigators wondered if the perpetrator was still in the country, or if he was even still alive.

A second formal request was made with the Cal DOJ in the spring of 2010. Detectives with the DOJ forensic chief opined the databank pool had grown over time and offered more opportunity for a match. The tide turned in June of 2010, the second search of a convicted felon databank produced a match to the son of Lonnie David Franklin. The son had been recently been convicted for a felony crime and his DNA sample had been obtained in accordance with the DNA collection log. Franklin, the father, was a former city employee who resided in the heart of Los Angeles. Franklin was immediately put under surveillance.

Mr. SENSENBRENNER. Detective, your time has expired, could you wrap it up, please.

Mr. KILCOYNE. Yes, sir. Franklin—DNA was collected, he was a match to the case to the direct evidence collected at multiple crime scenes. Familial DNA is certainly worthy of discussion and uniform control, strict guidelines such as those in place in California must be followed to ensure careful review of evidence, adherence to scientific protocol, consideration of collection sample regulations, privacy issue and protection of the innocent and the apprehension of the guilty.

Mr. Chairman and Members of the Subcommittee, thank you for inviting me to speak today. I am now ready to take any questions you may have.

[The prepared statement of Mr. Kilcoyne follows:]

Prepared Statement of Dennis P. Kilcoyne, Detective, Los Angeles Police Department

Chairman Smith, Ranking Member Conyers, and distinguished members of the Committee, thank you for the opportunity to discuss the Los Angeles Police Department's (LAPD) view and insight as to the value of utilizing DNA technology to solve cold cases.

In May 2007, detectives at the Los Angeles Police Department Robbery-Homicide Division received information from the Forensic lab regarding "case to case hits," by DNA matches, to two LAPD murders in 2007 and 2003 as well as a 2002 Inglewood murder of a 14-year-old girl. All three cases involved young women and were unsolved. Biological evidence returned to one individual, however his identity was absent from any databank.

The Department established a task force to investigate this series of crimes and within the first months of research into years of cold cases, a similar series involving nine cases between 1985 and 1988 were connected to the current series. One of the nine cases included a surviving victim who 25 years earlier had been sexually assaulted, photographed, shot and left for dead by a lone male gunman. During the 1980's, a 200 member task force had investigated these heinous crimes and had not been able to identify a suspect. DNA as an investigative tool had yet to be developed for law enforcement at that time.

The Task Force renewed the effort to identify and apprehend the suspect. There was widespread media attention and a public outreach campaign for information that led to over 1,000 tips provided by the community. For the next 2 years, detectives pursued leads all over the nation. Sadly, the detectives were no closer to identifying the suspect than the original detectives were decades earlier.

During the summer of 2008, detectives developed a partnership with the California Department of Justice, Bureau of Forensic Services regarding the bureau's development of new software to search California's "Convicted Felon databank" for matches that have a "familial genetic connection" to the crime scene DNA evidence. The creation of this program was based on the series of crimes that LAPD was investigating and was the model for its usage.

A strict protocol was established by the Department of Justice setting guidelines for the usage of a "Familial Search". Case consideration must meet the following:

1. Must be a crime of violence and include critical public safety implications.
2. All reasonable and viable investigative leads have been exhausted.
3. The biological evidence is from a single source profile exhibiting a minimum of 15 genetic markers (15 Short Tandem Repeats (STR) loci (location on the genetic marker).

The requesting investigative agency, prosecutor and the DOJ then enter into a signed Memorandum of Understanding (MOU). All requests, analysis results and disclosure of findings are handled by a DOJ Familial Search Committee. If a familial match is found, the committee determines if the information warrants further inquiry. The information is then investigated by the DOJ Bureau of Investigations using public databanks to verify the findings through state identifications, birth records, property records etc. This information is then presented to the committee for additional revue. All of the review takes place without the knowledge or communication with the requesting agency or prosecutor. When the Familial connection is verified and approved, a formal meeting is called with the lead law enforcement agency investigators and prosecutors. In the case of the series I have described, the information was only shared with me and the Chief of Police, Charlie Beck.

The next step is to conduct surveillance on the suspect and obtain a publicly discarded item containing DNA. Such items are submitted to the forensic lab for analysis. When a match between the DNA sample and an individual is made, Probable Cause has been established for a detention. After the suspect is detained a Court ordered confirmation DNA swab is obtained directly from the suspect and confirmed as a direct match to the crime scene evidence prior to formal charges being filed.

In November of 2008 the first familial search run was done with the eyes of the forensic world watching. Unfortunately, no match was made at that time. The detective work continued for another year and a half and included renewal of reward offers, billboard campaigns, and continued investigation of tips that again were pursued all over the country. With the passage of so much time, investigators wondered if the perpetrator was still in the country, or if he was even still alive.

A second formal request was made with the California Department of Justice in the spring of 2010. Detectives and the DOJ Forensic chief opined the data bank pool had grown over time and offered more opportunity for a match. The tide turned on

June 30, 2010. The second search of the convicted felon databank produced a match to the son of Lonnie David Franklin. The son had recently been convicted for a felony crime and his DNA sample had been obtained in accordance with a DNA collection law. Franklin, the father, was a former city employee who had resided in the heart of South Los Angeles during this most prolific series of violent crime in Los Angeles history.

Franklin was immediately put under surveillance as a sample of his DNA was needed to confirm a match. At a local restaurant, a discarded pizza crust, collected by a detective posing as a waiter yielded a DNA match to the DNA left by the suspect in the multiple murders. Franklin remains in custody and is awaiting trial in Los Angeles, charged with 10 murders and one attempted murder.

Since his arrest detectives have linked seven additional cases to Franklin. The violence that went on for so long is the best argument I can think of that modern law enforcement must have forensic advances as tools to prevent and stop this type of terror in our communities.

The Familial DNA arena is certainly worthy of discussion and uniform control. Strict guidelines, such as those in place in California must be followed to ensure careful review of the evidence, adherence to scientific protocol, consideration of collection sample regulations, privacy issues, protection of the innocent and apprehension of the guilty. The advancement of science utilized to protect the public should be viewed as a tool that makes us all safer.

Mr. Chairman and members of the subcommittee, thank you for inviting me to speak today. I am now ready to answer any questions you may have.

Mr. SENSENBRENNER. Mr. Marone.

Mr. MARONE. Mr. Chairman.

Mr. SENSENBRENNER. Please turn your mic on. I don't think it is on.

TESTIMONY OF PETER M. MARONE, DIRECTOR, VIRGINIA DEPARTMENT OF FORENSIC SCIENCE

Mr. MARONE. Thank you for inviting me to speak. I am the director of the Department of Forensic Science. The issue I have been specifically requested to speak on is familial searching. Although Virginia official began familial searching in April of 2011, that date was preceded by substantial, technical, and more importantly, policy and logistical discussions. While I strongly support the use of familial searching as a means of identifying perpetrators of serious crimes against a person after all investigative leads have been exhausted. Having said that, I feel it is important it for all to understand that many of these logistical as well as technical issues are involved to be able to implement the program.

Familial searching is an intentional or deliberate search of a DNA database designed to identify relatives of offenders as possible perpetrators. It is inherited by members of a family, children will inherit half from mom, half from dad. And siblings, consequently, will tend to share a larger portion of the DNA types than unrelated people.

Under the current procedures, a typical search of a database that results in a databank hit means that there is a match between the crime scene evidence and an offender's sample. The match is defined in this example is the DNA profile from evidence or the types are identical to the DNA types from the individual, the offender or arrestee.

When there is not a match between the evidence and offender, a search of the database can be conducted to determine if an individual has a similar, but not matching profile. I will add at this point is you are not using the same software as the CODIS soft-

ware. It is an entirely different module that would have to be utilized to do that.

A search such as this would yield a multiple candidate because the search requirements are less stringent. When you are doing a familial search, you are looking for close matches or partial matches if you will. In order to get that number, to get a reasonable number, we have to look at a window of inclusion. You need those numbers to be small enough, but not too small that would exclude possible relatives. On the other hand, it can't be too big that it pulls in too many people who aren't related at all.

It is important to understand that in a larger database, the larger the database is, the greater the number of potential relatives are generated. These candidates who have been identified by familial search may have a biological relationship to the evidence, a sibling, a parent. What we are talking about is direct relationship, father to son, son to father or brothers. But it is more likely that none of the candidates identified in a familial search will be relatives, all but one, will be relatives of the individual who deposited the crime scene. Just because you are in the number of candidates produced doesn't mean that the individual will be identified as a possible relative.

The national recommendations that are put forward by SWGDAM States that if a laboratory decides to perform familial searches—and by the way, there is no forbidding in Federal law to perform DNA searches, or familial searches. They should generally be conducted on DNA profiles of a single source and not a mixture. If you throw in mixtures, you have multiple people and it is impossible to come up with a meaningful result from there.

Since the purpose of the current databank search software is to identify only those individuals whose profile exactly matches, as I said before, the alternative software has to be developed or purchased and there are software packages available for this purpose.

A familial search profile is conducted in a DNA databank looking for similar profiles. One approach is to then rank the return candidates statistically to determine how likely they are to be related to the person who deposited the biological evidence. A ranking of these individuals conducted by computer software and then top candidates are selected to give additional DNA testing, the additional DNA testing is conducted on the evidence and on the ranked candidates.

Lineage markers are used for the additional DNA testing, these are DNA types passed on from father to son, within the family. And one of the things I want to add is you are not looking for Uncle Charlie or a few cousins, it is a direct relationship. In California, they have a databank the size of approximately 1.2 million, by now it might be 1.3 offenders. A familial search of an evidence profile against the database will generate many potential relatives, potential relatives; the top candidates may be approximately 200 of them are subjected to additional lineage testing as well as the evidence to get that sample. That is why STRs, you are looking at the male chromosome.

Since familial searching involves identifying and investigating persons who are unconnected to the crime being investigated, criteria must be established implementing the procedure that bal-

ances the need against the use of resources infringement on personal property.

I will cut to the chase by saying we utilize all the same safeguards that California uses, and on a national basis, there is one caveat to remember: The larger the database, the larger the number of people involved.

A big problem with having a national search is that each one of the samples of the State databases resides at the State level. So currently, it would be very, very logistically problematic for a Federal agency, the FBI to perform the Y STRs on samples that are located in the States, that is one of the things.

So what I propose is, just as the U.K. Does geographical filtering, that the filtering be done at the State level, 85 to 90 percent of the hits that are made are at the State level, they are not State to State. Secondarily to that would be maybe contiguous States, but again you have to be careful that those States don't have laws precluding that. In our case, it would be Maryland, Maryland doesn't do familial testing.

Mr. SENSENBRENNER. Thank you.

[The prepared statement of Mr. Marone follows:]

Prepared Statement of Peter M. Marone, Director,
Virginia Department of Forensic Science

Mr. Chairman and Members of the Committee:

Thank you for inviting me to speak. I am Peter Marone, Director of the Virginia Department of Forensic Science. The issue I have been specifically requested to speak on is familial Searching. Although Virginia officially began familial searching in April, 2011, that date was preceded buy substantial technical and more importantly, policy and logistical discussions. I strongly support the use of familial searching as a means of identifying perpetrators of serious crimes against a person after all investigative leads have bee exhausted. Having said that, I feel it is important for all to understand the many logistical as well as technical issues involved in being able to implement this program.

What is Familial DNA Searching?

Familial DNA searching is an intentional or deliberate search of a DNA database designed to identify relatives of offenders as possible perpetrators

DNA is inherited by members of a family. Children will inherit ½ of their DNA from each of their biological parents. Siblings consequently, will tend to share a larger portion of their DNA types than unrelated people.

Under current procedures, a typical search of a database that results in a databank "hit" means that there is a match between the crime scene evidence sample and an offender sample. A match is defined, in this example, as the DNA types (profile) from the evidence are identical to the DNA types from an individual (offender or arrestee).

When there is not a match between the evidence and an offender, a search of the database can be conducted to determine if an individual has a similar, but not a matching, DNA profile. This second, deliberate search of a DNA database is a familial search. A search such as this would likely yield multiple candidates, because the search requirements are less stringent.

It is important to understand is that the larger the database searched the greater the number of potential relatives generated. These candidates who have been identified by the familial search, may have a biological relationship to the evidence (e.g. a sibling or a parent of the individual who deposited the evidence). But, it is more likely that none of the candidates identified in a "familial search" will be relatives of the individual who deposited the crime scene evidence. Just because there are a number of candidates produced, does not mean that an individual will be identified as a possible relative. Distinguishing between an identified candidate who is a biological relative of the perpetrator and another whose DNA profile is similar merely by chance and is not biologically related at all, requires additional DNA testing and in some instances (such as in the United

Kingdom), investigations of non-forensic information (e.g. date of birth and geographical location) to determine if a biological relationship exists.

History

Familial DNA searches in forensic casework have been conducted in the British legal system since 2002 [1] with the first successful prosecution in 2004[2]. The British have completed 70 such searches since 2004, leading to 18 matches and 13 convictions[3]. More recently, in the United States, the City of Denver, Colorado and the states of California (2008[4]) and Colorado (2009[5]) have started familial search programs. The Grim Sleeper case from California has recently dominated the news[6] and is an example of familial searching within the United States.

Legal Authority to Conduct Familial DNA Searches

Currently, there appear to be no states that have specific written authority to conduct familial searches within their databank legislation. Familial DNA searching is not expressly authorized by the Federal DNA Identification Act 42 U.S.C. §14132.

Conversely, two jurisdictions, Maryland and the District of Columbia, have specific wording in their databank legislation prohibiting familial searches [7]. Most states do not currently address this issue explicitly.

Application of Familial Searches

National recommendations[8] state that if a laboratory decides to perform familial searches, familial searches should generally be conducted on DNA profiles that are single source and not DNA mixture profiles. DNA mixtures are samples which have 2 or more DNA donors. Searching DNA mixtures in a familial DNA setting can result in numerous matches to unrelated individuals increasing false positive matches.

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[1] FSS, "Key" Unlocks Triple Murder Investigation, , 2002 [cited 5th June 2007]; Available from:www.forensic.gov.uk/forensic_t/inside/news/list_press_release.php?.
[2] FSS, First Successful Prosecution After Use of Pioneering DNA Technique, 2004 [cited 5th June 2007]; Available from: www.forensic.gov.uk/forensic_t/inside_news/list_press_release?case.
[3] Genetic Surveillance For All, The Slate, March 2009, by Jeffery Rosen
[4] DNA Partial Match Policy, California Department of Justice, April 2008
[5] DNA Familial Search Policy, Colorado Bureau of Investigation, October 2009
[6] In Grim Sleeper Case, a new track in DNA searching, Los Angles Times, July 2010, by Maura Dolan
[7] Maryland SB 211 "A person may not perform a search of the statewide DNA data base for the purpose of identification of an offender in connection with a crime for which the offender may be a biological relative of the individual from whom the DNA sample was acquired."
[8] SWGDAM recommendations on partial matches, July 2008

Because of the resources and investigative work involved, familial searches are typically reserved for violent cases where all other investigative leads have been exhausted [9].

Since the purpose the current databank search software (CODIS) is to identify only individuals whose DNA profile matches the evidence DNA profile, it is not effective for conducting familial searches. Alternative software must be developed or purchased for familial search purposes and will need to be validated.

A familial search of a DNA profile is conducted in a DNA databank looking for "similar" DNA profiles. One approach is to then rank the returned candidates statistically to determine how likely they are to be related to the person who deposited the biological evidence. A ranking of the individuals is conducted by computer software, and then the top candidates are subjected to additional DNA testing. The additional DNA testing is conducted on the evidence and on the returned ranked candidates.

Lineage markers are used for the additional DNA testing. These are DNA types that are passed on within a family. A specific marker or test will identify DNA that is passed on from a father to his sons (Y STR). This additional DNA test is conducted on the evidence and the ranked candidates from the database. If individuals are related, they will share these same lineage DNA markers and thus have the same lineage DNA type.

Familial Search Example

California has a databank size of approximately 1.2 million offenders. A familial search of an evidence profile against this database will generate many potential relatives. The top candidates (approximately 200) are subjected to the additional lineage test as well as the evidence.
If the individual and the person who deposited the DNA evidence are related they will share the same DNA type.

If a family member is identified who appears as a possible person of interest in the case, a DNA sample is collected from the individual. Traditional DNA testing (STR) is conducted on the individual and this generated profile can be compared to the original DNA profile generated from the evidence.

Disclosure of information to law enforcement

Since familial DNA searching involves identifying and investigating persons who are unconnected to the crime being investigated, criteria must be established for

[9] Using Familial DNA Intelligence Products in Serious Crime Investigations, Police Standards Unit, British Home Office, May 2006

implementing the procedure that balances the need against the use of resources and the infringement on personal privacy.

Although offenders have, to a certain extent, relinquished their privacy rights in providing required samples for inclusion in the DNA databank, their innocent family members have not given up their rights to privacy or given prior consent to be investigated.

Unrevealed or unexpected family relationships could be discovered or disclosed in this process. These might lead to incorrect conclusions affecting either laboratory analyses or the law enforcement investigative processes.

The opportunity for a successful outcome is very limited. It is entirely dependent upon a perpetrator having a close relative – a sibling, parent, or child – with a DNA profile in the databank.

Issues for a National system

National development of a familial search software program is the first step; however national searching is not necessarily the immediate answer.

Knowing that validation studies in states with databases of approximately 350,000 to 1.2 million utilizing familial searches produce 100 to 200 "possible candidates". The number of possible candidates produced using a database of 10,000,000 may be in the thousands. This number is just too large to perform additional lineage testing on.

Additionally, the samples whose profiles are contained in the national database are located in the various state database locations. As part of the lineage testing process, how are the analyses run and by whom? The samples are the responsibility of the individual states.

The United Kingdom has had relative success with familial searching. The database size is approximately 4 million. However, they utilize both and age (date of birth) and geographical filter to aid in reducing the size of the possible candidate pool. I would equate this to performing the search at the state level. CODIS hits over the years have consistently demonstrated that 85% to 90% of such hits occur at the state level.

The Scientific Working Group on DNA Methods Analysis (SWGDAM) currently has a subcommittee which is just beginning to address these various issues.

Mr. SENSENBRENNER. Professor Greely.

TESTIMONY OF HENRY T. GREELY, DEANE F. AND KATE EDELMAN JOHNSON PROFESSOR OF LAW, STANFORD LAW SCHOOL

Mr. GREELY. Thank you, Mr. Chairman and Members of the Committee. I greatly appreciate the honor of being here, particularly as a law professor, and I can tell you the students in my law and genetic seminar are very excited about this hearing. I had the good luck in 2006 to be the lead author on what I think is the first article to examine these issues closely along, with three geneticists, Joanna Mountain, Daniel Riordan, and Nanibaa Garrison. We viewed this as a mixed issue, that were pluses and there were minuses. Six years later, I think the issue remains the same. There are some real, but limited benefits from this procedure. There are some real but limited costs to this procedure. On balance, I support this bill, but I do think it is not a panacea, neither is it a monster.

In my brief time, I want to say three things: I want to tell you a little bit about the scientific benefits and limits of the procedure; a little bit about the policy and ethical issues; and then about possible extensions and why having an Attorney General a requirement that the Attorney General have regulations here is, I think, a particularly good thing.

First, the greatest benefit of this procedure is it can lead to clues that can solve cases that otherwise cannot be solved, or have not been solved. There is now 10 years of experience with that in the United Kingdom, there is limited experience with it in the United States. The Grim Sleeper is, I think, the most dramatic success but it is not the only success. The biggest problem with this technique, at least operating on the current CODIS markers is that it is not very efficient.

We calculated in 2006 that a person with an averagely rare or an averagely common set of CODIS markers would have somewhere around 2,000 to 3,000 potential family member matches in the CODIS database. And that is when the CODIS database was one quarter of its current size. So someone with an average genotype will throw up 8,000, 9,000, 10,000 hits. Now on one hand, you can view that as a civil liberties disaster if all 10,000 of those people get interviewed and have DNA taken.

On the other hand, the police are not going to interview 10,000 people. It going to be a limited procedure because the cost, most of the time it will throw up too many potential leads, the leads will need to be winnowed down geographically or through other DNA markers, or it will have to be in a case that is of such importance that the investigators are willing to put a great deal of time and effort into it. It will be a contributor, it will not be a huge contributor.

The costs are also real but limited. There are some privacy costs, there are some costs in terms of the inconvenience of being a suspect. I haven't been a suspect since I was a teenager and was pulled over, I didn't like it. I wouldn't like it now, I think. One of the advantages of a DNA-based suspect status, though, is that it is almost impossible for you to be falsely convicted, or even falsely tried. If there is crime scene DNA, and you are not a match for

that crime scene DNA, you will not be prosecuted and you will not be convicted. However, the mere fact of being interviewed by the police is perhaps not the most enjoyable of circumstances for anybody involved.

The other cost, and to me back in 2006, and again today, this is my biggest concern about it because of the ethnic makeup of the CODIS database, this cost will disproportionately fall on the African American community. That is not fair. On the other hand, right now, the cost of investigations and the cost of crimes fall disproportionately on the African American community. You may be investigated for reasons other than DNA, but the investigations will still focus the suspects—because of the crime conviction rates, the suspects are likely to be disproportionately African American today. At least this is a technique that cannot lead to a false conviction. It is very, very difficult for it to lead to a false conviction.

The last point I would make in the long run, this technique can be made better by adding different genetic markers, additional genetic markers to the 13 CODIS markers. But as my written testimony points out, those raise some really complicated issues of their own, that is part of what California's doing with the Y chromosome is adding a different set of markers. That leads to a better result, both for law enforcement and for the public because there will be fewer false positives, the results will be more useful and fewer innocent people will be interrogated, but there are things that need to be considered, so I think the idea of having the Attorney General look at and make regulations here is quite important.

On balance, I think this is a useful procedure, it is not a panacea, it has costs, it is not a monster. It needs careful scrutiny and regulation. This bill's provision for the Attorney General to make regulations provides that. I hope you will support the bill.

Mr. SENSENBRENNER. Thank you, Professor Greely.

[The prepared statement of Mr. Greely follows:]

Prepared Statement of Henry T. Greely,*
Deane F. and Kate Edelman Johnson Professor Law, Stanford Law School

"The sins of the fathers are to be laid upon the children." [1]

This biblical-sounding quotation is actually from *The Merchant of Venice* but what Shakespeare meant by it unclear, as he gives the line to the play's fool. The Bible itself, at least in the King James version, does not use exactly this language, but in at least five places expresses similar sentiments about the Lord visiting the "iniquity" of the fathers on several generations of children.[2] On the other hand, Ezekiel states "The son shall not bear the iniquity of the father, neither shall the father bear the iniquity of the son: the righteousness of the righteous shall be upon him, and the wickedness of the wicked shall be upon him." [3]

In recent years new uses for forensic DNA matching have provoked similarly mixed reactions about the family connections and, perhaps not sin or iniquity, but crime. Our now "traditional," but, in fact, less than 20 year old, forensic use of deoxyribonucleic acid ("DNA") compares DNA profiles from crime scene DNA to either the profiles of particular suspects, or, through DNA databases, the profiles of

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* Deane F. and Kate Edelman Johnson Professor of Law; Professor, by courtesy, of Genetics; Director, Center for Law and the Biosciences; Stanford University. The views expressed in this testimony are not necessarily those of Stanford University—or anyone else. I would like to thank my co-authors from our 2006 paper, Drs. Joanna Mountain, Daniel Riordan, and Nanibáa Garrison.

[1] The Merchant of Venice, Act III, Scene 5, line 1.

[2] See Exodus, 20:5, Exodus 32:7, Numbers 14:18, Deuteronomy 5:9, and Jeremiah 32:18.

[3] Ezekiel 18:20.

people convicted of crimes—and, increasing, of people arrested for felonies or of non-U.S. nationals "detained" by the federal government. This method looks for a perfect or near-perfect match, indicating that the crime scene DNA almost certainly came from the suspect or from a person in the database (or from his identical twin). Family forensic DNA is a technique used when there is no perfect match, in the hope of generating investigative leads by seeing whether the crime scene DNA is likely to have come from a close genetic relative of a person in the database.

I was part of a group that published one of the first close analyses of family forensic DNA[4], in 2006, and have continued to follow the issue. I believed then, and continue to believe now, that family forensic DNA, using our current technology, is a weak, inefficient, but occasionally useful method for generating investigative leads. I also believed, and continue to believe, that, although its use is disquieting, it raises no strong constitutional or other legal questions. It does raise a few policy problems, some, but not all, of which can be mitigated by regulating its use. Although it is not a panacea, the federal government should allow its careful use, but also should use the discussion of this technique to consider the future of forensic use of DNA. This bill, which combines a requirement that the Justice Department facilitate the technique's use with discretion for the Attorney General to determine the determine the proper ways to use it, is a good way to proceed.

I want to do five things in this testimony. First, I will explain how family forensic DNA works. Second, I will discuss its weaknesses as a law enforcement tool. Third, I will describe the possible legal and policy issues this tool raises and how they might (and might not) be mitigated. Fourth, I will discuss some possible ways to improve the effectiveness of the technique, though perhaps at the cost of exacerbating some of its problems. And, finally, I want to reflect on the trajectory of our use of forensic DNA and where that trajectory may eventually lead us.

HOW IT WORKS

Each human has two complete human genomes, one inherited from his or her mother and one from the father. The information in each is contained in about 3.4 billion "base pairs"—molecules of adenine (A), cytosine (C), guanine (G), and thymine (T). Each A is paired with a T; each C is paired with G. Together, these base pairs form the "rungs" of the spiraling staircase that is DNA. Almost all this DNA is tucked away in the 46 chromosomes in the nuclei of our cells, 22 pairs of "autosomes," cleverly named chromosomes 1 through 22, and two "sex" chromosomes, the X and Y-chromosomes. Men have one X chromosome, inherited from their mothers (who only have X chromosomes), and one Y chromosome, inherited from their fathers. Women have one X chromosome inherited from their mothers and a second X chromosome inherited from their fathers.

If we think of each base pair as a letter, the "book" that is each of our genomes is about 6.8 billion letters long. This is roughly the same length at *two* complete copies of F.2d—not of one volume, but from the first word of 1 F.2d through the end of 999 F.2d. The copy the human genome that each of us has is almost entirely identical to the copy found in any other human—we differ in only about one base

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[4] Henry T. Greely, Daniel P. Riordan, Nanibaa' A. Garrison, Joanna L. Mountain, *Family Ties: The Use of DNA Offender Databases to Catch Offenders' Kin,* JOURNAL OF LAW, MEDICINE & ETHICS, 34:248–262 (Summer 2006). Much of the analysis in this testimony is drawn from that article, although my conclusions are not necessarily shared by my co-authors on that paper.

Other particularly useful articles on this topic include Frederick H. Bieber, Charles H. Brenner & David Lazer, *Finding Criminals Through DNA of Their Relatives,* 312 SCIENCE 1315–16 (2006); Sonia M. Suter, *All in the Family: Privacy and DNA Familial Searching,* 23 HARV. J. LAW & TECH. 309 (2010); Erin Murphy, *Relative Doubt: Familial Searches of DNA Databases,* 109 MICH. L. REV. 291 (2010); and Natalie Ram, *Fortuity and Forensic Familial Identification,* 63 STAN. L. REV. 751 (2011). Bieber, et al., is the other early discussion of the issue. Suter and Murphy take a more negative view of the technique than I do and are particularly worth reading; Ram provides some actual data about different state policies on the method.

Other published legal articles and notes on the topic include 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 and Comment: A New Investigative Lead: Familial Searching as an Effective Crime-Fighting Tool,* 29 WHITTIER L. REV. 909 (2008); Jules Epstein, *"Genetic Surveillance"—The Bogeyman Response to Familial DNA Investigations,* 2009 U. ILL. J. L. TECH. & POL'Y 141; Jessica D. Gabel, *Probable Cause from Probable Bonds: A Genetic Tattle Tale Based on Familial DNA,* 21 HASTINGS WOMEN'S L.J. 3 (2010); Brett Mares, *A Chip Off the Old Block: Familial DNA Searches and the African American Community,* 29 LAW & INEQ. 395 (2011); Amanda Paddock, *It's All Relative: Familial DNA Testing and the Fourth Amendment,* 12 MINN. J. L. SCI. & TECH. 851 (2011); Mary McCarthy, *Am I My Brother's Keeper?: Familial DNA Searches in the Twenty-First Century,* 86 NOTRE DAME L. REV. 381 (2011); and Jenny Choi, *California and the Future of Partial Match DNA Investigations,* 39 HASTINGS CONST. L.Q. 713 (2012).

pair in a thousand, so our genomes are roughly 99.9 percent identical. But, with 6.8 million base pair, that 0.1 percent difference comes out to about 7 million differences.

Forensic DNA uses those differences to say that crime scene DNA "matches" the DNA of a particular suspect. The chances that two different people (who are not identical twins) would have exactly the same DNA are infinitesimal. But with 6.8 billion base pairs, where should we look for differences? In the mid-1990s, the FBI decided to focus its identification efforts on 13 particular locations in the genome. These locations, known as "loci", are often referred to as the CODIS loci, because the FBI uses them in its Combined Operating DNA Information System (CODIS).

The FBI chose thirteen loci where our genome "stutters." These are short tandem repeats, sometimes called satellite tandem repeats. A CODIS locus might, for example, consist of a stretch of chromosome 8 where a four base pair sequence, say ATTG, repeats itself. On some copies of chromosome 8, there might be seven repeats; on others, three repeats; and on still others, twelve repeats. These thirteen CODIS loci are all found on the autosomes (chromosomes 1 through 22), so each of us has two copies of the each of those chromosomes, and so two copies of each locus—one inherited from our mother and one from our father. On one locus, for example, I might have five repeats on one chromosome and eight on another. On another, I might have six repeats on one and eleven on the other. My CODIS profile is thirteen pairs of numbers, two for each of the thirteen loci, where each number represents the number of times a sequence of bases repeats.

Those thirteen pairs of numbers are my "identity code," because the chances that any human being (other than my identical twin), alive today or at any time during our species existence, shares the same thirteen pairs of numbers are very close to zero. Assume, for present purposes, that each of the thirteen loci has ten different sets of repeat lengths (called alleles), each of which is found in ten percent of chromosomes. The chance that, at any locus, I would share both of my alleles (repeat lengths) with anyone else is about two in one hundred. Two percent is not a *very* low probability—but now extend that from one locus to thirteen loci. Two in one hundred becomes roughly 8,000 in 100 septillion, or about one in 10 sextillion—one in 10,000,000,000,000,000,000,000.

The actual percentages are calculated in a more accurate and complicated way, but this approach leads to courtroom testimony that the chances that some DNA came from someone other than the defendant (or his identical twin) are one in many trillions or even quadrillions. This is the power of DNA for identification and courts (and police, prosecutors, and defense counsel) have been using it with confidence for over 15 years.

The FBI did not have to choose these particular CODIS markers. The United Kingdom, which has an older and (as a proportion of its population) bigger database, uses ten loci, only some of which are used by the FBI. The FBI was looking for loci that were easy to analyze, using the technology of the mid-1990s, and that had a lot of variation across all humans. Many other short tandem repeats could have been used, as well as many other kinds of variation in the genome, but the CODIS markers work perfectly well for identification. When crime scene DNA is analyzed for its CODIS markers, the resulting profile can be compared to the CODIS profiles of suspects, or, through a computerized search, with the CODIS profiles of the roughly 10 million people whose profiles are in the FBI's Offender Database. A perfect match means it is almost certain that the crime scene DNA came from the person with the same recorded CODIS profile.

The Offender Database contains the CODIS profiles that Congress has authorized the FBI to collect and include, both from the federal judicial system and from state systems. The boundaries of the CODIS system have changed over the years, but they now include profiles from people whose DNA is authorized by federal or state law to be collected and put into such a database. These may be people convicted of various crimes—at this point, all felonies and some misdemeanors—or people arrested for felonies, or non-U.S. nationals detained under federal government authority. All the profiles must include the CODIS markers and states submitting profiles to CODIS have to meet various requirements. As of February 2012, the Offender Database in the National DNA Index in CODIS contained over 10,560,300 profiles. The FBI reported that the database had assisted over 166,700 prosecutions during its existence. This assistance had been provided when a profile determined from crime scene DNA had been checked against the CODIS Offender Database and a match had been found.

But what happens when a match is *not* found? Is the database then useless?

Note that in all the above discussion, I have excepted identical twins. Identical twins have the same genomes and hence the same CODIS markers. They are a special case of family forensic DNA—if crime scene DNA matches perfectly the profile

of someone in the Offender Database, but that person could not have been the perpetrator (because, for example, he was in prison at the time of the crime), but he had an identical twin, that match could implicate the twin.

Most of us do not have identical twins, but we all have or had parents and many of us have siblings or children. Our genetic first-degree relatives—parents, siblings, or children—do not share all of our genetic variations (unless they are identical twins) but, on average, they share half of them. Two people randomly chosen from the population will, on average, share eight to nine of the 26 CODIS alleles; two first-degree relatives will, on average, share 15 to 17 of them. This is because relatives get their variations from the same people. Two genetic brothers *must* have inherited their CODIS markers from among their parents' markers. If, for one marker, one parent had six and eight repeats and the other parent had three and eleven repeats, the siblings must have either a six or an eight or a three or an eleven. On average, at any given locus, they will have identical markers 25 percent of the time, they will share one marker 50 percent of the time, and they will share neither marker 25 percent of the time.

In fact, because their parents will sometimes have the same alleles—one parent has, say, five and seven repeats at one CODIS locus and the other has five and nine—siblings will, on average, share more than 13 alleles. In the European-American population, siblings will, on average, share both alleles at five CODIS loci, share one allele at seven CODIS loci, and share no alleles at one CODIS locus. Thus, on average, they will share 17 alleles.

The pattern for parent-child matches is a little different. Every child *must* have at least one allele from each genetic parent. If one compares the CODIS profile of a father and son, the son *must* have one of the father's alleles at each of the thirteen CODIS loci—because he got one of his two alleles at each locus from his father. Again, because the father and mother are likely to share some alleles, the actual average match between father and son will be more than 13 alleles. Among European-Americans, the average parent and child will match on about 15.7 alleles. This is fewer than the average siblings, but the parent-child pattern is distinctive; unlike the siblings, a parent-child pair *must* match at at least one of the two alleles at each locus.

This is the key to family forensic DNA. If crime scene DNA does not perfectly match the profiles of anyone in the Offender Database, it might match some of those profiles much more closely than one would expect. That might be a result of chance—or it might be the result of the crime scene coming from a close genetic relative of the person in the Offender Database. The close relatives of the person in the Offender Database could become leads, to be investigated to see if they might have been the source of the crime scene DNA. An interview might, for example, establish if the relative had a solid alibi or not. If enough evidence were collected to provide probable cause, the relative's DNA could be taken and directly tested to see if it matched the crime scene DNA. The partial, family match would no longer be relevant. The suspect's DNA profile either would or would not match the crime scene DNA profile; the family match would have only been the reason to investigate this person, it would not actually be evidence in court against him.

The British became using family forensic DNA as an investigative technique nearly a decade ago, with occasional success. At least two high profile American cases have used variations on family forensic DNA. The Grim Sleeper case from Los Angeles is the purest example. The suspect was ultimately identified because the profile of the crime scene DNA bore a close resemblance to the DNA profile of his son, who was in the Offender Database as a result of his own run-ins with the law. The police interviewed the son, learned that his father had lived in the area of the crimes, and proceeded to investigate and ultimately arrest the father.

This use of family forensic DNA, the kind most commonly contemplated, basically asks the CODIS Offender Database, "are there people in the database whose DNA profiles indicate they are likely to be closely related to the person who left the crime scene DNA." Unlike traditional CODIS searches, these will not turn up perfect matches, but only partial matches, but matches that are sufficiently good to raise an inference of a family relationship.

The term "partial match" needs to be used with care. "Partial match" has meaning in forensic DNA totally apart from family forensic DNA. In some cases, the crime scene DNA is degraded or damaged and not all 26 alleles can be derived from it. If, for example, only 20 alleles can be analyzed from the crime scene DNA and a suspect matches on those 20 alleles, this raises questions about what the odds are that the match is not coincidence. Family forensic DNA presupposes having all the alleles from the crime scene DNA but only having some match; "partial matching" has usually meant having only some of the alleles from the crime scene DNA but having all of those alleles matching. I believe there has been some confusion about

whether state regulations governing partial matches were meant to apply to family forensic DNA.

The BTK case from Kansas provide a somewhat different example of using family forensic DNA. The police had plentiful crime scene DNA, but when they finally identified a suspect, they had no DNA from him. They got a court order to force a health clinic to provide a tissue sample from the suspect's daughter. This was then checked to see if the crime scene DNA could have come from her father. When they concluded it could have, they got a DNA sample from the father, which matched the crime scene DNA. A guilty plea followed.

THE WEAKNESS OF FAMILY FORENSIC DNA

The biggest weakness of family forensic DNA is that, as an investigative technique, it is just not very good. It will almost always produce many false positives, people whose DNA profiles indicate that they *could* have family members who left the crime scene DNA but who did not. Additionally, the technique can produce false negatives, by not finding people whose close relatives actually did leave the crime scene DNA.

The false positive problem is large. Although, on average, parents and children will share about 15 to 16 alleles and unrelated people will share about 8.7 alleles, some unrelated people will share more than 8.7 alleles—some, in fact, will share more than 16 alleles. The larger the number of profiles in the database, the greater the chance of false positives.

Consider, for example, father-son matches. Each son *must* match his genetic father at at least one allele at each locus. What happens if one asks the CODIS system to identify everyone in the Offender Database who could be a parent (or child) of the source of the crime scene DNA—everyone who has at least one allele identical to the crime scene DNA at each of the 13 loci? In 2006, we calculated that the chance that crime scene DNA with an "average" set of alleles would be consistent with a parent-child relationship with a random profile from the Offender Database. We concluded that a DNA profile of average rarity would be a "parent-child" match to between 2,000 and 3,000 profiles in the Offender Database. When we made those calculations, the Offender Database had 2.75 million profiles; today it has over 10.5 million profiles. The average crime scene DNA should now produce 7 to 12 thousand possible "relatives." All or all but one of them will be false positives. If the crime scene DNA has a particularly rare set of alleles, there may be no false positives; if it has the most common set of alleles, there may now be over 100,000 false positives. And as the Offender Database gets larger, these problems will only get worse.

Of course, one could cut down on false positives by tightening the requirement for a match. Instead of just requiring one match at every locus in order to raise suspicion of a parent/child match, one could require one match at every locus plus two matches at two or three loci. This is in line with the average number of matches expected, but it means that a true family match might be missed. If the parent (or child) of the actual source of the crime scene DNA is in the Offender Database, he might match at only 13 or 14 loci, not 15 or 16. The higher we set the bar, the fewer the false positives, but the greater the risk of false negatives.

This is even truer of sibling/sibling matches, as siblings do not have the same kind of minimum match as parents and children do. Two siblings could, in theory, match at every allele or match at none. If one set the standard for a possible sibling/sibling match so that it would have a false positive rate similar to that discussed above for parent/child matches, about 40 percent of actual sibling matches would be missed. If one set the false positive rate much lower, at, say, one in 100,000, leading to less than 100 false positives on average with today's Offenders Database, one would miss about eighty percent of actual sibling/sibling matches.

As with most tests, there is an inevitable trade-off. The lower the rate of false positives, the higher rate of false negatives, and vice versa. But there is yet another problem with the accuracy of family forensic DNA. We have been talking about false negatives on the assumption that the source of crime scene DNA actually has a close relative in the Offender Database but that the comparison does not reveal the relationship. If the source of the crime scene DNA does *not* have a close relative in the Offender Database, the only positives that family forensic DNA could find would be false positives.

Family forensic DNA is, therefore, not a very good source of leads. It will usually throw up a vast number of possible suspects and, depending on where the line is drawn, it may well miss the actual perpetrator. It will almost always require substantial traditional police work to follow up the leads, work that, unlike a family search on CODIS, will eat up scarce police resources. It may be useful in high pro-

file and difficult crimes, it may be difficult in crimes where the crime scene DNA has a particularly set of variations, but it will not, at least as currently feasible, put a major dent into crime.

ISSUES WITH FAMILY FORENSIC DNA

As set out in detail in our 2006 article, there seem to be no strong constitutional or other legal objections to the use of family forensic DNA. At first glance, it might seem to run afoul of the broad legal prohibition of "corruption of blood," both in the Constitution (for the crime of treason) and in the constitutions and statutes of many states. But those prohibitions concern punishing innocent people for the crimes of their relatives, not of making people potential suspects based the crimes of their relatives.

If, in a line-up, the victim says "the mugger was not number 3, but he could have been his brother," nothing prevents the police from investigating to see if "number 3" has a brother and his whereabouts at the time of the crime. Similarly, relatives of organized crime bosses are likely to be under increased suspicion of involvement in mob crimes. Family relationships are a clue that may properly lead to investigation. It feels "unseemly" to make someone a suspect based on the crimes of his relatives, but I see no good argument that it is unconstitutional, or even, in general, a bad idea.

This conclusion is particularly strong in the DNA context, where a false positive family connection can almost certainly *not* lead to a false conviction. Once a relative is identified, his DNA can be taken (voluntarily or, with probable cause, by legal action) and compared with the crime scene DNA. If he did not leave the crime scene DNA, no matter how closely the crime scene DNA matches that of his relative in the Offender Index, it cannot match his own DNA. The DNA evidence *must* exonerate the false positives.

The chance of false conviction, however, is not the only cost to being falsely identified as a suspect. Being interviewed by the police will often be a time-consuming and stressful experience, even for people who know they are innocent. The family suspect may not seriously risk false conviction, but neither will he be compensated for the time, anxiety, and possible embarrassment the investigation causes.

Three other issues deserve mention: the possible revelation of family secrets, possible unfairness to groups that are relatively genetically homogenous, and possible unfairness to groups that are disproportionately represented in the Offender Database.

Family forensic DNA is using possible family relationships to look for suspects. By looking at genetic evidence for family relationships, though, the technique could reveal facts about those relationships that are unwelcome, unknown, or both. These facts are most likely to involve so-called "false paternity"—the situation where a child's genetic father is not, as a result of adoption, sperm donation, or other sexual partners, the man accepted as the genetic father. (The "preferred" term for this is "misattributed parentage," but "false maternity" is, for understandable reasons, quite rare.)

It is easy to find geneticists who will say that in various genetic studies, five to ten percent of children have "unexpected" genetic fathers. There is a real dearth of actual published evidence on the frequency of false paternity and some of the published evidence points to much lower rates. It does seem likely, though, that the rate is high enough to be non-trivial—and disconcerting to men who think they are genetic fathers.

It is possible that family forensic DNA could reveal cases of false paternity. If, for example, crime scene DNA is consistent with the suspect being the son of a particular person in the Offender Database, the "offender" could be asked about his children and his sons could then be questioned. If the interrogation included a DNA sample, its analysis might show definitively that there can be no parental link between the two men. Analysis of the CODIS markers could not rule out, definitively, the possibility that two people were siblings, but could make that result extremely unlikely.

This information might, or might not, already be known, or suspected, by those involved. If the investigators do not reveal it, it seems no concrete harm would be done, though people could still be understandably upset that the government learned either secret or previously unknown about their family connections. Alternatively, if the family members subsequently discovered the government had this information, they might complain that they were not told; there are, for example, some potential medical benefits to having an accurate understanding of one's family history. If the investigators did reveal the information, though, the chances of disruptions of the family ties—and perhaps even of violence directed against the moth-

er—seem quite real. There seems to be no investigative reason to disclose the results; if the son or brother presumably was ruled out as a suspect by the DNA analysis whether or not he was related to the person in the Offender Database. Prohibiting, or greatly limiting, the dissemination of this kind of family relationship information seems proper.

Second, some populations are more closely genetically homogenous than others. A small and relatively isolated Native American tribe or a group of immigrants from one community in, say, Southeast Asia, for example, is likely to have much closer family relationships, and hence much more genetic similarity, than, say, "European-Americans" or even "Irish Americans." If the crime scene DNA came from a member of such a population, a higher percentage of people from that group who are in the Offender Database will be indicated as possibly related to the source of the crime scene DNA. Law enforcement should be aware of this bias in the method and treat the community sensitively.

Finally, and, to my mind, most importantly, the results of family forensic DNA searches of the CODIS Offender Database will be skewed in the same way that database is skewed. Most notably, African-Americans are convicted of felonies at roughly three times the rate of their roughly 13 percent share of the population. One can debate endlessly the reasons for this disproportion; for present purposes it is enough that it exists. The result is that, on average, a higher percentage of the African-American population is likely to be closely related to someone in the Offender Database than of most other American populations. The people identified as potential suspects by this method are therefore much likelier to be African-American than people randomly chosen from the population. This could be seen as unfair "special surveillance" of the African-American population, and particularly of innocent members of the population whose only suspicious action is to share DNA variations with someone in the Offender Database.

At the same time, African-Americans are already likely to be suspects at a disproportionate rate, for whatever reasons lie behind the conviction disproportion. And much of the crime committed by African-Americans victimizes other African-Americans. Still, widespread use of family forensic DNA, with its vast number of false positives bringing under suspicion many innocent people, could well be seen by many African-Americans as another "racist" action by the American criminal justice system. Although these concerns about family forensic DNA do not seem to me to rise to the level of a possible constitutional violation, the public reaction could still be real and problematic.

POSSIBLE IMPROVEMENTS IN THE EFFECTIVENESS OF FAMILY FORENSIC DNA

The biggest problems of family forensic DNA stem from its inaccuracy. It is likely to be throw up so many possible family connections that its use will often impose costs, in police time and in the costs to innocent family members of being, even briefly, suspects, as to limit its use to only very unusual cases. These would be cases where the rarity of some of the alleles in the crime scene DNA greatly limits the number of "hits" or where the difficulty and importance of solving the crime justifies spending great resources. This inaccuracy can be combated, in ways both mundane and scientific, though these solutions raise their own problems.

One problem in implementing family forensic DNA is the need to find out whether someone in the Offender Database who is identified as a possible relative of the source of the crime scene DNA in fact has any relatives who might have been that source. This will typically involve finding and interviewing the "offender," as well as hoping for his cooperation. This step could be eased if a computerized record existed of the relatives of everyone in the Offender Database. A simple questionnaire at time of conviction or arrest could provide such information and then a database search could quickly narrow down the possible family connections to only those with relatives—and could give priority to investigating the families of those who have relatives of the expected sex, age, and geographic location to have been involved in the crime. The problem is that it seems hard to justify asking a newly arrested or convicted person about his relatives and even harder to make a case that answering such questions should be required.

The technical approaches are more promising, but they, too, have problems. CODIS is just not a very good system for determining family relationships. With only 26 alleles, the chances are fairly good that some non-relatives will randomly match the crime scene DNA on enough alleles to signal a possible family relationship. That chance grows with the Offender Database. This is the fundamental cause of the vast number of false positives with this technique.

Using more alleles can make the process much more accurate. Our 2006 paper calculated that by adding 20 more loci similar to the existing CODIS markers, the

chances of a false parent/child match would be about one in 200 million, reducing the number of false positives from hundreds or thousands to a handful or fewer.

California's implementation of family forensic DNA uses a similar expansion of alleles to narrow the number of false positives. It requires the authorities to check Y chromosome markers from the offender and the crime scene DNA and only authorizes proceeding to investigate the family match if the Y chromosome markers also match. Men inherit their Y chromosomes from their fathers. If two people have identical sets of markers on their Y chromosomes, they are very likely to share an ancestor in their paternal line. They might be father and son, brother and brother, or cousins who are both the sons of brothers. They may also be more distantly related, but the Y chromosome is sufficiently variable in human populations that exact Y chromosome matches will be rare. The existence of a Y chromosome match does not itself indicate guilt—innocent brothers will share the same Y chromosome—but use of Y chromosome matching will pare down the number of leads enormously, again reducing the number of false positives. This both improves the efficiency of the process for the police and cuts the number of innocent people who will be, however briefly, suspects.

The alleles examined on the Y chromosome share with the CODIS loci the virtue of having no known (or likely) medical or physical consequences. They seem to be so-called "junk" DNA, useful only for identification. One problem with the Y chromosome is that it is only found in men. Neither crime scene DNA from a woman nor the DNA of any women in the Offender Database could be checked against the Y chromosome. As over 90 percent of convicted felons are male, this is a concern, but not a huge one. And other parts of the genome that are similarly variable to the Y chromosome could be checked from women.

A bigger problem with using Y chromosome matching as part of family forensic DNA, though, is that the Y chromosome alleles have not been analyzed for the 10.5 million people already in the Offender Database. To do that analysis would require either re-analyzing the saved DNA sample the "offender" earlier provided—if it was saved—or acquiring a new sample. The costs of doing that for over ten million people, or even of finding many of them, would be quite high. On the other hand, one could do it a case at a time, seeking to analyze only the Y chromosomes of those "offenders" picked out by the family forensic analysis. This requires DNA from those "offenders" to be readily available or to be easy to re-acquire. It is hard to see a justification for forcing an offender to provide another DNA sample to investigate a crime that, as the result of the lack of an exact match, we *know* he cannot have committed. It might be possible to obtain a search warrant requiring a new DNA sample, but the more positive family matches there are, and, as a result, the lower the chance that any one of the offenders involved in those positive matches is actually related to the source of the crime scene DNA, the harder the case would seem for show probable cause.

One could also use other technical solutions. A common tool for genetics and genomics research, with some commercial uses, is the so-called "SNP chip." This device allows the operator to determine, cheaply and quickly, which base (A, C, G, or T) a person carries at locations known as "single nucleotide polymorphisms" ("SNPs"), where substantial percentages of the population carry different bases. These SNP chips can quite easily examine hundreds of thousands or even millions of these SNPs. While the chance that two unrelated people might share 13 of the 26 CODIS alleles by chance is not necessarily small, the chance that two unrelated people would share 300,000 out of 600,000 SNPs is vanishingly small. SNP chips could determine the existence of a wide range of relationship, not just first-degree relationships like parent/child or sib/sib, but uncle/nephew, cousin/cousin, and others. SNP chips could easily replace the CODIS loci entirely.

This solution, though, also has problems. It shares one with the Y chromosome tactic—it would require re-analyzing DNA from the entire 10.5 million person Offender Database in order to use it to search that database. But it has another problem. Unlike the CODIS loci or the commonly analyzed Y chromosome markers, many of these SNPs are associated with particular diseases or other genetic traits. Doing a SNP analysis for forensic purposes does raise all the privacy questions that are avoided when the genetic variations being used seem to be useful only for identification.

Improving the efficiency of family forensic DNA is both possible and, if the method is to be used at all, valuable both to police and to innocent potential suspects. If this bill passes, the Attorney General, in promulgating regulations, should give serious consideration to these ways to minimize false positives. But each of them poses serious challenges.

THE TRAJECTORY OF FORENSIC DNA

I cannot leave this topic without noting the trajectory of forensic DNA use. Governments initially required DNA samples from people convicted of the most serious felonies, usually murder and sexual assaults. Then they began to require DNA samples from people convicted of less serious felonies or of serious misdemeanors or from juveniles found delinquent for reasons that would, had they been adults, been felonies or serious misdemeanors. More recently, first states and then the federal government required DNA samples from people charged with felonies, whether or not they were then, or ever, convicted. (The constitutionality of these statutes under the Fourth Amendment continues to be debated in federal and state courts across the country.) Federal legislation now authorizes the mandatory collection of DNA from non-U.S. persons "detained" under the government's authority, whether or not charged with a felony or any crime. And just last month, the State of New York passed legislation requiring DNA samples from people convicted of most misdemeanors.

The trajectory has clearly been to collect more and more DNA from people with decreasingly serious involvement with the criminal justice system. Advocates have argued, and most judges have agreed, that people with those connections to the criminal justice system have forfeited some of their rights as a result of their convictions, arrests, or detainments. Family forensic DNA is a technique that uses the DNA provided under those statutes to extend the reach of forensic DNA to people who have not necessarily had *any* contact with the criminal justice system, let alone conviction or charge—people whose only link is that they are related to people who were convicted or arrested or detained. It is a logical and scientifically useful outgrowth of the earlier collections, not, I think, a planned consequence of those databases but a clever way to use them to solve more crimes, based on the reality that genetic variations run in families. This bill would take that informal and almost accidental growth and give it the force of law, providing a legislative endorsement of the extension of forensic DNA to catch people who had no prior record of conviction, arrest, or detention.

This makes sense as a way to catch more criminals and its costs to the innocent are low. But if we really want to maximize the value of forensic DNA, why stop with (the usually innocent) first degree relatives of those convicted, arrested, or detained? The logical size for a forensic DNA database, at least once forensic DNA is cut loose from its mooring to an individual's involvement in the criminal justice system, is universal. A truly universal forensic DNA database would make family searching obsolete—the family members you might find would already be in the database. And it would also end the ways family searching discriminates against people whose family members were convicted, arrested, or detained.

In fact, an unplanned and impromptu version of such a universal database may be on its way. The cost of genomic analysis, and even of sequencing a person's entire genome, has been falling dramatically. The medical value of that information has been increasing steadily, although, unfortunately, not as dramatically. Within a decade scores, if not hundreds, of millions of Americans will have substantial genomic information in their clinical electronic health records, information that will be perfectly useful for identification—and that is only a court order away from the scrutiny of the government (or, in some cases, private litigants).

A universal DNA forensic database seems to me politically impossible today. At any time, such a database would be fraught with concerns about privacy and misuse. (I would note that restricting such a database to genetic information useful only for identification and not for any other purpose, unlike the information in medical records, would be a useful way to handle some of those concerns.) Whether such a database could be justified as a matter of policy would depend crucially on the protections that came with it. Whether a mandatory universal database could be justified constitutionally is another thorny question; my guess is that it would not be upheld as a mandate but might be upheld as a condition to participation in some governmental program for which definite identification is useful, like a driver's license, Social Security, or Medicare.

Foreign countries and political leaders have toyed with the idea of a universal DNA database, including the democratic government of Portugal and the former prime minister of the United Kingdom, Tony Blair. It is *not* a question for this subcommittee today, or, I suspect, any day soon. But endorsing the use of family forensic DNA and using DNA to make suspects of people with no prior personal connection to the criminal justice system takes us one logical step toward a universal DNA database—and would make the day when that discussion is necessary draw nearer.

CONCLUSION

I support H.R. 3361, although with reservations. It is not a panacea. It will not solve a large number of crimes, but it will solve some crimes, at some cost to the public in convenience, in privacy, and in their presumed innocence. If managed well by the Attorney General's regulations, that (small) cost seems to me likely to be a cost that is likely to be outweighed by the technique's (also fairly small) benefits. The technique should be used responsibly and ways to improve it—for the benefit of both the police and the public—should be explored and debated. But this bill should also make us think about where we want the use of forensic DNA techniques and databases to go. If all the bill does is to spark a realistic discussion of that question, that alone may make it worthwhile.

Mr. SENSENBRENNER. Mr. Risher.

TESTIMONY OF MICHAEL T. RISHER, STAFF ATTORNEY, AMERICAN CIVIL LIBERTIES UNION FOUNDATION OF NORTHERN CALIFORNIA

Mr. RISHER. Thank you, Mr. Chairman. The virtue of criminal DNA evidence in our criminal justice system is that it is incredibly precise as we just heard from Professor Greely. The problem with familial searching is it turns that precision on its head, it is inherently imprecise. We are not finding the exact match in the system, instead we are finding people who are kind of close, they may be family members. And it is this inherent imprecision that leads to many problems, regarding privacy, efficiency, efficacy and basic fairness.

We should remember that we are talking here not about whether familial searching should be used in individual cases by the States, but whether the FBI should be using it nationally. And using it nationally generates particular problems. So what are some of those problems?

The imprecision means that familial searching can invade privacy, familial privacy, personal privacy, genetic privacy. Law enforcement may find out information about blood relationships that family members are completely unaware of. The families may learn of those; that can be incredibly disruptive to families. It can lead to investigation, interrogation, even harassment of perfectly innocent family members simply because they have a family member who has been arrested or convicted.

The imprecision means the familial searching has monetary costs. It costs money to go and retest 800, 1,000 samples which is a necessary part of familial searching. We don't have an infinite amount of money for our criminal justice system, and that money could be better spent. We could test some of those thousands upon thousands of rape kits with money that otherwise would be used for familial searching.

The imprecision means that familial searching is inherently unfair. We have never, in our country, had a system that focuses suspicion on people because of their blood, this is guilt by blood as some people have called it. It is going to affect people with larger families, it is going to affect people of color, it is going to affect poorer people, because those groups are more likely to have a relative who is in the CODIS system either because of an arrest which may never have been prosecuted or because of a conviction.

And it is simply unfair to focus on one subgroup of people for those reasons, while potentially ignoring people who have done the same or worse crimes who are fortunate enough not to have a relative in the CODIS system.

Finally the imprecision means that familial searching is not particularly effective, and unlike—we heard, I think, one case out of 13 in California where I practice where it came up with results, we don't know, we don't have the information to see how much cost in terms of money, societal costs were incurred in those other 12, unsuccessful investigations. The odd thing about familial searching, as you have heard, is with most DNA databanks, to some degree, the larger the databank, the more benefit you get. With familial searching, that is not true. If you have an enormous databank, you get so many false positives, so many false near hits, that the process becomes less efficient, which is an important consideration when talking about expanding it to the national level as opposed to leaving it to the States as is done right now.

So because of this imprecision, and because of these societal and monetary costs, Congress should consider the issue very closely before expanding familial searching, taking it away from the States in a sense, and giving to the FBI to do and the national databank. Quite frankly, with the available information which is not great, we take the position that the costs outweigh the benefits of taking this national.

If Congress does disagree and decide to authorize the FBI to use this technique it needs to ensure that civil liberties, that familial privacy, and that efficacy are protected. And the draft bill does that in some ways. It requires that it be used only for very serious cases. It requires the States certify they have privacy protections in place; it requires reporting on the results. But there are two big gaps. And one of them is other investigative techniques be used and exhausted first. California does that, I hear Virginia does that, that is in the Wiretap Act, that should be added to any bill under consideration.

And finally we need judicial authorization. The history of this country, our Constitution showed that when privacy is going to be invaded in a serious way, the decision to do that should be made by a neutral magistrate, not by law enforcement officers who, of course, have a great incentive to try to solve crimes, that is their job; it is the job of a judge to weigh the value of crime solving techniques against the cost to society.

So that is where we come out. If Congress does decide to authorize this technique, I think it should very seriously consider the cost and benefits and should protect privacy in the statute rather than leaving it up to the regulations, thank you.

[The prepared statement of Mr. Risher follows:]

Prepared Statement of Michael T. Risher, Staff Attorney, American Civil Liberties Union Foundation of Northern California

Statement of Michael T. Risher, Staff Attorney

American Civil Liberties Union Foundation of

Northern California

At the April 25, 2012 Hearing on

H.R. 3361, the "Utilizing DNA Technology to Solve Cold Cases Act of 2011"

Before the House Judiciary Subcommittee on Crime,

Terrorism, and Homeland Security

Good morning Chairman Sensenbrenner, Ranking Member Scott, and Members of the Committee. Thank you for the opportunity to testify on behalf of the American Civil Liberties Union (ACLU) and its more than half a million members, countless additional activists and supporters, and fifty-three affiliates nationwide, about familial searching.

INTRODUCTION

In recent years, DNA-related technology has revolutionized the criminal justice system, helping to convict the guilty and free the innocent. It has proven to be a more precise method of linking perpetrators to crimes scenes than methods such as eyewitness testimony, fingerprints, or other forensic identification techniques.

Familial searching takes DNA technology in a new direction, one that no longer involves finding a direct match between a crime-scene sample and a perpetrator's sample. Instead, familial searching compares a crime-scene sample to scores of DNA samples taken from people who are demonstrably innocent of the crime (because their DNA does not match the crime-scene sample) in the hope that one of those known samples may belong to a blood relative of the perpetrator. Further DNA testing, analysis, and investigation are necessary to determine whether the perpetrator can be identified in this manner, a process that often will involve investigating multiple innocent family members.

Familial searching is qualitatively different from more established DNA techniques: it is inherently less precise; it implicates people in criminal activity because of who their family is and the size of that family, rather than what they have done; and it focuses investigative attention on people who are known to be innocent. Because of these differences, it is important that Congress take an active role in determining how this technique will be used.

If Congress determines that the benefits of familial DNA searching outweigh the fiscal and social costs, it should do what it did in the context of wiretapping and create a statutory framework to ensure that this powerful emerging technology is used appropriately, in ways that respect personal and family privacy and other constitutional values. Specifically, Congress should draw on the models provided by wiretap laws and require the government to obtain authorization from a neutral magistrate before engaging in familial searching. It should also limit the use of familial DNA searches to very serious cases that present a continuing threat to public safety, and require law enforcement officials to exhaust other alternatives before using this invasive technique, as does the wiretap law and California's familial-searching protocol. Finally, fundamental federalism principles mean that individual states have a right not to expend their resources assisting with familial DNA searching, particularly because the laws of many states expressly or implicitly forbid such assistance. Any protocol will have to take this into account. These safeguards will help ensure that familial DNA searching is appropriately limited without interfering with the legitimate use of the technique.

A Very Brief Introduction to DNA Databanks and Familial Searching[1]

DNA databanks comprise two distinct components: the actual biological samples and the computerized database of the profiles generated by analyzing these samples. In criminal-justice databanks, the biological samples are collected from crime scenes (forensic samples) and from known individuals (known samples). Until recently, known samples were usually obtained by drawing blood, although now most states and the federal government primarily obtain samples by swabbing the inside of a person's cheek to collect skin cells.

The government analyzes both forensic samples and known samples to create DNA profiles, which are essentially a digitized description of twenty-six parts of a person's nuclear DNA. The profiles are then uploaded to the Combined DNA Index System (CODIS), a centralized, searchable law enforcement database accessible to state and federal law-enforcement agencies. CODIS was created by the FBI in 1994 after Congress authorized it to establish a national DNA database to link existing state and local databanks. The biological samples themselves are retained by the local police or crime lab for later testing.

Once an arrestee's profile is uploaded into CODIS, it is compared to the thousands of crime-scene samples in the CODIS forensic database. As long as the arrestee's profile remains in CODIS, any new crime-scene samples will be searched against it. When an arrestee profile exactly matches a crime-scene profile, CODIS automatically notifies the agencies that provided the sample. Then that agency will usually provide the identity of the arrestee to the police authority with jurisdiction over the crime so that the latter can follow up.

It is only if there is no match – meaning that the perpetrator's DNA profile is not in CODIS – that familial searching becomes relevant. As the FBI describes the process on its website,

> Familial searching is an additional search of a law enforcement DNA database conducted after a routine search has been completed and no profile matches are identified during the process. Unlike a routine database search which may spontaneously yield partial match profiles, familial searching is a deliberate search of a DNA database conducted for the intended purpose of potentially identifying close biological relatives to the unknown forensic profile obtained from crime scene evidence. Familial searching is based on the concept that first-order relatives, such as siblings or parent/child relationships, will have more genetic data in common than unrelated individuals. Practically speaking, familial searching would only be performed if the comparison of the forensic DNA profile with the known

[1] The first three paragraphs of this section are adapted from Michael T. Risher, *Racial Disparities in Databanking of DNA Profiles*, in Sheldon Krimsky and Kathleen Sloan, eds., RACE AND THE GENETIC REVOLUTION (Columbia Univ. Press 2011), 48-49.

> offender/arrestee DNA profiles has not identified any matches to any of the offenders/arrestees.[2]

The FBI acknowledges several limitations of familial searching: although "a relative must already be in the database in order for the search to identify them as a potential relative of the forensic profile," "regardless of whether or not a relative is in the database, a familial search will always generate a ranked list of potential candidates for evaluation."[3] Under California's protocol, for example, this list may include as many as 168 possible candidates.[4] And "even if a relative is in the database, it is possible that the relative may not be included in the ranked list produced by the familial search." Thus, familial searching will always generate a list of suspects, but this list may not contain a relative of the perpetrator even when CODIS contains a relative's profile, because there may be a large number of profiles that are more similar to the forensic profile than is the relative's profile.

Importantly, allowing the FBI to perform familial searching with the national database will result in much larger candidate lists than are generated when individual states use the same technique in their databases, and the actual familial match may be far down the list:

> The position of a true relative (if in the database) mainly depends on the database size and the specific alleles in the profiles. In a considerable proportion of cases, a true relative may be at the bottom of the list, or even not on the list.... For an evidence profile searched against a database containing 1 million unrelated samples, more than 200 unrelated samples are expected to have higher positions in the candidate list than the true full-sib[ling of the perpetrator].[5]

This is significant because the process of eliminating all the candidates who are demonstrably unrelated to the perpetrator is extremely labor intensive. In order to eliminate candidates on the list who cannot be related to the perpetrator, the lab must analyze a different part of the DNA than is used to create the CODIS profile. Specifically, if the crime-scene sample has been analyzed and determined to belong a male, the lab will test a part of the Y chromosome, which is passed down unchanged from father to son, from the crime-scene sample. Then it will test that same part of the samples on the candidate list until it finds a match or it has tested all the samples

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[2] http://www.fbi.gov/about-us/lab/codis/familial-searching (all webpages visited April 2012).

[3] *Id.*

[4] California Department of Justice, CAL-DNA Data Bank Technical Procedures Manual, at 29 (10/17/08), available at http://www.aclunc.org/news/press_releases/asset_upload_file490_8577.

[5] Ge, Budowle, Eisenberg, & Chakraborty, *Comparing DNA Based Familial Searching Policies*, 21th international Symposium of Human Identification, San Antonio (2010), available at http://www.promega.com/~/media/files/resources/conference%20proceedings/ishi%2021/oral%20presentations/ge.ashx?la=en

on the list without finding a match.[6] To do this, the investigating agency must, for each sample to be tested, contact the law-enforcement agency that is storing the sample and arrange for it to be removed from storage and retested. As the FBI cautions individual states that are considering using the technique, "[i]mplementation of a successful familial search program takes time and requires significant resources and staff."[7] Implementing a nationwide familial search program will require even more resources and staff.

After this laboratory process is complete, "[a]ny offenders not eliminated by the [Y-chromosome] comparison could be patrilineally related to the true perpetrator and will be candidates for further investigation and consideration as potential genetic relatives of the true perpetrator."[8] In California, the next step is a "background investigation" on each possible candidate to see whether that candidate can be eliminated as "a potential relative of the true perpetrator."[9] Any candidate(s) who are not eliminated through this investigation are then identified to the investigating law-enforcement agency for follow up investigation.[10] This investigation may potentially include a wide range of law-enforcement operations, including interviews with family members, associates, or colleagues, surveillance, and other activities that may have impact the privacy or day-to-day life of the individuals subjected to them.

Costs and Benefits of Familial Searching

As a RAND Corporation report recently observed, evaluating the efficacy of CODIS is difficult because "data are seriously lacking."[11] This same difficulty occurs when trying to evaluate the efficacy of familial searching, because there is so little information. One paper that is available reports contradictory conclusions: although it states that a theoretical study at California's crime lab using "artificial families" suggested that there should be a high success rate, it also reveals that of ten familial searches done in California, only one resulted in a possible match that was

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[6] California Department of Justice, CAL-DNA Data Bank Technical Procedures Manual, *supra* n. 4, at 27 ("As part of this process the initial candidate list of offenders' DNA samples will be profiled for Y-STR type, meaning that they will be retested to check for a specifically paternal relationship.").

[7] http://www.fbi.gov/about-us/lab/codis/familial-searching

[8] *Id.* at 28.

[9] *Id.* at 32.

[10] *Id.* at 35.

[11] RAND Center on Quality Policing, *Toward a Comparison of DNA Profiling and Databases in the United States and England* (2010) at 22 ("[D]ata are seriously lacking in the U.S. system. Inadequate and insufficient data are captured by the various labs and CODIS organizations. Very little of the data that do exist and are publicly available are reported to a central repository, such as the FBI."). Available at http://www.rand.org/pubs/technical_reports/TR918.html

reported to the investigating agency; the rest were excluded in the lab.[12] Furthermore, the three partial matches obtained in Colorado that led the FBI and California to allow familial searching all failed to generate a single lead.[13] Although the value of the single match generated by these thirteen searches was great – it resulted in an arrest and prosecution for a string of murders – this means that in the other twelve cases the lab most likely had to perform new Y-chromosome analysis of all the candidate samples – up to 168 in each case – in order to eliminate them, as discussed above. These numbers must be taken into account in weighing the costs and benefits of familial searching.

Even putting aside fairness and civil-liberties issues, a real cost of familial searching is that it takes money and lab time away from other important programs. When resources are spent on familial searching, they cannot be used to, for example, reduce the enormous backlogs of untested evidence in rape cases, a step that would have huge benefits in solving and preventing crimes.[14] As a Detroit prosecutor recently lamented when discussing the 11,000 untested rape kits in her county alone, "[i]f we had the funding to examine and have all of these rape kits tested, we would do that."[15] Every dollar spent one familial searching is one that cannot be spent on this and other important projects.

Moreover, performing familial searching in the national database will involve problems that do not occur when such searches are done in individual state databases. As discussed above, the sheer size of the national database itself will lead to a larger candidate list, and thus the need for more follow-up testing of listed samples. For samples that are maintained by a state other than the one that requested the search, this process undoubtedly will be particularly time-consuming; there will also likely be questions of which state will conduct or pay for the re-testing.

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[12] Myers *et al., Searching for first-degree familial relationships in California's offender DNA database: Validation of a likelihood ratio-based approach*, Forensic Science International: Genetics (2010). The one success was in the so-called Grim Sleeper case.

[13] Erin Murphy, *Relative Doubt: Familial Searches of DNA Databases*, 109 Michigan Law Review 291, 291-92 (2010).

[14] A 2011 report from the National Institute of Justice acknowledges that "It is unknown how many unanalyzed sexual assault kits (SAKs) there are nationwide," but reports that "18 percent of unsolved alleged sexual assaults that occurred from 2002 to 2007 contained forensic evidence that was still in police custody (not submitted to a crime lab for analysis)." National Institute of Justice, *The Road Ahead: Unanalyzed Evidence in Sexual Assault Cases* (2011) at iii, 1 , available at https://ncjrs.gov/pdffiles1/nij/233279.pdf. The report concludes that "[d]elays in evidence being sent to a lab — as well as delays in analyzing evidence — result in delays in justice. In worst-case scenarios, this can lead to additional victimization by serial offenders or the incarceration of people wrongly convicted of a crime." *Id.* at 14.

[15] National Public Radio April 21, 2012, *Untouched, Thousands Of Rape Kits Await Justice*, available at http://www.npr.org/2012/04/21/151113247/untouched-thousands-of-rape-kits-await-justice

And the follow-up testing and investigation of out-of-state samples will be less likely to produce actual results because the perpetrator and his family are, in general, more likely to live in the state where he has committed his crimes than to live on the other side of the country. Finally, there are serious questions about what will happen if a state that receives a request to perform follow-up analysis of a sample in its custody is unwilling to assist with familial searching, perhaps because such searching is expressly prohibited by state law (as in Maryland),[16] because the legality of such testing is unsettled under state law (as in a number of other states),[17] or because the burden such testing could impose. Our federal system would not allow the FBI to compel or conscript state crime labs to perform such testing.[18]

Follow-up investigation outside the lab may also run into a variety of obstacles, many of which are attributable to the reality that family relationships in our society do not always track biological relationships. Some such issues, like the possibility that the person associated with the known sample is adopted or is a step-father or step-son, may be fairly easy to discover, if not resolve, through public records and may not be particularly controversial. But others are more problematic. A 2005 study found that approximately 3.7% of fathers are not, in fact, biologically related to those they believe to be their biological children, usually because of infidelity.[19] This can both reduce the efficacy of familial searching and also vastly increase the social costs of the technique, particularly if this information is disclosed to family members or others in the course of a follow-up investigation, an issue that the study specifically raised as a potential problem.[20] As the authors bluntly put it, "[s]uch knowledge can also destroy families;"[21] it can also lead to domestic violence,[22] situations that are likely to be exacerbated if the family is simultaneously learning that a member is being accused of a serious crime. Even when both parents are aware

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[16] Md. Code, Public Safety, § 2-506(d) ("A person may not perform a search of the statewide DNA data base for the purpose of identification of an offender in connection with a crime for which the offender may be a biological relative of the individual from whom the DNA sample was acquired.").

[17] A 2009 survey found that 17 states that responded prohibited familial searching. *See* Erin Murphy, *Relative Doubt: Familial Searches of DNA Databases*, 109 Michigan Law Review 291, 291-92 (2010).

[18] *See Prinz v. United States*, 521 U.S. 898 (1997).

[19] Bellis *et al., Measuring paternal discrepancy and its public health consequences*, J Epidemiol Community Health 2005; 59:749-754, available at http://jech.bmj.com/content/59/9/749.full.

[20] *Id.* ("[U]sing genetic techniques in crime detection .... can inadvertently uncover inconsistencies in a family's genetics that disclose [paternal discrepancy]. However, while the opportunity to expose [paternal discrepancy] through paternity testing or routine health and judicial procedures has increased, little consideration has been given to the consequences.").

[21] *Id.*

[22] *See id.*

of a child's paternity, other family members may not be. Follow-up investigation may lead a parent to reveal the existence of other biological children that are unknown to other family members. Finally, the mere fact that government officials have become privy to this sensitive information is itself troubling for many Americans, 54% of whom reported that they had little or no trust in law enforcement having access to their genetic information.[23] Our Constitution and laws protect us from government snooping regardless of what the government intends to do with the intimate details it learns.[24]

Familial searching may also lead to an exacerbation of racial and class disparities in our criminal justice system, particularly if it is used routinely, rather than in the exceptional cases where other investigative techniques have failed. As professor Jennifer Mnookin has written about the technique,

> Put plainly, it is discriminatory. If I have the bad luck to have a close relative who has been convicted of a violent crime, authorities could find me using familial search techniques. If my neighbor, who has the good fortune to lack felonious relatives, left a biological sample at a crime scene, the DNA database would not offer any information that could lead to her.
>
> When DNA databases were first put into use, there was much debate about whether they were an impermissible invasion of people's privacy. The argument that generally won out was that convicted criminals gave up some privacy rights. But those people who just happen to be related to criminals have not given up their privacy rights as a consequence of their actions. To use a search technique that targets them simply because of who their relatives are is simply not fair.

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[23] Genetics and Public Policy Center , *U.S. Public Opinion on Uses of Genetic Information and Genetic Discrimination* at 2 (2007), available at http://www.dnapolicy.org/resources/GINAPublic_Opinion_Genetic_Information_Discrimination.pdf; *see generally* E.W. Clayton, *Ethical, legal, and social implications of genomic medicine*. N. Engl. J. Med. 349, 2003. In another Johns Hopkins study, "respondents were consistently more worried" about government, as opposed to private, access to their genetic material, and "84% felt that it would be important to have a law protecting [genetic] research information from law-enforcement officials." Kaufaman, D., *et al. Public Opinion About The Importance of Privacy in Biobank Research*, 85 American Journal of Human Genetics Vol. 5, pp. 643-654, at 649 (2009).

[24] *See United States v. Calandra*, 414 U.S. 338, 354 (1974) ("The purpose of the Fourth Amendment is to prevent unreasonable governmental intrusions into the privacy of one's person, house, papers, or effects. The wrong condemned is the unjustified governmental invasion of these areas of an individual's life. That wrong ... is fully accomplished by the original search ....")

> This concern is exacerbated because African Americans and Latinos make up an outsized portion of the DNA database compared with their proportion in the population at large. This means that African Americans and Latinos not in the database would be disproportionately available to familial searching. The same point could be made for the poor and working-class populations compared with those who are wealthier. [25]

Importantly, Professor Mnookin is concerned not only about the discriminatory arrest and prosecution of people who may be guilty, but also the discriminatory failure to apprehend criminals who do not have a family member in the database:

> But apart from these disparate racial and economic factors, it is not right to have an investigative technique that targets not just convicted criminals but also their relatives while leaving the rest of us immune.[26]

Similarly, Professor Erin Murphy makes strong arguments that familial searching is incompatible with our fundamental values and that it is ineffective, noting 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.[27]

If familial searching were to become a primary investigative tool, which would necessarily lead to a reduction in resources devoted to other investigative techniques, it would produce a system that disproportionately focused on people who, because of racial and economic factors or simply

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[25] Jennifer Mnookin, *Devil in the DNA database*, L.A. Times April 05, 2007, available at http://articles.latimes.com/2007/apr/05/opinion/oe-mnookin5. For a discussion of the broader issue, *see* Michael Risher, *Racial Disparities in Databanking of DNA Profiles*, in *Race and the Genetic Revolution*, 47-62 (2011).

[26] *Id.*

[27] Erin Murphy, *Relative Doubt: Familial Searches, of DNA Databases*, 109 Michigan Law Review 291, 304 (2010)

because they have large families, have a relative in the database, while reducing the investigation and apprehension of others who may have committed more serious crimes.[28]

Minimizing the Costs of Familial Searching

The only way to completely eliminate the many problems associated with familial searching is to prohibit it, a step that several states have already taken, either through legislation or administrative policy.[29] However, if Congress does decide to authorize the technique, it is possible to reduce its costs and problems while allowing familial searching in appropriate cases, just as Congress did in 1968 when it created a statutory framework to allow the appropriate use of wiretaps while protecting privacy, and has done in numerous other instances to protect the privacy of information in areas ranging from Americans' cable TV viewing habits to their finances and many other matters.[30] In fact, the wiretap framework, which has been in place for more than 40 years, may serve as a useful model for a statutory scheme to govern familial searching. California's protocol for familial searching also has important provisions that could be incorporated to create a framework that allows familial searching in appropriate cases while reducing unfairness and the dangers to genetic and familial privacy.

In its current form, the bill already includes some crucial protections, including a limitation on the types of cases in which the technique can be used, reporting requirements, and a directive to enact regulations to protect privacy. However, the current bill omits two key provisions, both of which are found in the wiretap law, that are necessary to provide oversight and prevent misuse of familial searching:

1. The statute should require that other investigative techniques be used first.

The reference to "cold cases" in the bill's title suggests that HR 3361 is intended to allow familial searching in cases where other law-enforcement techniques have failed. This is a sensible limitation: because of the individual and familial privacy interests at stake and the resources involved, and because of the disparate impact that these searches can have, familial searching should only be used when it is necessary. Thus, California only allows the technique when the "case is unsolved and all investigative leads have been exhausted."[31] Congress

[28] *See* Risher, supra n.25, at 53-54.

[29] *See* nn. **Error! Bookmark not defined.**-17, *supra*.

[30] *See* Orin Ker, T*he Fourth Amendment and New Technologies: Constitutional Myths and the Case for Caution*, 102 Mich. L. Rev. 801, 855-56 (collecting federal privacy laws).

[31] California Department of Justice, Division of Law Enforcement Information Bulletin 2008-BFS-01, DNA Partial Match (Crime Scene DNA Profile to Offender) Policy (April 24, 2008) available at http://www.aclunc.org/news/press_releases/asset_upload_file490_8577.

imposed a similar limitation when it enacted the Wiretap Act to combat organized crime,[32] requiring that applications for wiretaps include "a full and complete statement as to whether or not other investigative procedures have been tried and failed or why they reasonably appear to be unlikely to succeed if tried or to be too dangerous."[33] This requirement is designed "to insure that wiretapping is not resorted to in a situation in which traditional investigative techniques will suffice to expose crime."[34]

Unfortunately, the current text of the bill does not include any such requirement. This same "necessity requirement" found in the wiretap statute should apply to familial searching so that familial and genetic privacy receive at least the same level of protection as do telephone calls.

2. The statute should require judicial authorization for familial searching.

The Supreme Court has long made clear that searches conducted without a warrant are disfavored and presumptively violate the Fourth Amendment's prohibition on unreasonable searches and seizures.[35] Although no court has addressed the question of whether a warrant is required to conduct familial searching, it is clear that some parts of the procedure do constitute searches under the Fourth Amendment. Specifically, the re-testing of stored DNA samples to develop a new Y-chromosome profile is a search, as many courts have held, because it reveals information about that sample that was previously unknown.[36] And the exception to the warrant

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[32] Title III of the Omnibus Crime Control and Safe Streets Act of 1968, codified at 18 U.S.C. § 2510 *et seq.* "The major focus of the legislation was on use of wiretapping and electronic surveillance by law enforcement officials to combat organized crime." *Briggs v. American Air Filter Co., Inc.*, 630 F.2d 414, 418 (5th Cir. 1980).

[33] 18 U.S.C.A. § 2518(1)(c).

[34] *United States v. Webster*, 734 F.2d 1048, 1055 (5th Cir. 1984); *see United States v. Kahn*, 415 U.S. 143, 153 n.12, (1974) ("The necessity requirement exists to assure that wiretapping is not resorted to in situations where traditional investigative techniques would suffice to expose the crime.").

[35] *See e.g., Arizona v. Gant*, 556 U.S. 332, 338 (2009) (applying "the basic rule that searches conducted outside the judicial process, without prior approval by judge or magistrate, are per se unreasonable under the Fourth Amendment—subject only to a few specifically established and well-delineated exceptions.").

[36] *See, e.g., United States v. Mitchell*, 652 F.3d 387, 407 (3d Cir. 2011) (en banc) ("The second "search" at issue is, of course, the processing of the DNA sample and creation of the DNA profile for CODIS."); *Banks v. United States*, 490 F.3d 1178, 1183 (10th Cir. 2007) ("analyzing the DNA contained within the blood sample, or even from a cheek swab, must pass Fourth Amendment scrutiny"); *Norman-Bloodsaw v. Lawrence Berkeley Laboratory*, 135 F.3d 1260, 1269 (9th Cir. 1998). ("These [DNA] tests may also be viewed as searches in violation of the Fourth Amendment ...."); *United States v. Davis*, 657 F. Supp.2d 630, 644 (D.Md. 2009) ("the extraction of blood from Davis' clothing and the subsequent chemical analysis of his DNA profile are both searches subject to scrutiny under the Fourth Amendment"); *People v. King*, 82

requirement that allowed the initial testing of these samples – that the subjects were in prison or on parole, or (in some states) had been arrested or charged with an offense – may no longer be applicable, a change that may well make the warrantless re-testing of such samples unconstitutional, either under the Fourth Amendment or under the law of the state that maintains the sample.[37]

Creating a statutory framework under which law enforcement would apply for judicial authorization to conduct familial searching would reduce the possibility that the courts would invalidate the technique, perhaps leading to the exclusion of crucial evidence or the overturning of convictions.[38] It also would reduce the possibility that a governmental agency or individual officers would face state or federal civil liability for conducting such searches or acting on the results of them. And it would help protect the privacy of families and individuals who may, through no fault of their own, be caught up in investigations that were caused by line officers or political appointees who may, intentionally or not, go beyond what the law allows in their understandable zeal to solve a particularly notorious crime. As the Supreme Court has long made clear, "[w]hen the right of privacy must reasonably yield to the right of search is, as a rule, to be decided by a judicial officer, not by a policeman or Government enforcement agent."[39]

To obtain such an order,[40] the police would need to establish the following:

Cal. App. 4th 1363, 1370-71 (2000) ("chemical analysis of such [DNA] samples to obtain physiological data, implicate[s] Fourth Amendment privacy interests."); *see also Skinner v. Railway Labor Executives' Ass'n*, 489 U.S. 602, 616-17 (1989) (analysis of urine for presence of drugs constitutes search under Fourth Amendment). Note that there is an important difference between retaining an already-created profile in CODIS (which some courts have held is not a new search) and re-analyzing the physical sample to obtain a new type of profile (which is necessary for familial searching), which, as the above-cited cases make clear, is a search.

[37] *See, e.g., United States v. Weikert*, 504 F.3d 1, 15-17 (1st Cir. 2007) and cases cited therein.

[38] The Supreme Court has never addressed the constitutionality of the warrantless seizure of DNA for inclusion in databanks; no court has addressed the legality of familial searching. The high Court's recent holding that GPS tracking is a search, which overruled several lower court holdings, illustrates the problems that can arise when law enforcement makes extensive use of new investigative technology without getting judicial authorization. *See United States v. Jones*, 132 S.Ct. 945 (2012).

[39] *Johnson v. United States*, 333 U.S. 10, 14 (1948); *see id.* (Fourth Amendment's "protection consists in requiring that [] inferences be drawn by a neutral and detached magistrate instead of being judged by the officer engaged in the often competitive enterprise of ferreting out crime.").

[40] The statute, like the wiretap statute, should avoid the use of the term "warrant" unless it requires a showing of probable cause to show that the search will discover relevant evidence. *See United States v. Salamasina*, 615 F.3d 925, 931 (10th Cir. 2010) (issuance of search warrant requires probable cause to believe "that evidence of a crime will be found in the place to be searched."); *accord Safford Unified School Dist. No. 1 v. Redding*, 557 U.S. 364, 129 S.Ct. 2633,

1. Probable cause to believe that one of the crimes listed in § 2(B) of the bill have been committed.
2. Probable cause to believe that DNA evidence would help solve the crime (i.e., that DNA belonging to the perpetrator had been recovered from the crime scene and a profile created).
3. No identical match for the DNA sample collected from a crime scene can be identified in the offender index, as currently required by § 2(A).
4. That "normal investigative procedures have been tried and have failed or reasonably appear to be unlikely to succeed if tried or to be too dangerous;" as is currently required for wiretaps under 18 U.S.C. § 2518(3)(c).
5. The scope of the search for which authorization is sought.

Such a requirement would not impede the legitimate use of familial searching because the technique itself necessarily involves a significant expenditure of time and resources and should not be used routinely. Any decision to use familial searching will only be made after extensive investigation and consideration; even after the technique is used, the necessary follow-up testing and investigation will take a considerable amount of time. Requiring the police to present a warrant application to a court will not require a significant additional expenditure of time or resources to this process. Nor, given that this technique is only to be used in very serious cases where other investigative techniques have failed, will it create any burden on the courts. Given the important privacy interests involved, and the lack of any countervailing interests, familial searching should not be allowed without judicial authorization.

CONCLUSION

Although familial searching may in some cases prove to be an effective crime-solving technique, it is one that comes with many costs, including the fiscal costs (which may exacerbate funding problems in other important programs), the unfairness of focusing on suspects simply because they have a family member who has been arrested or convicted (while ignoring those who do not have such family members), and the disruption to family privacy and integrity that the technique and the necessary follow-up investigations can cause. And it is important to remember that many of these fiscal and societal costs will occur even in those cases – perhaps the vast majority of cases – where the technique fails to solve any crime.

If Congress does decide that the benefits of familial searching outweigh the costs, it should take steps to minimize the adverse consequences of the technique, as it did with wiretaps, by requiring that law-enforcement exhaust other available investigative techniques before resorting

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2639 (2009); *Cf.* 18 U.S.C.A. § 2518(1) (referring to an "order authorizing or approving the interception of a wire, oral, or electronic communication"). Given the limitations of familial searching it seems unlikely that such a showing could be made.

to familial searching and, most importantly, that such searching only be done when authorized by a court.

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Mr. SENSENBRENNER. I want to thank all of the witnesses for their testimony, which has been very enlightening, both in terms of the technical side and the legal side. I am going to recognize myself for 5 minutes and hope that I don't have to use all of it. When I was an undergraduate at Stanford, I got quite an interest in Russian history with all the archives that have been in the Hoover Institution. And after I left and got involved in this business, the

bones of Czar Nicholas the II were supposedly identified in part with a DNA match with the Duke of Edinburgh, Prince Philip, who was a fifth or sixth cousin several times removed from the late czar. How accurate would that be, because this is a case of familial matching, but with a really very, very distant relative. Professor Greely or Mr. Marone, you are probably the two best to answer that.

Mr. GREELY. I actually know a fair amount about that particular case, and it was a kind of matching different from the CODIS matching. What they were looking for there was so-called Mitochondrial DNA. This is DNA that is not in the nucleus of our cells, not in the 46 chromosomes, but it is in little things called Mitochondria, which you may remember from high school biology as the energy powerhouses of the cell and they have their own DNA. It is a very small bit but it is distinctive. And what is really interesting about it is you only get from your mother. Now if Prince Philip's, great, great, mother's mother's mother's mother was Queen, I think it was Queen Victoria.

Mr. SENSENBRENNER. Yeah, she was the grandmother of all of the European royal houses.

Mr. GREELY. Which is why they had hemophilia as well. The same was true with the czar. So since they both got the Mitochondria of Queen Victoria, they were able to make a match between the czar's Mitochondrial DNA and Prince Philip's Mitochondrial DNA. That particular case is especially odd, though, because unusually, the czar's bones had two different DNA signatures for the Mitochondria that sometimes happens, it is unusual. They then got the czar's brother's body out of the Cathedral of Saint Peter and Saint Paul in Saint Petersburg and checked, and the brother had the same mix. So they concluded that yes, in fact, that was the czar's remains.

Mr. SENSENBRENNER. So in terms of what is being proposed in this bill——

Mr. GREELY. This is different.

Mr. SENSENBRENNER. It is different. I am enlightened. The gentleman from Virginia, Mr. Scott.

Mr. SCOTT. Thank you. Detective Kilcoyne, your testimony says the second search of the database produced a match of the son of Lonnie David Franklin, you mean close match, not a match, right?

Mr. KILCOYNE. There was a match.

Mr. SCOTT. A familial match which isn't a direct match.

Mr. KILCOYNE. Correct.

Mr. SCOTT. And you were given one name?

Mr. KILCOYNE. No.

Mr. SCOTT. How many names were you given?

Mr. KILCOYNE. There were two names that were given to us that were—one was the genetic match which was the son; another is the Bureau of Investigation had developed information on another man named Franklin that lived in another county. And there was no genetic match there, but they had developed that from research and public records. It was not from the scientific search.

Mr. SCOTT. So the scientific gave you one name.

Mr. KILCOYNE. Right.

Mr. SCOTT. Just the son. How many other relatives could that have implicated?

Mr. KILCOYNE. Well, Mr. Franklin—I don't really know, I don't know if he has got brothers. He does not have another son that I am aware of. And that was not our mission to go off on a genetic witch hunt of the Franklin family.

Mr. SCOTT. Mr. Marone, when you get a search and get it down to one person, what is the confidence level that that is actually a relative?

Mr. MARONE. Let me back up and explain how you get down to one name. What do you with the additional testing with the Y chromosomes, you are eliminating all of folks are who aren't related, you may get a couple of brothers, but you are getting it down to that name. The confidence on that is pretty good because then you go back, and again, that is still investigative. You still have to get a sample from the individual, in their case it was the pizza crust for the individual.

Mr. SCOTT. But——

Mr. MARONE. You can identify that. That case——

Mr. SCOTT. If you get down and say this is a relative of the perpetrator, how confident are you that it is, in fact, a relative of the perpetrator and not a false positive?

Mr. MARONE. I would not—I would not feel comfortable giving you a percentage number on that.

Mr. SCOTT. High confidence level, but you can't give a percentage—sorry. Mr. Greely.

Mr. GREELY. If I may, it depends, that is the right start to any answer from a lawyer. But if you are using the Y chromosome match in addition, which you can't get directly from the CODIS database because the Y chromosomes ample types are not in the CODIS database. If you are using the Y chromosome match, you can be relatively confident. I would say—I am not going to give you a percentage either, but it is a pretty high degree of confidence, but it is not a perfect degree of confidence. In the long you can be confident they are related, because all of us are related, all of us are cousins.

People with the same Y chromosomes will be a little more related. Will they actually know they are related or not? Sometimes yes, sometimes no. If you are doing the search without the Y chromosome, the vast majority of people you will throw up will not be relatives. If you then narrow it down with the Y chromosome, a very large, perhaps majority, certainly large minority of the people you discover will be relatives.

Mr. SCOTT. Mr. Risher, are there any unreasonable search and seizure implications with this technique?

Mr. RISHER. There absolutely are. And perhaps the most obvious one is that this retesting of the Y chromosome that you have been hearing about that is a necessary part of this technique is under, I think, pretty well-established law a new search. And the justification for taking DNA from a convicted person or an arrestee may no longer be valid to conduct a new search on that person's genetic profile that has been sitting in storage 5, 10, 15 years later. That really can raise pretty grave concerns when we are talking about retesting genetic information that was seized from somebody with

one justification when that justification is no longer valid. This is not an issue that has been litigated, but quite frankly, the courts may say that that is unconstitutional.

Mr. SCOTT. Thank you, Mr. Chairman.

Mr. SENSENBRENNER. Thank you. Gentleman from Georgia, Mr. Johnson.

Mr. JOHNSON. Thank you, Mr. Chairman. Legislation before us, H.R. 3361, makes no provisions for how familial DNA evidence would be collected; does it Detective Kilcoyne?

Mr. KILCOYNE. Sir, currently in the State of California, DNA is collected a number of ways from people.

Mr. JOHNSON. No, my question is the legislation itself does not provide for specific means of collecting familial DNA; is that correct?

Mr. KILCOYNE. Correct.

Mr. JOHNSON. Okay. And DNA, familial DNA is—how would you obtain it in addition to what may be in a criminal database of a State?

Mr. KILCOYNE. Your DNA is collected upon arrest, conviction, whatever, just like your fingerprint or photograph, in California. That sample would need to be broken down.

Mr. JOHNSON. I guess what I am getting at is are there ways of collecting familial DNA other than from criminal databases?

Mr. KILCOYNE. Not for law enforcement, no.

Mr. JOHNSON. Now Mr. Risher, people who are walking along the street can be stopped and questioned by the police without any authority to do so; is that correct?

Mr. RISHER. Well, the police need reasonable suspicion that a person walking down the street has committed a crime or is going to commit a crime in order to stop him.

Mr. JOHNSON. If you just go up and knock on somebody's door and say, how are you today, do you know Joe Blow? The police can do that currently without a warrant or without any reasonable suspicion and without having to warn the person that they have a right to not answer the question or you have a right to just walk off without responding.

Mr. RISHER. That is correct.

Mr. JOHNSON. Now, with a DNA sample of a family member, or with a DNA sample that law enforcement would like to test for familial DNA to develop clues which could solve a criminal offense, what is the difference between—or one does not have a right to exclude familial DNA from being searched, simply because it is in a police database. If it is in the database, then it can be searched, or it can be used for a DNA search without a warrant or anything like that.

Mr. RISHER. Well, it is necessary to distinguish between two types of databases. We have a database that comprises the genetic profiles that have been developed from testing samples, and we also have the physical samples themselves that are stored in a separate database. I think it is probably correct that testing those computerized profiles is not a separate search. To the contrary, testing those physical samples, again, is a search and the 4th amendment does place limitations on the authority of the police to do that without a warrant.

It may well be illegal to test those samples if the person is no longer in prison or on parole, the person who provided that sample. But to get back to your earlier question, there are really two differences between the standard knock and talk procedure and what we are looking at here. One of them is that unlike in that procedure we are focusing on people here because of some sort of guilt by blood and I think that makes a lot of us nervous.

Mr. JOHNSON. Doesn't law enforcement have—law enforcement is not encumbered from searching criminal databases for DNA evidence to locate the perpetrator, why should they be limited in terms of collecting familial DNA evidence, which could lead to clues which would solve a crime?

Mr. RISHER. Well, in part, because the process is different. You do need to do this retesting which raises different constitutional issues.

Mr. JOHNSON. There is——

Mr. SENSENBRENNER. The gentleman's time has expired. The gentlewoman from California, Ms. Chu.

Ms. CHU. Detective, the legislation being discussed today would authorize the FBI to conduct these familial searches when investigating crimes that involve murder, manslaughter, and sex offenses against a minor. As a California law enforcement official, you know that California has a similar law, but nonetheless, it differs in two distinctive ways: One, the crime being investigated must be one of violence and pose critical public safety implications. And secondly, all reasonable and viable investigative leads have to be exhausted. What impact do these additional safeguards have on the effectiveness of using familial searches as an investigative tool, and how do these safeguards ensure that these tools are used efficiently?

Mr. KILCOYNE. I think that the systems in place, the protocols in place that have been placed on us by the Attorney General of the State of California have significant protections in place so we are not straying off on this new science that is in front of us. The Federal bill that has been proposed here, I would suggest that it has added also violent sexual crimes against women, not just minors, that should be included. I think that what needs to be understood is that when there is a match—and this should not be looked at any different than rerunning a second search of the fingerprint databank to try to find a suspect. We are looking at a genetic fingerprint for the most part.

We are trying to solve the unsolvable, as in the case of the Grim Sleeper that went on for 25 years. There are close to 18 families that have been affected, that would basically be the top row of the Chamber here, that if every one of the chairs up there had lost a daughter to this man.

This is a significant violation of our being, as human beings. The genetic search is color-blind. It doesn't tell us what color this person is that we are looking for. There are some schools that say, well, there is something that we can tell what color hair, what color eyes the guy has. That has not been perfected yet. But the bottom line is, when the information is passed to the law enforcement agency, it is an investigative lead, period. It is not conclusive that is your man. It is no different than if someone called—we run

a composite photograph or a clip from a liquor store surveillance video during a robbery, that the guy down at the corner gas station resembles your composite or resembles the newspaper photograph this morning. That needs to be vetted out by investigation; and that is what is done, such as the case with the Grim Sleeper. Once we have established probable cause to detain the man, then the courts get involved, and they authorize the search of this man's one-to-one genetic profile against the crime scene evidence.

Ms. CHU. If I could ask something else.

So it sounds like those types of restrictions are something that is supportable and works in California.

Mr. KILCOYNE. Very much so.

Ms. CHU. And there is another protocol that California has which is that the analysis and review of DNA takes place without the knowledge or communication with the requesting agency or prosecutor. So there is a separation there. And what is the relevance behind your statement about that? What is the benefit of separating the scientists responsible for analyzing the matches from the local law enforcement that is investigating the case?

Mr. KILCOYNE. I think it is just a precautionary measure that puts up a barrier between—you know, just like here in Washington where you have different houses doing different jobs and probably not a lot of sharing of information all the time. But it is a protective umbrella that has the State researching information; first in the laboratory and then using public records and their investigative arm and then multiple exchanges back and forth within that State bubble before and if and when the information is decided that it merits being passed to the local agency, the law enforcement agency. And I think that is important. Because this is so new, there needs to be insurance that, you know, people's rights aren't being violated and there is no one stronger than myself or the Chief in Los Angeles that thinks about, you know, we are going to investigate Johnny for what his daddy did. And that is not what we are after. It needs to be remembered, all it is is another investigative tool, an investigative lead for law enforcement to continue the furtherance of the investigation.

Mr. SENSENBRENNER. The gentlewoman's time has expired. The gentleman from California, Mr. Lungren.

Mr. LUNGREN. Thank you very much. I am sorry I was delayed and didn't hear all the testimony but I have tried to go through the written testimony.

It is interesting that we have these questions before us. I recall when I was attorney general of California when we had the very first cold case as a result of a DNA match on a cold case of a multiple murder in California and found the guy sitting in—I think it was an Oklahoma City jail for violent crimes there.

And I also remember representing the State of California when we had a dispute over an estate left by a rather wealthy individual who had received treatment from a University of California medical school, and as a result, left his fortune to them. And this fellow had spent a lot of time outside the country. And I think it was the Mariana Islands or somewhere around there. And there was this suggestion that he might have fathered some children there. And they questioned whether the children had a right to the estate.

And, of course, he had died as a result—presumably of a plane accident. We couldn't find him; couldn't do a DNA match on him versus one of these children claiming to be his issue. And we finally convinced a brother to give DNA at the insistence of the other parties to the action. And it was sufficient for us to reach a settlement with that young man and several other young men in that area because we thought there was sufficient evidence that they had a claim. And the State of California gave up a portion of that fortune that was going to the medical schools.

So now to see familial DNA used in the criminal context is most interesting. So Mr. Risher, I guess I would like to ask you this question: I reviewed your testimony. It appears to me that you are not totally objecting to the use of familial DNA in appropriate investigations, but you want to see it couched in protective terms, such that we avoid some of the problems that have been articulated here. Is that correct?

Mr. RISHER. It is difficult to say. But for example, the Grim Sleeper case was not an inappropriate use of familial DNA. Although I do understand—and maybe this is wrong—that the person arrested does have prior felony convictions. So under today's regiment, his DNA would be in the database. There would be no need for familial searching.

The question of whether the costs outweigh the benefits is ultimately for the legislature.

Mr. LUNGREN. Correct. But give me the specific privacy concerns that you have that you think have to be addressed even though you may not have determined exactly how they should be addressed.

Mr. RISHER. The specific privacy concerns are that, this is determining blood relationships, and blood relationships do not always track our family relationships in our society. We might have adoptions. We might have infidelity, for example. And the process—the follow-up investigation—that can, first of all, make this whole familial DNA searching much less effective because it doesn't necessarily account for infidelity that can throw a fork into the system. But it can be very damaging. One paper says it can destroy families if, in the context of a law enforcement investigation, we have family members who are suddenly made aware that the person they thought was—persons they thought were their children are not, in fact, genetically related to them. In some cultures, that, of course, can result in horrible domestic violence consequences.

Mr. LUNGREN. Does that give rise to a constitutional privacy issue? Or is it your suggestion that it is beyond that but nonetheless we ought to protect that in view of the implications that you have just described?

Mr. RISHER. Exactly the latter. Congress has repeatedly created protections for Americans' privacy that are not found in the Fourth Amendment, and that is why it is necessary for Congress to act.

Mr. LUNGREN. Right. And that is what I am trying to find out. Do you find this a particular assault? Or does it do damage to the essence of the Fourth Amendment? Or are we talking about additional protections that you think are appropriate but that are not mandated necessarily by the protections in the Fourth Amendment?

Mr. RISHER. There are grave constitutional questions raised by some aspects of familial searching, particularly the reanalysis of genetic samples that might have been given long ago. Putting those aside, which of course will have to be resolved in individual cases—putting those aside, there are still societal costs that have nothing to do with the Fourth Amendment that might have something to do with equal protection or due process that Congress should act to eliminate any question.

It is better to act proactively and avoid those questions coming up, that could void convictions or cost enormous expenses. Congress should do it now so we don't have to address those questions in the courts because they will come up in the courts.

Mr. SENSENBRENNER. The gentleman's time has expired. I would like to thank all of the witnesses for their extremely useful testimony today. This has been a very enlightening hearing. I think, as Chairman, this bill needs quite a bit of fixing up before we send it out of Committee, both in terms of policy as well as in terms of privacy protections. And your testimony has helped us to be able to work through that maze. So again, without objection, the hearing is adjourned.

[Whereupon, at 11:10 a.m., the Subcommittee was adjourned.]