



**DOES EXCESSIVE CONCERN WITH CIVIL LIBERTIES, ESPECIALLY WITH REGARDS TO MAINTENANCE OF FORENSIC DNA DATABASE END UP PROTECTING CRIMINALS?**

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**INTRODUCTION:**

This paper throws light on the murder case that obsessed Italy in 2010. The very fact that a murderer was let loose to roam freely as one among us for 4 years even after commission of such a ruthless act made me question as to what might have gone wrong and what could have been done better in order to have gotten timely justice. The fact that “Justice delayed is justice denied” made be empathetic and I wasn’t able to imagine the plight of the victim’s parents for four whole years having no clue as to who murdered their child. This paper will focus on the facts of Yara Gambirasio’s murder case, the pitfalls faced by the Investigation team, Pros and cones of maintenance of Forensic DNA Database and some suggestions to balance the cones for effective functioning of the justice system.

**FACTS OF THE CASE:**

Yara Gambirasio was a 13-year-old girl who lived in Brembate di Sopra, a town which was an hour North of Milan and just south of the Bergamo Alps. She was into Rhythmic gymnastics and hit the gym regularly to get herself trained for it. On 26<sup>th</sup> November, 2010 at 5:15pm Yara Gambirasio left home to go to the gym, just a few hundred

meters from her home, this time not to attend her practice session but to merely drop off a stereo with her instructor. At around 6:30pm Yara’s instructors claim that she had left the gym but hadn’t reached home. Her parents became worried and tried reaching her through cell phone but it went straight to voice mail. Her mother even visited the gym to check if she was still there but she wasn’t. Now her father called the Police to inform them of their missing daughter. The call was put through to the public prosecutor’s office, in the centre of the provincial capital Bergamo, a city 11km east of Brembate di Sopra. The prosecutor on duty was Letizia Ruggeri, 45, a tough former policewoman with almost 15 years of experience.

**INVESTIGATION INTO THE CASE:**

Letizia Ruggeri had dispatched both state police officers and carabinieri, military police, to Brembate di Sopra. Their first line of approach to investigation was to probe yara’s family. They wanted to understand the family better, their emotional bonding, financial status, whether they had any enemies? and other relevant information to find out the possibility of yara’s disappearance. They found that the family was close knit and that they did not have any arguments lately that would have caused yara to run away. So that option was ruled out. The next suspicion was whether Yara could have been kidnapped? Kidnapping is usually done for two main reasons, firstly for Ransom and secondly for retaliation. Ransom could not stand a chance in this case as the family wasn’t wealthy enough. Thus the possibility of kidnap for retaliation had a good stand as from the background check of the family it was found that yara’s father was an architect and that when it came to work he was very



strict and demanding with his co-workers which might have earned him enemies at workplace. Keeping that in mind the investigation team analysed the last signals from Yara's mobile phone, the result showed that it had been registered as present in Mapello at 6.49 pm that evening. Letizia Ruggeri also put wiretaps on hundreds of phones right from Yara's family, friends to gym instructors, almost everyone Yara had contact with. Ruggeri's team also tried to trace the owners of all the handsets of those who passed through Mapello on the day of Yara's disappearance. The investigation team also asked for some sniff dogs so that they could get some clue to proceed with the case. On 26<sup>th</sup> February, 2011, exactly three months after Yara's disappearance a dead body was found in an advanced state of decomposition in the small town of Chignolo d'Isola, 10km south of Brembate di Sopra. They found that it was Yara's corpse from the black bomber jacket with its elasticated waist and the Hello kitty sweatshirt that she had been wearing when she left home in November. In addition to these, from the crime scene the investigators had found Yara's ipod, house keys, sim card and battery to her LG phone. In the autopsy, the forensic pathologist discovered traces of lime in Yara's respiratory passages and the presence of jute, a vegetable fibre used to make ropes, on her clothing. Yara hadn't been raped but she had suffered multiple injuries predominantly on her head, back of the neck and jaw inflicted using a blunt weapon and several cuts on her body which seemed to have been caused using a blade. It was also revealed that her death was not caused due to these wounds as they were not deep enough to cause death, but because of hypothermia. Thus Yara was attacked and left all by herself in the freezing cold to die. Duly noting the parts of infliction

of wounds from the autopsy report the prosecutor tried to establish a pattern of attack to see if the murderer was a habitual offender. But it was found to be blind violence with random blows which makes him an amateur. This put even more pressure and responsibility on the team as an amateur is likely to gain confidence and continue doing similar acts when left uncaught and that this wouldn't be his last. Two months after, the commander of scientific investigations department in Parma said that they had found a male DNA on the underwear of the deceased. The DNA was obtained from the blood of the murderer which implies that he must have gotten himself wounded in the struggle. From this the motive can be deduced to be sexual as there were cuts in her legging and underwear and that the suspects DNA was obtained from her knickers. Ruggeri and her team named the murder suspect as "Ignoto 1" meaning "Unknown 1".

#### **PITFALLS THAT CAUSED DELAY IN THE INVESTIGATION:**

Having obtained the DNA of the Unknown 1, the investigation team needed a DNA Database to which it can be compared to. But unfortunately Italian government did not maintain a DNA database as it was found to be a violation of civil liberty (Right to Privacy). Thus the investigation team had to make an exclusive DNA database for this case which was in itself laborious and time consuming. It took geneticists in Parma, Pavia and Rome a minimum of six hours to transform just a few samples of DNA into something which could be read, and compared, on a computer screen. The cost incurred in machinery and manpower was immense and the investigation went on to become one of the most expensive manhunts



in Italian history. Ruggeri had a strong opinion based on her past experiences that the murderers tend to dump bodies in familiar areas, places which they frequently visit and have a sense of control over. Close to the scrubland where Yara's body was found, there was a night club called *Sabbie Mobili*. So Ruggeri had an intuition that the Unknown 1 might be a frequent visitor of the night club. Hence her team was also instructed to collect DNA samples outside the club and add the same to the DNA database.

### **BREAKTHROUGH WITH THE HELP OF DNA DATABASE:**

One of the samples collected from *Sabbie Mobili* seemed to be a 50% match with the DNA of the unknown 1. The man who gave the sample was Damiano Guerinoni. He was ruled out from being the suspect as his DNA was only a 50% match on the father's side (Haplo Y) and also he had an alibi. Thus the geneticists were convinced that he might be the close relative of the unknown 1. The investigation team decided to put up the family tree of Damiano Guerinoni. The investigation team checked the DNA samples of his father and siblings none of whom were a 100% match. His father had a brother Giuseppe Guerinoni who died in 1999. In order to check if he was the father of the unknown 1, the investigation team needed his DNA which was obtained from two stamps he had licked, one to validate his driver's license and another one on a postcard he had sent to his family. The DNA results revealed that he was the father of the Unknown 1. Giuseppe Guerinoni and his wife Laura Poli had three children – Two boys and a girl. Since the suspect was a male the focus went on the two boys, neither of whom were a

100% match. So based on the DNA evidence if the unknown 1 was really the son of the late Giuseppe Guerinoni then the only possibility was that he must be his illegitimate child. Now the goal is to find the women with whom Giuseppe Guerinoni had an affair with around 30 years back. This was a herculean task as the search had to cover a larger area as he had worked as a bus driver back then. The investigation team searched orphanages and homes for fallen women and single mothers. They also tracked all the women who had stayed in the resort which Giuseppe Guerinoni would frequently visit without his wife at the same time of the year as he had visited. But nothing seemed to favour them. Only then Ruggeri realised that the women they were searching for was neither single nor fallen. She was married to someone else and must have a family of her own as divorce was only legalised in 1970 in Italy. Later the forensic team found that there was an allele found in the unknown 1's DNA which was not common in this region and also that the unknown 1's father's gene did not have that allele. Thus it can be deduced that the unknown 1 had gotten the same from his mother. Now the investigation team started looking for that specific allele in the DNA database that they had created and was fortunate enough to find a match. Her name was Ester Arzuffi. Thus the Jigsaw puzzle had been finally put in place. It was found that Arzuffi and Giuseppe were neighbours in Ponte Selva in the late 1960s and in 1966 she had married Gianni Bossetti and left Ponte Selva in 1970. But her affair continued to exist and in late 1970's she gave birth to twins – A boy and a girl. The boy was named Massimo Bossetti. He was a builder, married with three children and lived in Mapello, where the last signal from Yara's cell phone had been recorded on 26 November 2010.



Him being a builder would also explain the presence of lime and jute fibres on Yara from the autopsy report. In order to confirm that Massimo Bossetti was the unknown 1, Ruggeri set up a fake roadblock breathalyser test to obtain his DNA. On testing the same it matched accurately with the DNA of the unknown 1. There were many other circumstantial evidences obtained by the investigating team as well to prove him guilty beyond reasonable doubt.

### **JUDGEMENT:**

On July 1<sup>st</sup>, 2016, the grand jury of Bergamo in accordance with the Articles 533 and 535 of the Penal Code declared the defendant Massimo Bossetti guilty of the aggravated murder of Yara Gambirasio and sentenced him to life imprisonment and also ordered the loss of his parental rights on his three children. On July 17<sup>th</sup>, 2017, the court of appeal confirmed the guilty verdict given by the trial court. On 12<sup>th</sup> October, 2018, the supreme court confirms Massimo Bossetti's guilty verdict. Despite the rulings Massimo Bossetti never ceased to proclaim his innocence. On November 2019, Bossetti's defense requested access to findings for new evaluations but the motion was rejected. On January 11<sup>th</sup>, 2021, the supreme court ordered the Assize court of Bergamo to schedule a hearing to analyse the findings. On June 3, 2021 the Assize court of Bergamo rejects Bossetti's defense request to access the findings.

<sup>1</sup> See, e.g., John Butler, "Genetics and genomics of core STR loci used in human identity testing," *Journal of Forensic Science*, Vol. 51, No. 2 (3/06).

<sup>2</sup> See FBI, "Fact sheet: CODIS and the National DNA Index System"; FBI, "CODIS: NDIS statistics."

<sup>3</sup> See, e.g., 73 Fed. Reg. 21083, 21084 (4/18/08) (U.S. Department of Justice proposed rules under the DNA Fingerprint Act of 2005 allowing DNA seizure upon

### **DNA FAMILIAL TESTING: GENERAL CONCERNS**

DNA is our genetic blueprint. It defines who we are and gives us an identity. The primary concerns when it comes to Forensic DNA database are: Invasion of medical privacy, Invasion of bodily integrity and racial disparate impact. A person's DNA can help predict his physical and mental health as genes are what that makes us the person we are. Thus if our very Identity is taken and made into a database then there are all possibilities of exploitation. This information can be used by anyone, like the employers, insurers and others for invidious genetic discrimination, most importantly not just against the person who supplied the DNA but also their immediate family members.

**Invasion of medical privacy** - DNA has two main components namely the coding and the non-coding DNA. Coding DNA is the one that produces protein that carries our genetic material, while the non-coding DNA has no specified function. Generally DNA database consists of small subsets of human DNA which are mostly the non-coding part<sup>1</sup>. For instance the FBI's Combined DNA Index System (CODIS) uses 13 short tandem repeat (STR) – alleles<sup>2</sup>. Thus it is suggested that the DNA in the database are medically irrelevant and is used only for Identification purposes<sup>3</sup>. But with scientific advancements in this field it has been revealed that various kinds of non-coding DNA whose functions remained

arrest, stating that the 13 core loci in CODIS "amount to 'genetic fingerprints' that can be used to identify an individual uniquely, but do not disclose an individual's traits, disorders, or dispositions"); D.H. Kaye, "Science fiction and shed DNA," 101 Nw. U. L. Rev. Colloquy 62, 62-63 (2006) ("any claim that the DNA profiles currently used for identification constitute 'predictive medical information' is false").



previously unidentified were in fact found to be medically relevant. Studies on some non-coding DNA show that it helps regulate the functions of the coding DNA<sup>4</sup>. A recent Stanford University study found that certain non-coding DNA affected nearby genes associated with schizophrenia, diabetes, and arthritis. While some other non-coding DNA is found to disrupt the designated functions of genes thereby causing disease<sup>5</sup>. For example, “transposons” are non-coding DNA that change location within a DNA sequence, sometimes disrupting genes. While some non-coding DNA correlate with certain kinds of genes and this act of correlation alone can be used to make predictions on the medical conditions of the person irrespective of

whether or not there is a causal relationship between them<sup>6</sup>. In fact, scientific studies already indicate that at least four of the thirteen STR alleles in the FBI’s CODIS system are non-coding DNA that correlate with, and in some cases are predictive of, medically important genes<sup>7</sup>. For example, non-coding TH01 is located near a gene responsible for insulin production. The length of TH01 can indicate whether a person has the risky or protective version of this gene. Persons with the risky version are a few percent more likely to have diabetes. According to one of the scientists who discovered this correlation: “This marker is weakly linked to a shift in ones predisposition to diabetes and the police should not be

<sup>4</sup> See Ewan Callaway, “‘Junk’ DNA gets credit for making us who we are,” *New Scientist* (3/19/10) (describing a study by researchers at Stanford University and the European Molecular Biology Laboratory, of the genomes of 10 people, finding that variance in non-coding DNA affects the activity of nearby genes, and may account for risk of diseases such as schizophrenia, diabetes, and arthritis). See also, e.g., Richard Ingraham, “Landmark study prompts DNA rethink,” *Discovery Channel* (6/14/07) (describing a study by a consortium of 35 scientific groups, closely examining 1% of the human genome, and finding that much non-coding DNA previously thought to be “junk” in fact has “an essential role on regulating” genes); Colin Nickerson, “DNA study challenges basic ideas in genetics; genome “junk” appears essential,” *Boston Globe* (6/14/07) (same); “Function found for junk DNA,” *L.A. Times* (6/5/04) (describing a study by researchers at Harvard Medical School, of the yeast genome, finding that certain non-coding DNA “regulates” certain genes); Justin Gillis, “‘Junk DNA’ contains essential information,” *Wash. Post* (12/4/02) (describing a study by researchers at the Whitehead Institute for Biomedical Research, comparing human and mouse genomes, and finding that much non-coding DNA previously thought to be “junk” in fact provides “instructions” to genes and is relevant to human health).

<sup>5</sup> See, e.g., “More variations in human genome than expected: Surprisingly common transposons or

‘jumping genes’ are shown to cause disease,” *Science Daily* (6/25/10) (describing a study by researchers at the University of Maryland School of Medicine, of the genomes of 76 people, finding that “transposons are very active in lung cancer genomes” and “could possibly be causing cancer tumor progression”); Christian Biemont, “Junk DNA as an evolutionary force,” *Nature*, Vol. 443 (10/06) (a survey of studies finding that certain transposons cause diseases like cancer, diabetes, and tumors). See also Leslie Pray, “Transposons, or jumping genes: Not junk DNA?” *Nature Educn.* (2008) (a survey of studies finding that certain transposons play a salutary role in regulating genes).

<sup>6</sup> See, e.g., David Concar, “Fingerprint fear,” *New Scientist* (5/2/01) (describing a study by researchers at the University of Leicester, finding that certain non-coding DNA is located near the insulin gene, that its length can indicate whether a person has the risky or protective version of that gene, and that a person with the risky version is a few percent more likely to have diabetes than a person without it). See also John Stead et al., “Influence of allele lineage on the role of the insulin minisatellite in susceptibility to type 1 diabetes,” *Human Molecular Genetics*, Vol. 9, No. 20, pp. 2929-35 (2000) (the underlying study).

<sup>7</sup> These are the CODIS loci known D8S1179, D18S51, D21S11, and TH01. See FBI, “Fact sheet: CODIS and the National DNA Index System” (identifying all 13 loci).



collecting that type of information.”<sup>8</sup> Scientists have found other genetic health problems associated with the FBI non-coding alleles known as D8S1179<sup>9</sup>, D18S51<sup>10</sup> and D21S11<sup>11</sup>. Thus from these its evident that even the non-coding DNA has certain functions that help decide the characteristics of the person. Moreover before the police adds a person’s genetic profile into a DNA database, they first seize the complete DNA sample which is the entire genetic map of that person. Police often store the sample as such as there is no explicit mandate that requires the destruction of the full sample. This is far more dangerous than the non-coding DNA database as the individual now becomes an open book for anyone to access. For instance, the federal census database was used to round up and intern innocent Japanese Americans during World War II<sup>12</sup>. The DNA database was first limited to persons convicted of serious offences but nowadays it also includes persons convicted of any felony, violent or not<sup>13</sup>.

**Invasion of bodily integrity** - When it comes to invasion of bodily integrity, Consent plays a very important role. The DNA of a person is obtained by the

government by placing a buccal swab in the person’s mouth without their permission. If the person resists, the government may use force. Collecting of DNA sample is basically taking a part of the persons body away from him which is violation of right to privacy. But when the samples are voluntarily given then the story is different. Now the question is how can the government obtain the DNA samples of the suspects by getting past the veil of right to privacy? It might be argued that government can avoid this coercive physical invasion by surreptitiously collecting the DNA that a person inadvertently sheds as they go about their business in public. This can be entertained only in rarest of rare cases where the sample is absolutely needed to solve the case. For example, DNA might be obtained from the saliva on a discarded water bottle. Courts are beginning to grapple with the legal ramifications of this practice. However strict legal limits are to be imposed as all of us constantly shed our DNA in public, unknowingly and involuntarily.

**Racial disparate impact** – It is a proven fact that African Americans and Hispanics are arrested, prosecuted, and

<sup>8</sup> See David Concar, “Fingerprint fear,” *New Scientist* (5/2/01), discussing John D.H. Stead et al., “Influence of allele lineage on the role of the insulin minisatellite in susceptibility to type 1 diabetes,” *Human Molecular Genetics*, Vol. 9, No. 20, pp. 2929-35 (2000).

<sup>9</sup> It correlates with genes that can cause kidney disease, cardiovascular disease, and neural tube defects. See John Butler, “Genetics and genomics of core STR loci used in human identity testing,” *Journal of Forensic Science*, Vol. 51, No. 2 (3/06) (hereafter “Butler survey about core STR loci”), discussing N.V. Morgan et al., “A novel locus for Meckel-Gruber syndrome,” *Human Genetics*, 111:456-61 (2002), and C.S. Fox, “Genome-wide linkage analysis to urinary microalbuminuria in a community-based sample,” *Kidney Int.*, 67:70-74 (2005).

<sup>10</sup> It correlates with a gene that can cause Edward’s syndrome. See Butler survey about core STR loci, discussing H.R. Yoon et al., “Rapid prenatal detection of down and Edwards syndromes by florescent polymerase chain reaction with STR markers,” *Yonsei Medical Journal*, 43:557-66 (2002).

<sup>11</sup> It correlates with a gene that can cause Down’s syndrome. See Butler survey about core STR loci, discussing B. Pertl et al., “Rapid molecular method for prenatal detection of Down’s syndrome,” *Lancet*, 343:1197-98 (1994).

<sup>12</sup> See, e.g., J.R. Minkel, “The U.S. Census Bureau gave up names of Japanese-Americans in WWII,” *Scientific American* (3/30/07).

<sup>13</sup> 730 ILCS 5/5-4-3(a).



convicted, often wrongly at a far higher rate than Caucasians. One of the many studies that demonstrate this ongoing problem was published by a legislative task force known as the Illinois Disproportionate Justice Impact Study Commission. As a result, DNA testing of arrested and convicted persons disparately impacts racial minorities.<sup>14</sup> One study, looking solely to disparate incarceration rates, concluded that 17% of the African American population is related to a person in the DNA database, compared to 4% of the white population. In other words, an African American person is four times more likely than a white person to be the subject of a criminal investigation as a result of familial DNA testing.<sup>15</sup> Another study, looking solely to different birth rates, likewise concluded that Hispanics are far more likely than Caucasians to be subject to criminal investigations due to familial DNA testing.<sup>16</sup>

### DNA FAMILIAL TESTING: PARTICULAR CONCERNS

In addition to the above discussed general concerns the following also are considered as downsides of DNA Familial testing. Firstly, the concept of DNA database originated in order to link the convicted felons to past and future crimes. But familial DNA testing is one where the relatives of the convict will be linked to crimes. Thus the DNA database would see a massive addition of people who are the siblings, children and parents of the convict<sup>17</sup>. DNA familial testing

hence proves to be a form of “Mission Creep.” It was upheld by the courts that, compelled DNA testing of convicted persons are largely on the basis of their diminished expectation of privacy.<sup>18</sup> But when it comes to bringing their relatives into picture, they would definitely not have diminished expectation of privacy as they are presumably innocent. Secondly, there is an arbitrary classification of persons into two classes when it comes to DNA Familial testing. One class consists of the close relatives of the convict who can be suspected for any future crimes merely because of the fact that they are family, while the other class consists of people who are not related to the convicted felon in anyway, thus excluding them from being suspects in any future crimes that take place in the country. Classifying people based on whether they are immediately related to criminals is a step backwards towards eugenics and corruption of blood. The cloud of criminal suspicion can disrupt work and family relationships. Familial DNA testing imposes this burden on the relatives of convicted persons, but not others. Thirdly, the concept of blatant familial DNA testing can cause disruption in the bonding that exists in the family. This can completely destroy the emotional connect among them, which is the integral part that binds them as a family. This is not just with regards to the burden they have to undergo being a part of the investigation but also the emotional trauma that they will be subject to in case of revelation of truths during the

<sup>14</sup> See Report of the Illinois Disproportionate Justice Impact Study Commission (12/10).

<sup>15</sup> Henry Greely, “Family Ties: The use of DNA offender databases to catch offenders’ kin,” 34 J.L. Med

& Ethics 248, 258-59 (2006).

<sup>16</sup> Daniel Grimm, Note, “The demographics of genetic surveillance: Familial DNA testing and the Hispanic

community,” 107 Columbia L. Rev. 1164, 1177-85 (2007).

<sup>17</sup> FBI, “CODIS: NDIS statistics” (as of September 2010)

<sup>18</sup> See, e.g., *Green v. Berge*, 354 F.3d 675 (7<sup>th</sup> Cir. 2004) (Easterbrook, J., concurring).



course of Investigation. One estimate among genetic counsellors is that 5% of the men on birth certificates are not the biological fathers of their children.<sup>19</sup> This might be the result of adoption or adultery.

**DESPITE THESE CONCERNS WHY IS FAMILIAL DNA TESTING ESSENTIAL?**

Every coin has two sides to it. Familial DNA testing and maintenance of a database for the same is certainly not an exception to this. In the case of Yara Gambirasio, the investigation team which includes the public prosecutor, police officials and forensic team, had done a great job, right from having no clue to start their investigation, to finding the murderer and sentencing him to life imprisonment. But the delay in justice is something that agitates every single person who reads this case. Of course the investigation team had done the best with what they had and in fact went overboard to create an exclusive database for this case alone despite the fact that it costed them time and money. But thinking about what could have been done better, the first thing that comes up is that the government should have maintained a DNA database. If only that had been done, the delay could have been drastically cut short. When it comes to familial DNA testing, as already mentioned above there is an arbitrary classification as the close relatives of the accused and not related to the accused. This very classification has to be removed as there is no certainty that the relative of the accused is likely to become one in the future and anyone who is unrelated to him has no possibility of committing any offense. In this case Massimo Bossetti was a first time offender,

so if the database was maintained with such an arbitrary classification this case would not have seen any progress even if the government had maintained a database. Thus a DNA database is to be maintained by the government without any arbitrariness and the government must also bring about some policies and strict norms to use it only for identification purposes and not for anything else. The only fear in the minds of the people when it comes to the government having a database of their DNA is that, what if the information is leaked or made accessible to unauthorised persons? or what if there is a misuse of the same? Thus if the government can instil confidence in the minds of the citizens that their information is safe with the government then it would be a win-win for everyone. For instance let us consider a day to day example where people feel that gold and other precious ornaments when kept in bank lockers would be safer than kept at home. Why has this notion come up? This is because the banks have instilled so much of trust in the minds of the people and most importantly have lived up to it. Trust has been earned through the efforts taken from the side of the bank like various security checks imposed by them in order to safeguard the jewels . If that is the case with lockers shouldn't the DNA database be even more secure that there can be no misuse of the information stored in it? Of course the very element of compulsion is to be removed and people should come forward voluntarily for which the very element of trust plays a major role. Trust should not be imposed. It must be earned. And yes, it will be a long, time consuming journey and has to be done gradually, one step at a time, but the result will be worth it. So the question now is, from

<sup>19</sup> Steve Olson, "Who's your daddy?" *The Atlantic* (7/07).



where should the government start when it comes to maintaining a database and at the same time gaining confidence from the public? In my opinion the government should not take any drastical steps that might make people question the system. It has to be so gradual that people can actually comprehend what the government is trying to do? why is it doing that? How is the general public being benefitted from this act? And the very sense that the government is on peoples' side and is working hard to protect them will help instil trust and faith in the system and consequently people will volunteer to test their samples. To start with, the government can continue to collect DNA samples from convicts, who have been convicted for serious offenses. It should not be extended to DNA collected from persons merely arrested, for several reasons. Tens of thousands of innocent people are wrongfully arrested every year, and never charged or convicted. For this reason, Illinois prohibits employment discrimination on the basis of an arrest.<sup>20</sup> Moreover, arrests are based on a single police officer's conclusion, often unchecked and unreviewed, that there is probable cause. This is fundamentally unlike convictions, which are based on a jury's finding of guilt beyond a reasonable doubt, after trial. Further, as previously noted, there is an unjustifiable racial disparity in who is arrested. This can be

followed by Familial DNA testing done with certain restrictions. Firstly, there should be no familial DNA testing absent a judicial warrant, based on three findings. The unidentified perpetrator has committed a major violent crime, meaning murder, rape, or a crime of similar severity. There is a substantial basis to believe that the unidentified perpetrator will commit another major violent crime. And all other investigative leads have been exhausted. No doubt this is a high threshold. But any DNA familial testing should be the exception, and not the rule. This standard would have allowed the DNA familial testing in California that led to the arrest of the person accused of being the infamous "Grim Sleeper" serial killer.<sup>21</sup> Secondly, Judicial review is a critical check and balance, given all the civil liberties and civil rights concerns. Courts will readily be able to decide whether the past crime is sufficiently major, whether the danger of further crime is sufficiently substantial, and whether other investigative leads have been sufficiently exhausted. Warrants for wiretaps and physical searches raise similar considerations. DNA familial testing should be rare, so judicial review will not be cumbersome. Thirdly, Supervisory review can also greatly help in diminishing the dangers to civil rights and liberties. Warrant applications to the court for DNA

<sup>20</sup> 775 ILCS 5/2-103.

<sup>21</sup> The California and Colorado policies are less restrictive. They require exhaustion of other investigative leads, and a crime posing a "serious" or "critical" or "significant" risk to public safety. But these policies do not define these terms, they do not explicitly limit DNA familial testing to cases with a substantial risk of further crime, and they do not define the kinds of predicate crimes. See Office of the California Attorney General, *California's familial DNA search program identifies suspected "grim sleeper" serial killer* (7/7/10) ("Familial DNA

searches are done rarely . . . . They are only allowed in major violent crimes when there is a serious risk to public safety and all other investigative leads have been exhausted."); California Department of Justice, *DNA partial match policy* (4/24/08) (limiting familial DNA searches to cases with "critical public safety implications" where "all investigative leads have been exhausted"); Colorado Bureau of Investigation, *DNA familial search policy* (10/22/09) at §§ 2(a) and 2(e) (limiting familial DNA testing to cases with "significant public safety concerns" where "other investigative leads have been exhausted").



familial testing should not be permitted as it must be the duty of the state police director to authorize the same by signing off the state police lab.<sup>22</sup> Fourthly, Upon discovery of partial DNA match between the suspect and the person listed on the DNA database, further genetic testing must be done in order to confirm if they are close relatives.<sup>23</sup> As in the case of Yara Gambirasio, when Damiano Guerinoni's DNA was found to be a partial match to the suspect, the investigation team had to do subsequent testing that revealed that they had similar "Haplo Y" gene and thus are related on the paternal side. There should be protection for persons who are criminally investigated because they are closely related to a known offender who partially matches the crime-scene DNA. Their shed DNA should not be surreptitiously collected, and they should not be compelled to surrender their DNA for testing, absent a judicial warrant based on probable cause. Such probable cause would not be supplied solely by the fact that they are closely related to a known offender who partially matches the crime-scene DNA. Other considerations include opportunity and proximity.<sup>24</sup> If the police feels that their DNA is to be tested then that should be done immediately and the burden of criminal investigation should not

be put on them because of the backlogs at the labs.<sup>25</sup> If the test results don't match with that of the suspect's then the police should promptly destroy their full DNA sample along with their database profile. The government should be very transparent with the public and make sure that they annually report to the public, the number of DNA familial tests taken that year and for each of the test, it must specify the investigative agency, basis for the test and the extent of its guidance to solve a case that year. Such transparency is necessary to ensure accountability.

### **PROOF OF INNOCENCE:**

DNA database is not only essential to find out the suspect but also to defend the falsely accused, and to exonerate the wrongfully convicted. Protecting the innocent from criminal punishment is a civil liberties value of the highest order.<sup>26</sup> There is a critical distinction between voluntary and coercive DNA testing. It is the right of the accused or convict to volunteer their own DNA for comparison to the crime-scene DNA.<sup>27</sup> If there is a non-match, the convicted person is entitled to an evidentiary hearing to explore their claim of actual innocence.<sup>28</sup> In

<sup>22</sup> Colorado requires such supervisory oversight. Colorado Bureau of Investigation, *DNA familial search policy* (10/22/09) at §§ 1 and 1(b).

<sup>23</sup> California and Colorado requires Y-STR confirmatory testing. Colorado Bureau of Investigation, *DNA familial search policy* (10/22/09) at §§ 3(c); California Department of Justice, *DNA partial match policy* (4/24/08) at §§ I(4) and II(7).

<sup>24</sup> To obtain a suspect's DNA sample, Colorado requires a "court order" based on "articulable evidence," and "familial DNA alone shall not be the sole basis." Colorado Bureau of Investigation, *DNA familial search policy* (10/22/09) at § 5(e).

<sup>25</sup> See, e.g., "Illinois rape-test backlog," *Chi. Trib.* (5/1/09).

<sup>26</sup>

[http://www.innocenceproject.org/Content/Facts\\_on\\_PostConviction\\_DNA\\_Exonerations.php](http://www.innocenceproject.org/Content/Facts_on_PostConviction_DNA_Exonerations.php).

<sup>27</sup> 725 ILCS 5/116-3.

<sup>28</sup> *People v. Dodds*, 801 N.E.2d 63, 71-72 (Ill. App. Ct.

1<sup>st</sup> Dist. 2003) (Burke, J.) ("We hold that once DNA testing is ordered and the results are favorable, at least in part, to a defendant, such as where a non-match is revealed, an evidentiary hearing is necessary to determine the legal significance of the results because such results would make a substantial showing of a constitutional violation. In other words, the trial court is obligated to conduct an evidentiary hearing to determine whether the DNA results would or would not likely change the results upon a retrial.").



some cases a non-match may conclusively prove innocence. Such cases include those where there was known to be a single perpetrator acting alone. While in other cases it might not prove innocence. In some cases, a non-match should prove innocence, yet the accused is nonetheless convicted (as in the Juan Rivera case) or jailed for years awaiting trial (as in the Jerry Hobbs case).<sup>29</sup> In some cases when voluntary testing and a non-match, fail to free the innocent, coercive DNA techniques might do so. The charges against Jerry Hobbs were dropped, following the identification of the actual perpetrator as a result of forced DNA testing of an arrestee in Virginia.<sup>30</sup> And wrongly convicted Darryl Hunt was set free, apparently as the result of the identification of the actual perpetrator through familial DNA testing.<sup>31</sup> Nonetheless these coercive DNA techniques comes with huge price. The best lesson from these wrongful conviction cases is that our criminal justice system is plagued by systematic problems, such as coerced confessions, and excessive reliance on jailhouse informants. More coerced DNA testing will not solve the problems that cause false convictions.

### **CONCLUSION:**

Thus excessive concern with civil liberties especially the one pertaining to Right to privacy can act as a loop hole for the criminals to escape or at least prolong their conviction as in the case of Yara Gambirasio. Nevertheless upholding civil liberties with

certain restrictions as discussed in this paper pertaining to maintenance of Forensic DNA database shall serve the very purpose and uphold timely justice.

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<sup>29</sup> [http://articles.chicagotribune.com/2010-07-12/news/ct-met-rivera-appeal-brief-20100712\\_1\\_dna-evidence-wrongful-convictions-girl-s-murder](http://articles.chicagotribune.com/2010-07-12/news/ct-met-rivera-appeal-brief-20100712_1_dna-evidence-wrongful-convictions-girl-s-murder) (Rivera was convicted despite a non-match); <http://archive.chicagobreakingnews.com/2010/12/ex-murder-suspect-they-didnt-care-who-they-had.html>

(Hobbs spent years awaiting trial despite a non-match).

<sup>30</sup> [http://articles.chicagotribune.com/2010-08-03/news/ct-met-hobbs-dna-test-on-arrest-20100803\\_1\\_hobbs-dna-hobbs-case-dna-samples/2](http://articles.chicagotribune.com/2010-08-03/news/ct-met-hobbs-dna-test-on-arrest-20100803_1_hobbs-dna-hobbs-case-dna-samples/2)

<sup>31</sup> <http://www.dnaforensics.com/FamilialSearches.aspx#hunt>