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Do you Know Where Your DNA Is? The Need for DNA Legislation in Ohio

Elizabeth Collins

DO YOU KNOW WHERE YOUR DNA IS? THE NEED FOR DNA THEFT LEGISLATION IN OHIO

ELIZABETH COLLINS*

I. INTRODUCTION

In 2002, discarded dental floss revealed more about famous Hollywood director Steve Bing than he had foreseen – it revealed that he was a father.[1] A private investigator stole DNA contained on dental floss from Mr. Bing's garbage for the purpose of paternity testing.[2] Without his consent, Mr. Bing's life was turned upside down by DNA testing.[3]

Countless stories, such as Mr. Bing's, are due to developments in technology that have made DNA testing more affordable and accessible to the public.[4] DNA left on

* J.D. candidate 2013, Cleveland-Marshall College of Law; extern to Honorable Chief Justice Maureen O'Connor, Supreme Court of Ohio and Honorable Judge Patricia Gaughan, U.S. District Court for the Northern District of Ohio; Moot Court team member. Elizabeth Collins would like to thank her parents, Tim and Christine Collins, her scholarly writing professor Alex Frondorf, and her Journal mentor, Priscila Rocha.

[1] *See One for you, Philip Marlowe*, THE ECONOMIST, Feb. 23, 2006, http://www.economist.com/node/5558968. Steve Bing is a well-known Hollywood director who works for Metro-Goldwyn-Mayer "MGM" and has directed several successful movies. *Id*.

[2] *Id.*; *see* United States v. Pellicano, 135 F. App'x 44 (Cal. Ct. App. 2005). Anthony Pellicano, the private investigator who stole Steve Bing's dental floss, was charged with other related criminal offenses. *See id*. Steve Bing did not pursue any legal action against Pellicano, because Bing considered Pellicano a friend. *See id*.

[3] *See One for you, Philip Marlowe, supra* note 1.

[4] *See* Patrick G. Lee, *DNA Theft Wades Largely into Uncharted Legal Territory*, THE WALL STREET JOURNAL (Aug. 8, 2011), http://blogs.wsj.com/law/2011/08/08/dna-theft-wades-

discarded cans, cigarettes, gum, tissues, or even cut hair at a barbershop invites the opportunity for individuals to obtain and test others' DNA without their consent or knowledge.[5] This DNA is often stored in genetic databases[6] and biobanks[7] without the knowledge or consent of these individuals.[8]

DNA, short for deoxyribonucleic acid,[9] is the "fundamental building block of an individual's entire genetic makeup."[10] DNA is the most basic matter of life, representing the unique genetic makeup of each individual.[11] DNA analysis

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into-largely-uncharted-legal-territory/ (noting that there are many potentially severe consequences of DNA theft, such as insurance coverage discrimination for high risk drivers or lenders using genetic information to determine creditworthiness).

[5] Jeff Hammerschmidt, *Legal Quandary of DNA Theft*, AMERICAN LAWYER ACADEMY (Aug. 25, 2011), http://www.americanlawyeracademy.com/legal-quandary-of-dna-theft (discussing the accessibility of others' DNA and the privacy risks associated with this accessibility, positing that, despite these risks, there is little legal protection from DNA theft provided by current DNA theft legislation).

[6] Mark A. Rothstein, *DNA Databanks*, GENETIC SECRETS: PROTECTING PRIVACY AND THE CONFIDENTIALITY IN THE GENETIC ERA 231 (1997) (noting that genetic information such as genetic propensities, ancestry, and kinship information obtained from DNA testing is often stored in genetic databases). These databases are generally run by the private sector but are primarily unregulated in the United States. *Id*.

[7] *See id.* (referring to databases which store actual human DNA and tissue samples, also called DNA databanks, rather than just the genetic information ascertained from DNA testing, as is the case with genetic databases); *see also* Jenny Reardon, *The Human Genome Diversity Project: A Case Study in Coproduction*, 31 SOC. STUDIES SCI. 357 (2001) (discussing the Human Genome Diversity Project ("HGDP"), a proposed global project intending to collect samples of indigenous groups around the world to demonstrate human diversity). Many indigenous groups refused to take part in this project and as a result the project was temporarily unsuccessful) *Id*.; Nicholas Wade, *Geographic Society is Seeking a Genealogy of Humankind*, N.Y. TIMES, April 13, 2005, at A16 (discussing attempts to revive the Human Genome Diversity Project); THE HUMAN GENOME PROJECT, *About the Human Genome Project*, http://www.ornl.gov/sci/techresources/Human_Genome/project/about.shtml (last viewed Feb. 11, 2013) (stating that the Human Genome Project, which took thirteen years to complete, was run by the U.S. Department of Energy and the National Institute of Health). The project was eventually revived and was completed in 2003, two years sooner than the Department had predicted, due to rapid advances in technology. *Id*.

[8] *See generally* Rothstein, *supra* note 6.

[9] *See* Henry T. Greely et al., *Family Ties: The Use of DNA Offender Databases to Catch Offenders' Kin*, 34 J.L. MED & ETHICS 248, 249 (2006) (positing that family members, with similar DNA to one another, particularly siblings, often share many of the genetic indicators tested by the State for criminal identifications); *see also* BLACK'S LAW DICTIONARY 551-52 (9th ed. 2009) (defining DNA as a "[d]eoxyribonucleic acid the double-helix structure in cell nuclei that carries the genetic information of most living organisms").

[10] *See* Linda A. Hogan, *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, 547 (2008) (Hogan provides an explanation of how siblings are often indicted for crimes based on their sibling's DNA). For example, a Harvard professor was charged with rape due to the fact that his brother, a convicted felon, was registered in the government's DNA database. *Id*.

[11] *Id*.; *see also* Greely, *supra* note 9, at 248-49.

provides three types of extremely personal and unique genetic information: (1) "personal information,"[12] which includes information related to genetic predispositions and personal traits; (2) "medical information"[13] regarding one's "kinship;" and (3) information regarding one's heritage, which includes "the routes and origin of [one's] ancestors."[14] While some genetic information is readily discoverable, such as hair and eye color, other far more unique and personal genetic information, such as kinship and paternity, is discoverable only through genetic testing.[15] The amount of uniquely personal information obtainable from DNA testing, and the privacy and safety risks resulting from access to and publication of that information, are extraordinary.[16] There is no federal regulation of DNA theft.[17] Thus far, eight states[18] have enacted legislation prohibiting DNA theft, one states has enacted a genetic bill of rights, and two states have proposed similar genetic bill of rights legislation.[19] Ohio is among the many states without legislation prohibiting DNA theft.[20]

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[12] *See* Yael Bregman-Eschet, *Genetic Databases and Biobanks: Who Controls Our Genetic Privacy?*, 23 SANTA CLARA COMPUTER & HIGH TECH. L.J. 1, 8 (2006); *see also* George J. Annas, *Genetic Privacy: There Ought to Be a Law*, 4 TEX. REV. L. & POL. 9, 9-10 (1999) (arguing that DNA, because of its ability to provide personal health and kinship information, needs to be protected through DNA theft legislation).

[13] *See* Bregman-Esceht, *supra* note 12.

[14] *See* Bregman-Esceht, *supra* note 12.

[15] *See* Bregman-Esceht, *supra* note 12.

[16] *See* Clifford Mintz, *The Future: DNA Identify Theft?*, BIOJOBBLOG.COM, Oct. 19, 2009, *available at* http://www.biojobblog.com/2009/10/articles/biobusiness/the-future-dna-identify-theft/ (discussing the low price of DNA testing increasing accessibility to the general public and its effect on genetic privacy).

[17] *See* Hammerschmidt, *supra* note 5.

[18] The eight states that have passed DNA theft legislation include: Alaska: ALASKA STAT. § 18.13.030 (2013); ALASKA STAT. § 12.55.135 (2013); Florida: FLA. STAT. § 760.40 (2013); New Jersey: N.J. STAT. § 10:5-45 (2013); § 10:5-49; New York: N.Y. CIV. R. LAW § 79-L (2013); Oregon: OR. REV. STAT. § 192.543(2) (2013); Minnesota: MINN. STAT. § 13.386 (2013); New Hampshire: N.H. REV. STAT. ANN. §§ 141-H:1-6 (2013); New Mexico: N.M. STAT. ANN. §§ 24-21-1 to 24-21-7 (LexisNexis 2013) (for a complete list of state legislation regulating DNA theft).

[19] Massachusetts has enacted a genetic bill of rights and California and Vermont has proposed a genetic bill of rights (stating that genetic material is "the exclusive property of the individual from whom the information is obtained"); *see* Susan Huber & Dan Vorhaus, *Genetic Bill of Rights Proposed in Massachusetts*, GENOMICS LAW REPORT (Feb. 14, 2011), *available at* http://www.genomicslawreport.com/index.php/2011/02/14/genetic-bill-of-rights-proposed-in-massachusetts/ (discussing Massachusetts' proposed Genetic Bill of Rights, which has since been enacted); MASS. GEN. LAWS. ch.111, § 70G (2013); *see also* An Act to Create a Genetic Bill of Rights, S. 1080, 187th Gen. Ct. § 1 (Mass. 2011) (for the Massachusetts Genetic Bill of Rights).

[20] This does not include legislation addressing informed consent for genetic testing for medical and research purposes. This Note does not address the numerous arguments in favor of or opposing requiring informed consent for the use of genetic information for DNA research. Many states have enacted legislation addressing informed consent for medical genetic testing, including: Alaska, Arizona, California, Colorado, Delaware, Florida, Georgia,

This Note examines the several privacy and safety issues stemming from DNA theft. Part II discusses constitutional and common law regarding the abandonment of property, particularly under the Fourth Amendment, and explains how the Fourth Amendment does not protect individuals from DNA theft. Part III details the many consequences resulting from DNA theft. These risks, among countless others, include employment and insurance discrimination,[21] family turmoil caused by paternity testing which is often inaccurate and conducted without consent, genetic stalking, security risks, and the unauthorized publication of personal medical information and ancestral information.[22] Part IV examines DNA theft legislation adopted by eight states and three states' genetic bill of rights, as well as DNA theft legislation in Great Britain. Part V addresses the need for DNA theft legislation in Ohio and proposes a new statute for Ohio that criminalizes DNA theft. Part VI concludes this Note with an explanation of why DNA theft legislation is necessary to protect the safety and privacy of Ohio residents, particularly Ohio's need to criminalize DNA theft.

II. ABANDONMENT AND THE FOURTH AMENDMENT

Before discussing the issues stemming from DNA theft, it is important to understand the constitutional and common law regarding discarded materials. The Fourth Amendment seeks to protect individuals from unreasonable searches and seizures and provides:

> The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no warrants shall issue, but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.[23]

This amendment was designed to "guarantee people the right to be secure in their persons, houses, papers, and effects" against unreasonable and therefore unlawful

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Hawaii, Idaho, Illinois, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, Oregon, Rhode Island, South Carolina, South Dakota, Texas, Utah, Vermont, Virginia, and Washington. *See State Laws Pertaining to Surreptitious DNA Testing*, GENETICS & PUB. POL. CTR. (Jan. 21, 2009), *available at* http://www.dnapolicy.org/resources/State_law_summaries_final_all_states.pdf. Ohio has not enacted legislation addressing informed consent for medical research. The legislation in these 31 states varies in levels of protection and requirements for use, collection, storage, and disclosure of genetic information and the results from genetic testing in the medical field. *See id.* However, eight of these states have also enacted legislation regulating DNA theft and one has enacted a genetic bill of rights, and two have proposed a genetic bill of rights. *See id.*

[21] *See* Kathy L. Hudson et al., *Keeping Pace with the Times – the Genetic Information Nondiscrimination Act of 2008*, 358 NEW ENGL. J. MED. 2661 (2008) (providing a "quick guide to GINA" and describing the shortfalls of GINA, including continued risks of employment and insurance discrimination, among others). The authors recognize that GINA does provide some protection, although the protection afforded is insufficient. *Id*.

[22] *See* Rothstein, *supra* note 6, at 540-41.

[23] U.S. CONST. amend. IV.

government searches and seizures[24] and was adopted to ensure citizens' right to privacy from arbitrary governmental invasion.[25] When discussing an individual's right to privacy in a discarded item, it is important to first inquire whether the Fourth Amendment provides any constitutional protection in that item.[26] Unfortunately, for individuals targeted and victimized by DNA theft, it appears that the Fourth Amendment affords no such protection.[27]

For an individual to invoke Fourth Amendment protection from an unreasonable search or seizure, courts will conduct a two-part inquiry: first, whether the person has exhibited an actual and subjective expectation of privacy,[28] and second whether that individual has a reasonable expectation of privacy in the object.[29] In other words, courts will inquire whether the individual has shown that he intends to preserve an object as private,[30] viewed objectively under the circumstances, and whether that intent is one which society is willing to consider reasonable.[31]

In defining a reasonable expectation of privacy, the Supreme Court in *Katz v. United States* acknowledged an expectation of privacy in an individual's home when the Court recognized that "a man's home is, for most purposes, a place where he expects privacy."[32] However, the courts have subsequently diminished the scope of the definition of a reasonable expectation of privacy.[33] Narrowing this definition, courts have held that the Fourth Amendment does not apply to property that has been "voluntarily abandoned, because society does not recognize an expectation of privacy in abandoned property as being objectively reasonable."[34]

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[24] *See* Hogan, *supra* note 10, at 552.

[25] *See* Hogan, *supra* note 10, at 552-53.

[26] *Id.*

[27] *See id.* This Note does not discuss Fourth Amendment-based challenges of the constitutionality of police collecting DNA on crime scenes for criminal prosecution. This Note focuses on DNA theft in relation to private individuals and does not challenge the constitutionality of the State's use, collection, or databasing of DNA evidence.

[28] Katz v. United States, 389 U.S. 347, 361 (1967).

[29] The U.S. Supreme Court has consistently held that a person claiming Fourth Amendment protection from an unreasonable search or seizure of an object must display a subjective, reasonable expectation of privacy in the purportedly protected object which society is willing to recognize. *Id.* at 361; *see also* Rakas v. Illinois, 439 U.S. 128, 143 (1978); United States v. Chadwick, 433 U.S. 1, 7 (1977); United States v. Miller, 425 U.S. 435, 442 (1976); United States. v. Dionisio, 410 U.S. 1, 14 (1973); Conch v. United States, 409 U.S. 322, 335-36 (1973); United States v. White, 401 U.S. 745, 752 (1971); Mancusi v. Deforte, 392 U.S. 364, 368 (1968); Terry v. Ohio, 392 U.S. 1, 9 (1968).

[30] Smith v. Maryland, 422 U.S. 735, 740 (1979); *Katz*, 389 U.S. at 361; *Rakas*, 439 U.S. at 143-44; *White*, 401 U.S. at 752.

[31] *Smith*, 422 U.S. at 740; *Katz*, 389 U.S. at 361.

[32] *Katz*, 389 U.S. at 361.

[33] *Id.*

[34] State v. Gould, 963 N.E.2d 136, 139 (Ohio 2012) (holding that a criminal Defendant did not have a reasonable expectation of privacy in the contents of his computer's hard drive when he left the hard drive in his apartment and left town; therefore, the Court found that police

The definition of abandoned property has been broadened substantially.[35] Courts have held that objects which have been "knowingly expose[d]" to the public view are considered abandoned property.[36] In *California v. Greenwood*,[37] the Supreme Court held that garbage bags placed on a curb intended for garbage pick-up were considered knowingly exposed to the public view, thereby signifying that the individuals who placed the garbage on the curb have no reasonable expectation of privacy in the garbage, and the garbage could legally be searched by police without a search warrant.[38] Courts have included DNA contained on discarded items,[39] such as saliva left on a discarded cigarette butt, as abandoned.[40] Specifically, a court found that, by abandoning the cigarette butt, the defendant had also abandoned any reasonable expectation of privacy in his DNA contained on the cigarette butt.[41] Relying on the Supreme Court's decision regarding discarded garbage bags placed on a curb in *Greenwood*, courts have continued to shrink the definition of a

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were entitled to conduct a warrantless search of the hard drive and admit the content acquired from the hard drive as evidence against the Defendant).

[35] *See* Elizabeth E. Joh, *Reclaiming "Abandoned" DNA: The Fourth Amendment and Genetic Privacy*, 100 NW. U. L. REV. 857, 865 (2006) (positing that courts have categorized discarded items as abandoned property and have continued to expand the definition of "abandoned," narrowing the scope of protection under the Fourth Amendment). Joh argues that DNA should not be considered abandoned within the traditional scope of the Fourth Amendment because the Fourth Amendment "fails to protect genetic privacy adequately." *Id*. Joh also argues that the government, therefore, needs to adopt legislation that protects DNA privacy due to the courts' growing reluctance to protect abandoned DNA under the Fourth Amendment. *Id*.

[36] *Katz*, 389 U.S. at 361 (Harlan, J., concurring).

[37] *See* California v. Greenwood, 486 U.S. 35 (1988) (holding that garbage bags containing evidence of narcotics placed on a curb for city garbage collection were abandoned and were therefore not protected by the Fourth Amendment).

[38] *Id*. at 40-41. The Court stated:

> It is common knowledge that plastic garbage bags left on or at the side of a public street are readily accessible to animals, children, scavengers, snoops, and other members of the public . . . Moreover, respondents placed their refuse at the curb for the express purpose of conveying it to a third party, the trash collector, who might himself have sorted through respondent's trash or permitted others, such as the police, to do so.

Id.; see also Joh, *supra* note 35, at 865 (detailing courts' evolving definition of abandoned property under the Fourth Amendment).

[39] *See* Joh, *supra* note 35, at 865.

[40] *See* Joh, *supra* note 35, at 865; *see, e.g.*, State v. Wickline, 440 N.W.2d 249, 253 (Neb. 1989) (finding that police did not violate a defendant's Fourth Amendment rights when they tested the DNA contained on one of multiple cigarette butts that the defendant had smoked at a police station and left behind at the station). Although the Defendant in *Wickline* intended for his cigarette butts to be discarded when he was finished smoking, the Court held that, because the cigarette butts were abandoned, the DNA contained on the cigarette butts was also legally abandoned. *Id.*

[41] *See* Joh, *supra* note 35, at 865.

reasonable expectation of privacy, allowing police to access not only abandoned items, but DNA left on these items.[42]

With courts' reluctance to expand Fourth Amendment protections to DNA left on abandoned items, and trending toward affording DNA on discarded items no more protection than the discarded items themselves, it appears that "[w]ith abandoned DNA, existing Fourth Amendment law appears not to apply at all."[43] With a lack of Fourth Amendment protection for abandoned DNA, it is imperative that state legislatures adopt legislation to protect residents from privacy infringements.[44]

III. PROBLEMS RESULTING FROM DNA THEFT

DNA is everywhere.[45] From chewing gum, to a strand of hair, to a flake of skin, to saliva left on a discarded can, people leave traces of their DNA in various forms and locations on a daily basis.[46] Advancements in technology have caused decreased prices and increased availability of various forms of DNA testing,[47] thereby eroding individuals' DNA privacy.[48] The phenomenon of DNA theft has created many problems for individuals, as well as society as a whole, making it increasingly difficult for personal and private information to stay private, while new technology

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[42] *See* Elizabeth E. Joh, *DNA Theft: Recognizing the Crime of Nonconsensual Genetic Collection and Testing*, 91 B.U. L. REV. 665, 696 (2011) (stating that courts' definition of abandonment under the Fourth Amendment provides no protection from DNA theft). Joh posits that the government should adopt DNA theft legislation in order to better define DNA theft and provide protection from DNA theft for DNA that has been shed involuntarily. *Id*.

[43] Joh, *supra note* 35, at 865.

[44] *See* Mark A. Rothstein, *Genetic Stalking and Voyeurism: A New Challenge to Privacy*, 57 U. KANS. L. REV. 539, 561 (2009) (quoting Justice Brandies in his dissent in Olmstead v. United States, 277 U.S. 438, 471-85 (1928) (Brandeis, J., dissenting), (expressing his belief that the Fourth Amendment should change with the times, stating "[t]ime works changes, brings into existence new conditions and purposes. Therefore a principle to be vital must be capable of wider application than the mischief which gave it birth").

[45] *Id.* at 539 (noting that DNA theft has led to many issues with safety and privacy, particularly genetic stalking. Genetic stalking can lead to the public disclosure of genetic information, such as illness, paternity, and ancestry. Websites such as www.celebrity genetics.com publish private genetic information about celebrities, athletes, and politicians for a small fee. Rothstein suggests that this publication of genetic information is akin to blogs and tabloids, allowing the public to purchase private information about public figures. The website even features a "DNA Wanted" section, which lists the names of hundreds of celebrities and public figures whose DNA the site is seeking, offering to pay a collection fee to anyone who submits the celebrity's first DNA sample).

[46] *See* Xinhua, *New Method Found to Fight DNA Theft*, GLOBAL TIMES (Aug. 20, 2009), *available at* http://news.xinhuanet.com/english/2009-08/20/content_11916723.htm (explaining how anyone can obtain artificial DNA due to the simplicity of DNA tampering). Only simple technology is required to implant DNA into blood, giving the sample an entirely new profile. *Id*. Researchers have been working on developing a system that can distinguish between genuine blood samples and those that have been tampered with. *Id*.

[47] *See*, Rothstein, *supra* note 44, at 541; *see also* Xinhua, *supra* note 46.

[48] *See* Mintz, *supra* note 16; *see also* Rothstein, *supra* note 44, at 540.

continues to provide new ways to infringe upon DNA privacy.[49] This section explains several of these problems.

A. Privacy Infringement

Recent technological developments have created direct-to-consumer testing sold in drugstores and over the Internet.[50] This testing provides extremely personal genetic information without requiring the DNA host's knowledge or consent.[51] These tests, "with prices well into the recreational and hobby budget range, provide the most personal, private and unchangeable information possible about you."[52] A lab can test for genealogy and ancestry for just $169[53] and run a genetic predisposition test for twenty-five health conditions and diseases for $299.[54]

Consequently, individuals' privacy is threatened for just a few hundred dollars and a trip to the local drugstore, or by logging onto the Internet.[55] As was the case for Steve Bing,[56] genetic information is often published to third parties.[57] Without legislation criminalizing DNA theft, individuals cannot protect or shield their genetic information from the public sphere and are left with no recourse once such privacy rights have been violated. Kathy Hudson, the former head of the Genetics and Public Policy Center,[58] explained that individuals should be afforded privacy in their own DNA as a basic right, "[j]ust as we have a right to expect that relatives, neighbors, or

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[49] *See* Mintz, *supra* note 16.

[50] *See* Joh, *supra* note 42, at 683 (stating that DNA theft should be recognized as a criminal offense); *see also* Rothstein, *supra* note 44, at 540-41.

[51] *See* Joh, *supra* note 42, at 673.

[52] Mintz, *supra* note 16 (stating that the threats to privacy from DNA theft are extremely severe).

[53] *See Products and Pricing*, FAMILYTREEDNA.COM, www.familytreedna.com/products.aspx (last visited Nov. 30, 2011) (detailing a comprehensive list of pricing for genetic testing including: genealogy and anthropology testing, family finder for close genealogy testing, and other DNA testing).

[54] *See Genetic Predisposition DNA Test in the USA*, EASY-DNA.COM, www.easydna.com/genetic-predisposition-dna-testing.html (last visited Oct. 15, 2011) (offering tests for lupus, grave's disease, celiac disease, multiple sclerosis, psoriasis, aneurysm, arterial fibrillation, heart disease, peripheral arterial disease, venous thromboembolism, muscular degeneration, Alzheimer's disease, osteoarthritis, rheumatoid arthritis, obesity, migraine, type 1 diabetes, type 2 diabetes, bladder cancer, breast cancer, colorectal cancer, gastric cancer, lung cancer, prostate cancer, and skin cancer).

[55] *See* EASY-DNA.COM, *supra* note 54.

[56] *See One for you, Philip Marlowe*, *supra* note 1.

[57] *See* Rothstein, *supra* note, 6 at 570.

[58] *See Overview*, GENETICS & PUBLIC POLICY CENTER, http://www.dnapolicy.org/about.overview.html (last visited Jan. 18, 2012). The Genetics & Public Policy Center was created at Johns Hopkins University in 2002 by Pew Charitable Trusts with a goal of creating public awareness of genetic medicine's effects, including the Center's concerns with the effects of DNA theft. *Id*.

even strangers can't poke through our medical records without our permission, we should have a right to expect that people can't snoop through our genes."[59]

Unlike medical researchers, whose primary goals for obtaining genetic information involve medical research and development, private individuals often seek others' genetic material for personal or monetary reasons.[60] Individuals' unrestricted access to others' DNA can lead to issues with genetic stalking, which has particularly become an issue for celebrities and public figures.[61] Genetic stalking has led to the publication of personal genetic information over the Internet.[62] Individuals may go as far as to sell others' genetic information,[63] or even use the results of DNA testing, such as paternity or genetic predispositions, as blackmail.[64] As a result, a person's own private DNA information can be used against that person, although the individual did not consent to collection or testing of that DNA in the first place. As exemplified in the various risks associated with the publication of DNA information to third parties without an individual's consent, DNA testing provides the ability to access the most personal genetic information about others without their knowledge and publish it to anyone, in violation of personal privacy.[65]

DNA theft threatens not only privacy from the public sphere, but also individuals' privacy with respect to themselves[66] by denying individuals the ability to shield themselves from knowledge.[67] Many do not "want to find out about genetic propensities to develop incurable diseases out of fear that this discovery will [cause] . . . hopelessness, depression, or even suicide."[68] Even in the event of receiving positive news, such as learning the sex of a baby, people often consciously choose not to know the results of medical testing. When a person obtains and publishes another's genetic information without that individual's prior consent, that individual

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[59] *See* Peter Aldhous & Michael Rielly, *How My Genome was Hacked*, NEW SCIENTIST 8, 8-9 (March 28, 2009).

[60] *See* Bregman-Eschet, *supra* note 12, at 11-12 (stating that the private sector's primary goals in obtaining samples of others' DNA are related to personal and financial gains, often at the expense of others, unlike the public and non-profit sectors, whose primary goals are 'increasing the public welfare' through medical research).

[61] *See* Rothstein, *supra* note 6, at 10 (discussing genetic stalking and describing websites used to publish private DNA information obtained through DNA theft).

[62] *See* Rothstein, *supra* note 6, at 10.

[63] *See* Rothstein, *supra* note 6, at 10.

[64] *See* Joh, *supra* note 42, at 680.

[65] *See* Joh, *supra* note 42, at 680.

[66] *See* Mintz, *supra* note 16.

[67] *See* Joh, *supra* note 42, at 681-82 (positing that individuals are denied their right to personal privacy when they are not protected from DNA thieves publishing genetic information, thereby depriving them of their right to be unaware of their predispositions or diseases). Although this form of publication does not publish private genetic information to the public, Joh suggests that it is equally as threatening to individuals' privacy. Joh, *supra* note 42, at 681-82.

[68] Joh, *supra* note 42, at 682.

is thereby denied the right to choose which information they will learn about their own health or ancestry.[69]

Recognizing these risks associated with access to DNA testing, California has attempted to protect individuals from accessing information about their own DNA, even with their own consent.[70] California issued cease and desist orders to thirteen private companies prohibiting private labs from providing individuals with information about their own DNA, due to California's concerns with accuracy and utility of such tests.[71] It is clear that access to genetic information threatens the privacy of individuals, and the list of threats that DNA theft poses appears to be ever-expanding.[72]

B. Genetic Discrimination

Beyond providing private genetic information to the public, DNA theft creates potential problems with discrimination.[73] Employers, insurance companies, health care providers and other organizations may use DNA to discriminate when making important decisions.[74] Recognizing this threat,[75] Congress passed the Genetic Information Nondiscrimination Act of 2008 ("GINA").[76] GINA purports to prohibit

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[69] *See* HARRIET A. WASHINGTON, DEADLY MONOPOLIES 203 (2011) ("[t]oday, genetic tests can screen for four hundred conditions, from cystic fibrosis to Down's syndrome to sickle-cell disease and Huntington's chorea. But there are no effective treatments or cures for some conditions, calling the usefulness and advisability of testing for them into question").

[70] *See* Lee Silver, *California Thinks It's Dangerous for You to Look at Your Own DNA*, SCIENCE 2.0 (June 22, 2008, 5:12 PM), *available at* http://www.science20.com/challenging_nature/california_thinks_its_dangerous_for_you_to_look_at_your_own_dna. Silver posits that this policy is excessive and over-reaching but admits that California is validly concerned with the accuracy and reliability of many DNA tests conducted by labs that are unaccredited. *Id*.

[71] *See* Silver, *supra* note 70.

[72] *See* Silver, *supra* note 70.

[73] *See* Kathy L. Hudson, M.K. Holohan, & Francis S. Collins, *Keeping Pace with the Times- the Genetic Information Nondiscrimination Act of 2008*, 358 NEW ENGL. J. MED. 2661 (2008), *available at* http:www.nejm.org/doi/full/wo.1056/NEJMp0803964 (providing a "quick guide to GINA" but pointing out what "GINA does not do" and the shortfalls of the Act, particularly other discriminatory uses of genetic information and ways that employers and insurance carriers are able to maneuver around GINA regulations).

[74] *See* Hudson, *supra* note 73; see *also* Lee, *supra* note 4 (discussing the additional discrimination risks by money lenders and auto insurers to individuals with genetic indicators found in "high-risk" individuals, although these tendencies may never be realized).

[75] *See* Melissa E. Beyer, *The Genetic Information Nondiscrimination Act: Protecting Privacy and Ensuring Fairness in Health Insurance and Employment Practices*, (2008), *available at* http://www.kentlaw.edu/academics/plel/Beyer%20third%20place%20winner%202008-09%20LWJC.pdf (last visited Nov. 25, 2011) (advocating for GINA, positing that GINA will prove to be the best solution for many citizens' concerns regarding threats of potential insurance and employment discrimination based on genetic information).

[76] *See* Beyer, *supra* note 75, at 28 (stating that GINA purports to prevent employers or group health insurers from discriminating based on genetic information by preventing these institutions from requesting or requiring that a person undergo genetic testing and bars employers from making employment decisions (hiring or firing) and group health insurers

employers and health insurers from discriminating based on genetic information by preventing them from requiring genetic testing or from making any employment or insurance decisions, such as raising health insurance costs or determining terms or conditions of employment, based on genetic information.[77] Although it has been called the first civil rights legislation enacted in the 21st century,[78] as many have noted since the adoption of GINA in 2008, numerous genetic discrimination issues remain unsolved by this federal legislation.[79]

First, while GINA applies to group health insurers and employers, it does not cover other institutions such as life insurance, disability insurance, long-term care insurance, or automobile insurance carriers.[80] GINA also only applies to group health insurers and employers in limited situations.[81] GINA does not cover members of the military.[82] Additionally, previously diagnosed genetic conditions or diseases are not protected under GINA, leaving employers free to discriminate based on individuals' past or current health status.[83] Once a genetic condition is no longer asymptomatic, meaning the condition has manifested itself in some detectable form, a health insurance company may decline to renew an individual's health insurance policy or increase the policy rates.[84]

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from making health coverage decisions based on genetic information); *see* Rothstein, *supra* note 44, at 562 (stating that it took a difficult thirteen-year battle in Congress before GINA was enacted).

[77] *See* Rothstein, *supra* note 44, at 562-63 (citing GINA § 2(5), stating that Congress found that GINA "is necessary to fully protect the public from discrimination and allay their concerns about the potential for discrimination, thereby allowing individuals to take advantage of genetic testing, new technologies, research, and new therapies").

[78] *See* Joh, *supra* note 42, at 686.

[79] *See* Joh, *supra* note 42, at 686.

[80] *See* Joh, *supra* note 42, at 686.

[81] Beyer, *supra* note 75, at 28 (GINA does not apply to symptomatic genetic predispositions and employers are often able to obtain genetic information when they request medical information from doctors); *see also* Mark A. Rothstein, *Genewatch: GINA's Beauty is Only Skin Deep*, COUNCIL FOR RESPONSIBLE GENETICS, www.councilforresponsiblegenetics.org/GeneWatch/GeneWatchPage.aspx?pageId=184 (last visited Nov. 30, 2011) (arguing that GINA, at best, is a small step in the right direction toward remedying genetic discrimination). Rothstein states that advocates of genetic rights and fairness should continue to advocate for legislation to protect individuals from the use of genetic information for employment and insurance discrimination. *Id*.

[82] *See* Beyer, *supra* note 75, at 31.

[83] Beyer, *supra* note 75, at 32.

[84] *See* Rothstein, *supra* note 44, at 563 (stating that once an individual becomes ill, health insurance companies are free to discriminate against an individual without violating GINA). GINA § 102(b) states that once there has been a manifestation of a disease or disorder, this discrimination is allowed. Rothstein, *supra* note 44, at 563. Rothstein is troubled by a lack of definition of the term "manifestation of a disease" and believes that insurance companies may still become aware of a genetic conditions through unprivileged genetic information when the company would otherwise have no way of knowing about the condition, thereby creating additional avenues for genetic discrimination. Rothstein, *supra* note 44, at 563.

As insurance and employment are a vital part of life in the United States, it is important that individuals are protected from genetic information discrimination.[85] In order to save money on health insurance or sick leave, employers could potentially abuse DNA testing to pick only the healthiest employees who would likely be least costly for insurance purposes.[86] Also problematic is the fact that genetic predispositions are only indicators of future genetic conditions and are not a guarantee of future health problems.[87] Employers and health insurers could discriminate against an individual based on purely hypothetical information that may never develop into a condition.[88] In essence, although the federal government has attempted to address discrimination based on genetic information by enacting GINA, many discrimination risks in employment, insurance coverage (including health, long-term coverage, disability coverage, life insurance, and automobile coverage, among others), and in receiving benefits remains largely unprotected from the various dangers associated with genetic discrimination.[89]

C. Paternity Testing

DNA theft affects not only the individual from whom the DNA was stolen but also the individual's family when DNA is used for paternity testing.[90] With developing technology,[91] an expensive blood test is no longer necessary to determine the identity of a child's father.[92] A simple test from a professional lab or a short trip to a drugstore can reveal whether a man is a child's father, potentially turning a family upside down in as little as two days.[93] Beyond just paternity, DNA testing

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[85] Rothstein, *supra* note 44, at 563.

[86] Rothstein, *supra* note 6, at 361.

[87] Rothstein, *supra* note 6, at 477.

[88] Rothstein, *supra* note 6, at 477.

[89] *See* Nancy Lee Jones & Amanda K. Sarata, *Genetic Information: Legal Issues Relating to Discrimination and Privacy*, CONGRESSIONAL RESEARCH SERVICE (Mar. 10, 2008), http://assets.opencrs.com/rpts/RL30006_20080310.pdf (providing an overview of genetic privacy laws and a comprehensives list of the current legislation enacted by the states); Rothstein, *supra* note 44, at 563.

[90] *See* JoNel Aleccia, *Who's Your Daddy? Answer's at the Drugstore*, NBCNEWS.COM (May 23, 2008, 1:40:38 PM), *available at* http://www.msnbc.msn.com/id/23814032/ns/health womens_health/t/whos-your-daddy-answers-drugstore/ (providing examples of three individuals whose lives were impacted by the use of paternity testing, all from take-home paternity testing purchased from a drugstore for under $30). Aleccia suggests that the sale of DNA tests in drugstores presents many accuracy and ethical concerns, such as "fraud and deception." *Id*. Michael Watson, the executive director of the American College of Medical Genetics, estimates that somewhere between five and ten percent of the paternity testing that he has conducted has yielded results proving that the presumed father was not the actual father of a child. *Id*.

[91] Andrew Pollack, *Before Birth, Dad's ID*, N.Y. TIMES (June 19, 2012), *available at* http://www.nytimes.com/2012/06/20/health/paternity-blood-tests-that-work-early-in-apregnancy.html?page wanted=all&_r=0.

[92] *See* Aleccia, *supra* note 90.

[93] *See* Aleccia, *supra* note 90.

can also reveal maternity, grandparentage, siblingship, twin zygosity, and other family-related information.[94] The cost of these tests has sharply decreased, ranging from just $30 to $89 for take-home paternity tests[95] to around $300 for professional lab-run DNA tests,[96] making paternity testing extremely affordable and accessible.[97]

While the availability of paternity testing has several benefits, such as comfort to a family or discovery of long-lost biological relatives, it also brings many issues involving privacy and family disorder.[98] Issues have arisen with accuracy,[99] consent,

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[94] *See Testing Services*, DNA DIAGNOSTICS CENTER, http://www.dnacenter.com/dnatesting.html (last visited Feb. 5, 2012) (listing fourteen genetic tests, including maternity, paternity, prenatal paternity, grand parentage, adoption, sibling ship, child identification, twin zygosity, and DNA profiling tests). These tests are available with a variety of samples, including paternity testing conducted with or without the mother and grand parentage testing with our without the presumed parents. *Id*. For some tests, such as home DNA paternity testing and legal DNA paternity testing, results are available the next day. *Id*. Other test results are available after two to nine working days. *Id*.

[95] *See Identigene DNA Paternity Test Collection Kit*, WALGREENS, www.walgreens.com/store/c/identigene-dna-paternity-test-collection-kit/ID=prod4202920-product (last visited Feb. 5, 2012); *see also* Aleccia, *supra* note 90 (discussing the potential negative effects of take-home paternity testing, such as inconsistency and a lack of consent or knowledge required of the father, potentially leading to devastating effects for children and their families).

[96] *See* Mintz, *supra* note 16 (discussing low pricing of DNA testing making such testing available to nearly anyone).

[97] *See* Aleccia, *supra* note 90 (quoting Douglas Fogg, chief operation officer for Identigene, one of the least expensive take-home paternity test manufacturers, stating that "[e]veryone is purchasing these tests because they're curious"). Fogg predicted that Identigene would sell around 52,000 paternity tests in the first year of its product's sales alone. Identigene products are available at drugstores, such as Walgreens. *Id.*; *see generally* Melanie Swan, *Multigenetic Condition Risk Assessment in Direct-to-Consumer Genomic Services*, 12 GENETICS IN MED. 279, 279 (2010) (discussing availability of direct-to-consumer DNA testing and its effects on genetic privacy). Swan provides a comprehensive chart displaying the various types of DNA testing available to consumers and their costs. *Id*. Swan notes that, as of 2009, companies providing DNA testing offered testing for a total of 213 genetic conditions. *Id*. The most common testing offered by these companies includes testing for colorectal cancer, type 1 diabetes, type 2 diabetes, glaucoma, lung cancer, prostate cancer, heart attack, obesity, multiple sclerosis, and rheumatoid arthritis. *Id*. When Francis Collins, director of the National Institute of Health, sent samples to three direct-to-consumer genomic companies, she received a different result from each company. *Id*. One company assessed Collins at high risk, one at average risk, and another at low risk for the same condition. *Id*. Swan suggests that these differing results are the product of each direct-to-consumer company assigning different values to different risk indicators. *Id*.

[98] *See* Peter Aldhous & Michael Reilly, *Who is Testing Your DNA?*, NEWSCIENTIST, Jan. 2009, at 9, 11 (discussing the unreliability of results from take-home DNA testing, processed at labs which are not accredited, particularly paternity tests).

[99] There are both federal and state regulations restricting the admissibility of DNA evidence. Federal law mandates quality assurance standards for laboratories conducting DNA testing and databasing, including the use of an accredited laboratory, quality assurance, and many additional standards; *Quality Assurance Standards for DNA Databasing Laboratories*, FED. BUREAU OF INVESTIGATION, (2009), *available at* http://www.fbi.gov/aboutus/lab/codis/qas_databaselabs (last visited Jan. 18, 2012). For a comprehensive list of federal DNA databasing standards pursuant to 42 U.S.C. § 14132, consult the Federal DNA Identification

and family turmoil. John Taddie noted a problematic trend in his article entitled *All Paternity Tests are Not Equal*, "a paternity test can impact the lives of its participants and their families profoundly and permanently, perhaps more so than any other laboratory test results they will ever obtain . . . patients often turn to the Internet for help . . . [and] others just choose the least expensive test they can find. This can be a costly mistake."[100] Grave consequences can result from a faulty paternity test, particularly those tests conducted by non-accredited labs, and consumers are not adequately warned about the likelihood of these errors.[101]

Equally as troubling as issues with inaccuracy of paternity testing is the lack of consent required by labs and take-home tests.[102] Paternity testing can be conducted on gum, hair, or even a used Kleenex, requiring no knowledge of the mother or father.[103] This can become especially problematic during a child custody or child support battle when a mother or "doubtful dad" is tempted to send DNA samples for testing to determine paternity.[104] In light of the accuracy issues and the profound impact such results may have on a family, an individual's right to knowledge and consent of paternity testing is particularly vital.[105]

D. Security Risks

Lastly, DNA theft poses risks to individuals' safety and security. With DNA collection databases being used for identification by federal[106] and state law

Act; *see also* the Ohio Attorney General's website for information regarding Ohio's laboratory division and a list of authorized DNA labs in the state of Ohio: http://www.ohioattorneygeneral.gov/Law-Enforcement/Bureau-of-Criminal-Investigation/Laboratory-Division/Authorized-DNA-Labs.

[100] *See* John Taddie, *All Paternity Tests are not Equal*, EBOOKBROWSE.COM, 1 (July 22, 2010), *available at* http://ebookbrowse.com/all-paternity-tests-are-not-equal-john-taddie-phd-072310-pdf-d55869167 (noting that many paternity tests do not require that participants first ensure that the tested DNA sample is from the intended participant and second that the person conducting the paternity test is competent to do so, leading to unreliable results.) These tests are also troubling because they do not require any form of consent from the DNA host. *Id*.

[101] *Id.*

[102] *See* Rothstein, *supra* note 44, at 540-41.

[103] Rothstein, *supra* note 44, at 540-41. While issues often arise with a lack of consent to paternity testing by fathers, paternity testing can also be conducted without consent of the mother, which can also be damaging for a family, particularly during a custody dispute. Courts enforce particular guidelines for genetic testing used as evidence of paternity in court, including chain of custody requirements and the use of an accredited lab. *Id*. Courts may order that a purported parent submit to paternity testing in the event of a custody or child support dispute. *Id*. Although they bear no legal weight in court, these direct-to-consumer paternity tests can still have devastating effects on families, such as divorce, separation, or a parent's abandonment of his or her child or family. *Id*.

[104] *See* Rothstein, *supra* note 44, at 540-41.

[105] *See* Taddie, *supra* note 100, at 1.

[106] The DNA Fingerprint Act of 2005 provides that the federal government may collect DNA samples from any person who is arrested. 42 U.S.C. § 14135a(a)(1)(A) (LexisNexis2013). This DNA is then stored in a federal DNA database, which is accessible to both federal and state agencies. 42 U.S.C. § 14135a(a)(1)(A) (LexisNexis 2013).

enforcement agencies,[107] including Ohio law enforcement,[108] DNA has become a source of identification, much like fingerprinting.[109] The federal government maintains both genetic databases and biobanks.[110] The US National Pathology Repository of the Armed Forces Institute of Pathology currently has the largest collection of blood and tissue samples in the country, holding more than 92 million human tissue samples collected since 1864.[111] Both federal and state governments also maintain DNA databases used for criminal identification.[112]

Aware that DNA is now a primary source of criminal identification, some criminals have begun to take advantage of this identification method, and "several instances have been reported where criminals have planted or tampered with DNA evidence, or paid inmates to take DNA tests as a way of confusing investigators or evading prosecution."[113] Criminals also intentionally plant DNA evidence at crime scenes to mislead investigators and have learned how to best avoid leaving their own

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[107] *See* Jennifer Lynch, *Rapid DNA: Coming Soon to a Police Department or Immigration Office Near You*, ELECTRONIC FRONTIER FOUND. (Jan. 6, 2013), https://www.eff.org/deeplinks/2012/12/rapid-dna-analysis (last visited May 23, 2013).

[108] *See* OHIO REV. CODE ANN. § 2901.07 (LexisNexis 2011), OHIO REV. CODE ANN. § 2152.74 (LexisNexis 2011). The Ohio criminal DNA database legislation mandates DNA collection for anyone who is incarcerated, regardless of whether the individual is eventually convicted of an offense. OHIO REV. CODE ANN § 2901.07 (LexisNexis 2011); OHIO REV. CODE ANN § 2152.74 (LexisNexis 2011). The DNA sample is kept in a DNA database. OHIO REV. CODE ANN § 2901.07 (LexisNexis 2011); OHIO REV. CODE ANN § 2152.74 (LexisNexis 2011). This Note does not address concerns regarding the constitutionality of the State's collection of DNA for criminal purposes.

[109] *See* Joh, *supra* note 35, at 869 (concluding that DNA, like fingerprints, provides identifying information). Joh also discusses the differences between fingerprinting and DNA testing. *Id*.

[110] *See* Bregman-Eschet, *supra* note 12, at 14.

[111] Bregman-Eschet, *supra* note 12, at 13.

[112] Bregman-Eschet, *supra* note 12, at 16 (these DNA databases were first authorized by the DNA Identification Act of 1994, which authorized the FBI to establish a national DNA database system called CODIS, the Combined DNA Identification System). This system also allowed states to develop their own DNA databases and access other states' and national DNA information. *Id*. Regardless of whether a person is convicted of a crime, the government is entitled to collect, analyze, and store DNA of any person either charged with or arrested for a crime. *Id*.; There are many concerns about the constitutionality of these DNA databases. This Note does not address these concerns. *See generally* Bergman-Eschet, *supra* note 8 (detailing an analysis and discussion of the constitutionality of these DNA databases).

[113] *See* Tania Simoncelli & Sheldon Krimsky, *A New Era of DNA Collections: At What Cost to Civil Liberties?* AM. CONSTITUTION SOC'Y FOR LAW AND POLICY, 17 (2007), *available at* http://www.councilforresponsiblegenetics.org/pageDocuments/PG6T8WPI4A.pdf (stating that the use of DNA evidence for criminal identification comes at the cost of many civil liberties). The more broad discretion the State has to obtain and test DNA, the more likely innocent individuals will be charged with crimes that they did not commit. *See generally* 42 U.S.C. § 14135a(a)(1)(A) (LexisNexis 2013).

DNA behind.[114] The government often does not catch this behavior and innocent individuals have been charged with crimes due to this DNA evidence tampering.[115]

In other instances, DNA thieves tamper with DNA, using a process called "whole genome amplification," whereby they are able to give blood a new profile with fairly basic equipment.[116] The properties of DNA can be changed to mislead investigators attempting to identify criminals in their criminal investigations. When sent a blood sample that had been tampered with, a U.S. FBI forensic team failed to catch the irregularity.[117] Given the government's increased reliance on DNA evidence for both the conviction and acquittal of criminals, genome amplification is a severe threat to safety and justice.[118]

Thirdly, the use of genetic information as identification has created a new form of identity theft: genetic identity theft.[119] Previously, identity theft meant that a criminal took personal data, such as bank account information, a license number, or maybe even a social security number.[120] This new form of identity theft is far more personal.[121] This type of theft has "consequences perhaps even more dramatic and unsettling than financial losses because of the personal and intimate violation. And it's not coming soon. It's already here, thanks to the plummeting cost of genomic technologies."[122] Genetic identity theft delves far deeper into an individual's personal information than simply a social security number; genetic identity theft includes physical characteristics and genetic makeup, a far more egregious violation of privacy. Without legislative protection against DNA theft, people's safety and security are left defenseless.[123]

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[114] *See* Simoncelli & Krimsky, *supra* note 113 (stating that four men in Massachusetts allegedly attempted to switch identity bracelets when, while in custody, authorities were drawing blood for a DNA sample). The men were indicted on charges of DNA tampering. *Id*.

[115] *See* Simonelli & Krimsky, *supra* note 113.

[116] *See New Method Found to Fight DNA Theft*, PEOPLEDAILY.COM (Aug. 21, 2009, 1:23 PM), http://english.people.com.cn/90001/90781/90878/6735530.html; *see generally*, JIM PETRO & NANCY PETRO, FALSE JUSTICE: EIGHT MYTHS THAT CONVICT THE INNOCENT 205-11 (2010) (discussing the use of DNA evidence in a criminal trial and its impact on the accuracy of convictions).

[117] *See* PEOPLEDAILY.COM, *supra* note 116.

[118] *See* PEOPLEDAILY.COM, *supra* note 116.

[119] *See* Alan McHughen, *Technological Advances Increase the Risk of Genetic Identity Theft*, 29 GENETIC ENG'G & BIOTECH. NEWS 14 (AUG. 1, 2009) (noting the irony that "you, sleeping soundly knowing your financial information is secure, may not even know you've been a victim of genetic identity theft"). Nosey neighbors or anyone with a few hundred dollars to spare is capable of learning about your heritage and much more, thanks to technological advances. These advances all stemmed from the original Human Genome Project, which cost $3 billion to sequence a human genome. *Id*. Today, such sequencing costs $48,000. *Id*. Much more affordable, however, are DNA tests targeting specific information, making genetic identity theft a real and current problem. *Id*.

[120] *Id.*

[121] *Id.*

[122] *Id.*

[123] *Id.*

IV. DNA THEFT LEGISLATION

There is no national regulation of DNA theft.[124] States have begun to address the growing problem by adopting DNA theft legislation.[125] Eight states, Alaska, Florida, New Jersey, New York, Oregon, Minnesota, New Hampshire, and New Mexico have adopted legislation, five of which[126] have criminalized DNA theft.[127] New Mexico, New Hampshire, and Minnesota's legislation define DNA theft as a civil action.[128] Massachusetts has each passed, and California and Vermont has proposed, a Genetic Bill of Rights.[129]

Of the five states that have criminalized DNA theft, Alaska's statute is considered the most comprehensive and severe.[130] Alaska's statute provides:

> (a) A person commits the crime of unlawful DNA collection, analysis, retention, or disclosure if the person knowingly collects a DNA sample from a person, performs a DNA analysis on a sample, retains a DNA sample or the results from DNA analysis, or discloses the results of a DNA analysis in violation of this chapter.
> (b) In this section, "knowingly" has been the meaning given in AS 11.81.900.[131]
> (c) Unlawful DNA collection, analysis, retention, or disclosure is a class A misdemeanor.[132]

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[124] *See* Hammerschmidt, *supra* note 5.

[125] *See* Rothstein, *supra* note 6, at 560.

[126] These five states are: Alaska, New Jersey, New York, Florida, and Oregon.

[127] *See* ALASKA STAT. § 18.13.030 (LexisNexis 2004); *see also* N.J. STAT. ANN. § 10:5-45, N.J. STAT. ANN. § 10:5-49 (West 1996); *see also* N.Y. CIV. RIGHTS § 79-L (West 2011); *see also* FLA. STAT. ANN. § 760.40(2)(b) (West 2011); *see also* OR. REV. STAT. ANN. § 192.543(2) (West 2011).

[128] *See* N.M. STAT. ANN. § 24-21-1 to 24-21-7 (West 2011); *see also* N.H. REV. STAT. ANN. § 141-H:1-6 (West 2011); *see also* MINN. STAT. ANN. § 13.386 § 4 (West 2011).

[129] *See* Huber, *supra* note 19 (intending to protect individuals from creditors' use of genetic information for marketing or determining individuals' creditworthiness). The Bill of Rights also states that genetic information is exclusively the property of the host from whom the genetic material is obtained and states that individuals must obtain express consent from an individual to obtain his or her DNA. *Id*. The States' Genetic Bill of Rights proposes both civil and criminal penalties for DNA theft. *Id*.

[130] *See* Lee, *supra* note 4; *see* Joh, *supra* note 42.

[131] ALASKA STAT. ANN. § 11.81.900(a)(2) provides that:

> a person acts 'knowingly' with respect to conduct or to a circumstance described by a provision of law defining an offense when the person is aware that the conduct is of that nature or that the circumstance exists; when knowledge of the existence of a particular fact is the element of an offense, that knowledge is established if a person is aware of a substantial probability of its existence, unless a person actually believes it does not exist; a person who is unaware of conduct or a circumstance of which the person would have been aware had that person not been intoxicated acts knowingly with respect to that conduct or circumstance.

ALASKA STAT. ANN. § 11.81.900(a)(2) (West 2011).

A violation of this provision is a Class A misdemeanor, punishable by up to one year imprisonment.[133] Alaska's statute is the most comprehensive and effective statute because it punishes an individual for taking any part in a DNA theft violation.[134] For example, a person who publishes the results of another's DNA testing without prior informed consent is liable for DNA theft, even if he did not obtain the DNA sample or have that DNA sample tested.[135] This heightened standard holds individuals criminally liable for any breach of genetic privacy by treating an action at any stage in the process of DNA theft as a commission of the entire crime.[136] This Alaska law serves as a deterrent for any future violation of DNA privacy, as individuals may fear that even receiving information regarding another's DNA may expose them to criminal liability for DNA theft.[137]

Similarly, DNA theft in Florida is considered a first-degree misdemeanor, punishable by imprisonment not exceeding one year and/or a fine not exceeding $1,000.[138] However, Florida's definition of DNA theft is not as comprehensive as Alaska's. Florida's statute defines DNA theft to include only the testing and publication of genetic information and fails to address the collection of DNA.[139] While a person obtaining collected but untested DNA is arguably harmless to the DNA host, a person may be able to escape liability by employing another individual to have the DNA tested.[140] A comprehensive statute like Alaska's better serves to deter DNA theft in the first place by punishing all actors involved in the process, thereby creating a heightened liability for any action resulting in DNA theft.[141]

New Jersey's criminal DNA theft statute provides for progressive punishment ranging from six months imprisonment and/ or a fine of up to $1,000 to one year

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[132] *See* ALASKA STAT. ANN. § 18.13.030 (West 2011); *see also* ALASKA STAT. ANN. § 12.55.135 (West 2011) (stating that a defendant convicted of a class A misdemeanor may be sentenced to imprisonment for no more than one year).

[133] Meaning that Alaska's statute defines DNA theft as the unlawful collection, analysis, retention, or disclosure of DNA material and test results; *see* ALASKA STAT. ANN. § 18.13.030 (West 2011); *see also* ALASKA STAT. ANN. § 12.55.135 (West 2011).

[134] ALASKA STAT. ANN. § 18.13.030 (West 2011).

[135] ALASKA STAT. ANN. § 18.13.030 (West 2011).

[136] ALASKA STAT. ANN. § 18.13.030 (West 2011).

[137] ALASKA STAT. ANN. § 18.13.030 (West 2011).

[138] *See* FLA. STAT. ANN. § 760.40 (2)(a) (West 2011) (stating that "DNA analysis may be performed only with the informed consent of the person to be tested, and the results of such DNA analysis, whether held by a public or private entity, are the exclusive property of the person tested, are confidential, and may not be disclosed without the consent of the person tested").

[139] *See* FLA. STAT. ANN. § 760.40 (West 2011).

[140] A person may attempt to escape liability by having others do the dirty work, or legally punishable portion of DNA theft. For instance, as was the case with Steve Bing, Kirk Kerkorian hired Anthony Pelliciano, a private investigator, to dig through Steve Bing's garbage and obtain Bing's dental floss. *See One for you, Philip Marlowe, supra* note 1.

[141] *See generally,* N.Y. CIV. RIGHTS (West 2011) (devoid of any regulation of or punishment for the collection of DNA samples).

imprisonment and/ or a fine of up to $5,000.[142] The statute defines DNA theft as "obtaining genetic information from an individual or from an individual's DNA sample."[143] This definition is somewhat broad and fails to address the many steps involved in DNA theft, as set forth by the Alaska state statute.[144] Like Florida's statute, New Jersey's does not fully encompass the crime of DNA theft in accordance with the Alaska state statute.[145] Additionally, New Jersey's legislation provides an exception for "anonymous research where the identity of the subject will not be released," along with other exceptions, potentially creating loopholes in enforcement.[146]

New Mexico, New Hampshire, and Minnesota define DNA theft as a "civil wrong,"[147] allowing only injunctive and equitable relief.[148]

The Massachusetts Genetic Bill of Rights[149] attempts to address some of the discrepancies with the federal Genetic Information Nondiscrimination Act of 2008. The Bill of Rights maintains that genetic material is considered real property and that an individual has the right to assert ownership over his own genetic material and information relating to that material.[150] The Bill also states that institutions providing health care, life insurance, long-term care insurance, disability insurance, auto insurance, financial institutions, and coverage and benefit providers may not discriminate based on any genetic information, in an attempt to address the problems most often noted by critics of GINA as lacking genetic discrimination protection.[151] Individuals may seek relief under the Bill[152] from any individual who violates the

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[142] *See* N.J. STAT. ANN. § 10:5-49 (West 2011).

[143] *Id.*

[144] *Id.*; *see also* ALASKA STAT. ANN. § 18.13.030 (West 2011).

[145] N.J. STAT. ANN. § 10:5-49 (West 2011); *see also* ALASKA STAT. ANN. § 18.13.030 (West 2011).

[146] *See* N.J. STAT. ANN. § 10:5-45 (West 2011) (this anonymous research speaks more than medical research and diagnostic DNA testing, but may be used by an offender to avoid liability for DNA theft by claiming that the DNA sample was anonymous).

[147] *See generally*, Rothstein, *supra* note 6.

[148] *See* N.M. STAT. ANN. § 24-21-1 to 24-21-7 (West 2011); *see also* N.H. REV. STAT. ANN. § 141-H:1-6 (West 2011); *see also* MINN. STAT. ANN. § 13.386 sec 4 (West 2011).

[149] *See* MASS. GEN. LAWS ch.111 § 70G (West 2012); *see also* MASS. GEN. LAWS. ch.93A § 2 (West 2012).

[150] MASS. GEN. LAWS ch.111 § 70G (West 2012); *see also* MASS. GEN. LAWS. ch.93A § 2 (West 2012); *see also* Mintz, *supra* note 16.

[151] *See generally*, Joh, *supra* note 35; *see also The Massachusetts Genetic Bill of Rights Section-By-Section*, THE FORUM ON GENETIC EQUITY (January 2011), *available at* http://www.councilforresponsiblegenetics.org/pageDocuments/3ITSRO4Z7B.pdf (last visited Jan. 19, 2012) (providing a section-by-section analysis of the Massachusetts Bill of Rights, explaining what the Bill states, who it protects, and the Massachusetts legislature's intended purpose for adopting the section).

[152] *See* THE FORUM ON GENETIC EQUITY, *supra* note 151.

Bill, including possible equitable monetary relief.[153] In these respects, this Bill is akin to the three states' statutes defining DNA theft as a civil wrong.

Outside of the United States, several other countries have acknowledged and addressed DNA theft. England, Wales, and Northern Ireland passed the Human Tissue Act in 2004, criminalizing DNA theft.[154] In support of this legislation, Baroness Helena Kennedy, chair for the Human Genetics Commission stated, "[w]e are not saying that people are not entitled to find out who had fathered a child, for example, but we are saying that it should be done with proper authority and consent . . . People should be able to have some control over their personal genetic information."[155] Scotland passed its own Human Tissue Act in 2006,[156] and Australia has proposed DNA theft legislation, which would criminalize the nonconsensual collection of DNA.[157]

Germany's Parliament (the Bundestag) passed the Human Genetic Examination Act in 2009,[158] which prohibits genetic testing for employment purposes, insurance coverage purposes, and prenatal diagnosis.[159] A violation of the Act and failure to obtain consent is punishable by imprisonment of up to one year or a fine.[160] Internationally, countries are recognizing that individuals must be provided with statutory safeguards for their DNA and are beginning to take action. Ohio should look to not only other states' legislation but also to international legislation as an indicator of Ohio's imminent need for DNA theft legislation.

V. PROPOSED DNA THEFT LEGISLATION FOR OHIO

DNA theft presents a threat to individuals' privacy, safety, and security. As technology develops, thereby making DNA testing and manipulation more accessible, these problems will inevitably grow and expand.[161] Therefore, the Ohio

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[153] *See* THE FORUM ON GENETIC EQUITY, *supra* note 151.

[154] UK Human Tissue Act (2004) (c 30) (barring individuals from removing, storing, and using others' DNA without prior informed consent, but excluding criminal investigations and medical research).

[155] *See* Zosia Kmietowics, *Government Should Outlaw Theft of DNA, Commission Says* BRITISH MED. J. (May 25, 2002), *available at* http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1123205/ (discussing Great Britain's reasons for passing the Human Tissue Act and outlawing DNA testing without informed consent) (last visited Nov. 30, 2011).

[156] Human Tissue (Scotland) Act (2006), *available at* http://www.legislation.gov.uk/asp/2006/4/contents

[157] *See* Joh, *supra* note 42, at 685.

[158] The Human Genetic Examination Act is called the Untersuchungen bei Menschen (GenDG). The full text of the Act is available at http://www.eurogentest.org/uploads/1247230263295/GenDG_German_English.pdf (last viewed Jan. 19, 2012).

[159] *Id.; see also* Joh, *supra* note 42, at 684.

[160] *See* Joh, *supra* note 42, at 684. The Act was enacted in part as a result of a court case in which a man took his daughter's gum to prove that he was not her biological father. *Id*. The German Federal Constitutional Court found that the paternity test violated the child's right to privacy because it was conducted without her consent, and the Court rejected the father's claim to reject legal responsibility of the child. *Id*.

[161] *See* Joh, *supra* note 42, at 673.

General Assembly should pass DNA theft legislation criminalizing DNA theft in order to protect the privacy and safety of its residents.

While individuals leave traces of DNA behind, they also leave behind additional genetic markers that are not protected by legislation, such as fingerprints.[162] Just as with DNA, fingerprints are equally unique and can be used for identification purposes but are not protected by legislation.[163] One might inquire, then, why an individual's privacy rights in DNA should be protected by legislation when fingerprints are not. In fact, the Ninth Circuit has held that a blood sample is not substantially distinguishable from fingerprinting in the context of requiring a convicted felon to submit to a blood sample rather than fingerprinting.[164]

However, there is a key difference between DNA and fingerprints that warrants additional protection for DNA: the amount of information beyond simply identifying an individual that is available with DNA testing.[165] DNA provides information such as paternity[166] and genetic predispositions and health conditions far beyond the information provided by fingerprints.[167] In addition to identification information, DNA contains personal data that, when misused, can cause family turmoil, personal distress or depression, legal repercussions, and employment and insurance discrimination.[168] A violation of an individual's privacy in his DNA is vastly more invasive than obtaining that individual's fingerprints without his prior consent. In light of this heightened need for privacy, it is therefore imperative that this genetic information be protected by Ohio legislation.

A. Why DNA Theft Should be Regulated by the States

Thus far, the federal government has taken no action to prevent DNA theft.[169] In an attempt to prevent employment and insurance discrimination, Congress enacted GINA.[170] However, GINA fails to address many employment and insurance

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[162] *Id.* at 698 (concluding that DNA, like fingerprints, provides identifying information). However, Joh notes that DNA and fingerprints differ in several respects. *See id*.

[163] *Id.*

[164] *See* Rise v. State of Oregon, 59 F.3d 1556 (9th Cir., 1995); *see also* Bregman-Eschet, *supra* note 12, at 9 (discussing the differences between genetic information and other types of medical information, particularly fingerprints).

[165] *See* Bregman-Eschet, *supra* note 12, at 9-10.

[166] *See* Aleccia, *supra* note 90.

[167] *See* Rothstein, *supra* note 6, at 539-42.

[168] *Id.*

[169] *See* Hammerschmidt, *supra* note 5. Fingerprints are not afforded special protection under the law; they are considered abandoned property, just as a can or cigarette butt thrown in a public garbage would be. *See id*. Fingerprints may be similar in their absolute unique nature and use for identification, but fingerprints do not provide the personal information available in DNA. *See id*. It can be argued, then, that individuals do not have a reasonable expectation of privacy in the fingerprints that they leave behind, whereas individuals would have a reasonable expectation of privacy in the DNA which they leave behind, because a reasonable individual would not expect that DNA contained on a discarded object would be used for DNA testing.

discrimination threats and does not address the numerous other problems which DNA theft creates.[171]

Due to the federal government's inaction in protecting its citizens from DNA theft, states have begun to enact laws to address the problem.[172] It is imperative that states, particularly Ohio, build on this momentum and enact legislation in order to both prevent DNA theft and provide individuals with a means of protection once DNA theft occurs.[173] With legislation in place, victims of DNA theft would be able to file a claim with Ohio law enforcement and the State can work to prevent the offender from causing further damage to the victim.[174] As it currently stands, Ohio residents have no valid claim with the State to prevent damage resulting from DNA theft if the DNA is taken from a discarded item not protected by law.[175]

B. Why DNA Theft Should be a Criminal Offense

Three states have attempted to address DNA theft issues with civil sanctions.[176] In light of the serious risks posed by DNA theft, civil sanctions are an inadequate method of deterrence.[177] Family stability, job and insurance discrimination, privacy, and security are at risk when DNA theft is left unpunished.[178] Some have even encountered genetic stalking and blackmailing[179] and false criminal charges.[180] These risks are too serious to treat lightly. Ohio must address DNA theft head-on and protect its citizens by criminalizing DNA theft in order to "send[sic] a broader normative message about the seriousness of these harms to genetic privacy."[181]

While Ohio legislation protects Ohioans from theft, Ohio residents have no legal protection from DNA theft.[182] Many would argue that privacy in one's DNA and safety from security risks from tampering with DNA is far more valuable than

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[170] *See Hudson*, *supra* note 73 (describing GINA but stating that GINA has many shortfalls and fails to adequately protect individuals from genetic discrimination).

[171] *See Hudson*, *supra* note 73.

[172] *See Rothstein*, *supra* note 6, at 560 (providing a list of states that have enacted DNA theft legislation and states that have enacted a Genetic Bill of Rights).

[173] *See* Rothstein, *supra* note 6, at 560. (explaining why DNA theft is a growing problem).

[174] *See* Rothstein, *supra* note 6, at 560.

[175] *See* Hammerschmidt, *supra* note 5.

[176] *See supra* Part IV (discussing the civil sanctions for DNA theft imposed by New Mexico, New Hampshire, and Minnesota).

[177] *See supra* Part IV.

[178] *See* Rothstein, *supra* note 6, at 539-42 (claiming that DNA theft started in the 1980s and continues to proliferate today).

[179] *See* Rothstein, *supra* note 6, at 539-42.

[180] *See* Simoncelli, *supra* note 113, at 17 (Simcelli argues that DNA testing has led to false criminal charges in some cases).

[181] *See* Rothstein, *supra* note 6, at 539-42 (arguing why criminal DNA theft legislation is necessary).

[182] *See supra* Part I (discussing the various states that have enacted legislation protecting genetic information and noting that Ohio has not enacted any legislation).

tangible objects.[183] In examining whether Ohio residents currently have or should have any recourse for DNA theft under Ohio law, we must first examine Ohio theft law. Under current Ohio theft law, no person may knowingly exert control over or obtain either the property or services of another.[184] Theft is classified as a first-degree misdemeanor, at minimum, which is punishable by up to $1,000 and no more than six months imprisonment.[185] Unfortunately for Ohio residents, as current common law categorizes DNA contained on discarded items as "abandoned" and therefore not protected under the law, theft laws provide no protection from DNA theft.[186]

As theft of property and services is classified as at least a first-degree misdemeanor at minimum, DNA theft, a crime violating a person's privacy and posing many risks to a person's livelihood, should also be criminalized. Ohio should adopt legislation to ensure that these interests are protected, just as Ohio has done to protect Ohioans' rights to property and services with its current theft legislation.

It is imperative that Ohio classify DNA theft as a criminal offense rather than civil offense because injunctive and equitable relief often would prove to fall short of preventing or remedying the possible issues stemming from DNA theft.[187] Because DNA can be collected and tested without the DNA host's knowledge, the DNA host may not be aware of DNA theft until after the fact, if ever, and potentially after the harmful effects are felt, rendering injunctive relief ineffective.[188] In many cases, equitable relief simply cannot remedy damage such as family turmoil, job discrimination, or privacy infringement. Instead, to combat the severe and numerous problems arising from DNA theft, DNA theft legislation must be criminal in order to deter DNA theft from occurring in the first place.[189] The more severe punishments mandated under criminal law, the more DNA theft will likely be discouraged. Criminal laws will serve as an effective method towards both stopping the harmful effects of DNA theft once it has occurred and punishing those who commit the crime. If the Ohio legislature will impose a fine of up to $1,000 and imprisonment for up to six months for petty theft, then surely criminalizing DNA theft is an appropriate, and necessary, measure.[190]

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[183] *See supra* Part I.

[184] *See* OHIO REV. CODE ANN. § 2913.02 (West 2011).

[185] *See* OHIO REV. CODE ANN. § 2929.21-22 (West 2011).

[186] *See supra* Part II (discussing a lack of Fourth Amendment protection for DNA because it has been considered "abandoned" by several courts).

[187] If Ohio were to classify DNA theft as a civil wrong, DNA theft legislation would have, in essence, no teeth, and would prove to be ineffective.

[188] *See* Joh, *supra* note 42, at 693-94 (arguing that "the only DNA theft law worth passing is one worth enforcing.") Joh contends that DNA theft should be classified as a felony because of the gravity of the theft offense. Joh, *supra* note 42, at 693-94.

[189] *See* Joh, *supra* note 42, at 693-94.

[190] *See* OHIO REV. CODE ANN. § 2929.21-22 (West 2011).

C. Model Ohio DNA Theft Statute

The Ohio General Assembly should enact DNA theft legislation criminalizing DNA theft. By enacting legislation similar to Alaska's,[191] Ohio would directly address DNA theft and prevent privacy and safety violations in the future. Ohio should adopt a statute similar to the following model:

> Unlawful DNA Collection, Analysis, Retention, or Disclosure, "DNA Theft":
>
> (A) No person shall knowingly collect a DNA sample from a person, perform a DNA analysis on a sample, retain a DNA sample, retain the results of a DNA analysis, or disclose the results of a DNA analysis without written and signed informed consent by the person.
> (B) A person behaves "knowingly" when the person is aware that the conduct is of that nature or that the circumstance exists; when knowledge of the existence of a particular fact is an element of an offense, that knowledge is established if a person is aware of a substantial probability of its existence, unless the person actually believes it does not exist; a person who is unaware of conduct or a circumstance of which the person would have been aware had the person not been intoxicated acts knowingly with respect to that conduct or circumstance.
> (C) Any person who violates this section is guilty of a first-degree misdemeanor, punishable by up to six months imprisonment and/or $1,000 fine.

This proposed legislation would be effective for several reasons. First, this legislation draws from Alaska's broad definition of DNA theft.[192] By broadly defining DNA theft to include the collection, retention, analysis, or disclosure of results of DNA testing, this statute, like Alaska's will deter DNA theft.[193] This inclusive definition will implicate any individuals involved in the DNA theft process. Additionally, this will provide Ohio law enforcement with the effective ability to catch and prosecute those violating DNA theft laws.[194] By expanding on Florida and New Jersey's DNA theft statutes to include the collection of DNA without prior informed consent, Ohio's statute will be necessarily comprehensive.[195]

Next, this statute defines the requisite mental state as "knowingly." This statute uses the definition of "knowingly" employed in Alaska's statute.[196] Knowingly is the best requisite state of mind for a DNA theft crime for several reasons. First, the primary purpose of DNA theft legislation is to deter future DNA theft, prevent

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[191] *See* ALASKA STAT. ANN. § 18.13.030 (West 2011); *see also* ALASKA STAT. ANN. § 12.55.135 (West 2011).

[192] *See* ALASKA STAT. ANN. § 18.13.030 (West 2011).

[193] *See* Rothstein, *supra* note 6, at 539-42 (contending that DNA theft legislation which includes all elements of the offense is most effective).

[194] Rothstein, *supra* note 6, at 539-42.

[195] *See* N.J. STAT. ANN. § 10:5-45, §10:5-49 (West 2011); *see also* FLA. STAT. ANN. § 760.40(2)(b) (West 2011).

[196] *See* ALASKA STAT. ANN. § 18.13.030 (West 2011); *see also* ALASKA STAT. ANN. § 12.55.135 (West 2011).

further damage from DNA theft, and to remedy any DNA theft that has already occurred. By setting a lower requisite level of culpability, such as recklessly or negligently, the crime of DNA theft may incriminate individuals who did not intentionally steal another's DNA.[197] By requiring a higher level of culpability, such as purposely, this definition of DNA theft may be too narrow, excusing some DNA thieves from a crime which they knowingly committed, even if they were not substantially certain of the results of their actions, leaving a loophole in enforcement of DNA theft legislation against culpable individuals. "Knowingly" serves as a mental state which does not fall short of or exceed the required intent for committing DNA theft.

Lastly, this legislation defines DNA theft as a misdemeanor, punishable by up to one year imprisonment and/or up to a $1,000 fine. This penalty is akin to Florida's penalty, allowing for both monetary sanctions and imprisonment,[198] opposed to Alaska's statute which only provides for up to one year imprisonment.[199] Ideally, the Ohio statute would include both sanctions because of the broad range of activity encompassed by the proposed DNA theft statute, as well as the variety of individuals who may commit the crime. A $1,000 fine may not deter many individuals who would not consider the fine to be sufficiently threatening. This punishment range allows courts the discretion to punish individuals on a case-by-case basis based on the particular circumstances. For example, one person may play a smaller role in DNA theft than another, and this monetary and/ or imprisonment option allows courts discretion in sentencing accordingly. This penalty is also identical to that already allowed under the current Ohio theft statute.[200] Therefore, if adopted, this punishment range will likely not be seen as controversial.

VI. CONCLUSION

This Note examines current DNA theft legislation and posits that Ohio should adopt criminal DNA theft legislation. As the Fourth Amendment has been found not to protect DNA left on discarded items, individuals are afforded no common law remedy for DNA theft.[201] Federally, there is no DNA theft legislation.[202] It is, therefore, up to the states to enact and enforce DNA theft legislation to protect the most private and unique aspect of humans: their DNA.

Technological advancements have brought tremendous growth and benefits to society. However, DNA theft has proven to be a serious harm resulting from these

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[197] For example, a woman who sends a DNA sample to a direct-to-consumer laboratory for testing, even if done with prior informed consent, may be guilty of DNA theft if the woman accidentally sends in the wrong DNA sample (such as her husband's gum instead of her own). Punishing someone for this type of mistake likely will not serve as a deterrent to accidental DNA theft and will incriminate individuals for innocent mistakes.

[198] *See* FLA. STAT. ANN. § 760.40 (West 2011).

[199] *See* ALASKA STAT. ANN. § 18.13.030 (West 2011); *see also* ALASKA STAT. ANN. § 12.55.135 (West 2011).

[200] *See* OHIO REV. CODE ANN. § 2929.21-22 (West 2011).

[201] *See* Joh, *supra* note 35, at 865.

[202] *See* Hammerschmidt, *supra* note 5.

developments.[203] Emerging threats of employment discrimination and insurance discrimination may exclude individuals with genetic propensity for disease from the job and insurance market. With threats of false criminal identification, genetic identity theft, privacy, blackmail, genetic stalking, and family turmoil, DNA theft can turn an individual's life upside down. These are real threats that cannot be ignored.

To protect its residents from these grave threats, the Ohio General Assembly should enact legislation criminalizing DNA theft. With proper awareness and enforcement, this method will prove to be the best deterrence and solution for the growing problem of DNA theft and ensure Ohioans' privacy in their own genetic information.

[203] *See* Rothstein, *supra* note 6.