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BRAVE NEW WORLD: THE USE AND POTENTIAL MISUSE OF DNA TECHNOLOGY IN IMMIGRATION LAW

JANICE D. VILLIERS*

Abstract: DNA technology revolutionized criminal law, family law and trust and estates practice. It is now revolutionizing immigration law. Currently the Department of Homeland Security does not require DNA tests, but it recommends these tests when primary documentation, such as marriage licenses, birth certificates and adoption papers are not available to prove the relationship between the U.S. citizen petitioner and the beneficiary who is seeking permanent resident status in the United States. DNA tests are attractive to the government as a result of administrative convenience and as a means of countering fraud, but adoption of a wholesale policy of DNA testing poses a host of potential problems. In an area of law where family reunification is described as the primary goal, an increase in the use of DNA sometimes results in separating families and other unintended consequences. By promoting the use of DNA evidence, the social interests that are paramount in a family relationship could become subservient to genetic interests. The beneficiaries could become mere genetic entities, whose biological relationship through their genes is paramount. This promotes the view that shared genes are the principal means of identifying human relationships and that one should be entitled to legal benefits solely on this basis. Quality control in the collection, storage and testing of samples, access of individuals to testing facilities, especially in developing countries, privacy interests and the potential for misuse of the results of these tests, particularly in preventing the admission of aliens on health grounds are among the potential problems identified in this article. Using examples from disciplines where DNA evidence has been adopted—criminal, family and estates and trusts law—this article will present a workable policy for the use of this technology in immigration law.

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INTRODUCTION

Deoxyribonucleic acid (DNA) technology has revolutionized criminal law.¹ DNA technology has helped to exonerate wrongly convicted individuals and solve long unsolved cases.² Reports in the popular press and the success of organizations like the Innocence Project demonstrate the positive results from the use of DNA evidence in criminal cases.³ Partially because of its success in criminal law, DNA evidence is now used in other areas of the law including family, trusts and estates, and immigration law.⁴

Despite the perceived neutrality of science, immigrants have not fared well when the government has employed genetics and other heredity based testing to screen potential immigrants from entering the country.⁵ For instance, eugenics—a forerunner of modern genetics—

¹ See MICHAEL LYNCH ET AL., *TRUTH MACHINE: THE CONTENTIOUS HISTORY OF DNA FINGERPRINTING 190–93* (2008).

² See *id.* at 256–63.

³ Innocence Project, About the Organization: Mission Statement, <http://www.innocenceproject.org/about> (follow “Mission” hyperlink) (last visited Apr. 6, 2010) [hereinafter Innocence Project Mission]. The Innocence Project was founded by Barry Scheck, who is best known for his membership in O.J. Simpson’s Dream Team. See LYNCH ET AL., *supra* note 1, at 58; Innocence Project, About the Organization: Barry C. Scheck & Peter J. Neufeld, <http://www.innocenceproject.org/about> (follow “Staff Directory” hyperlink) (last visited Apr. 6, 2010). The goal of this sixteen-year-old organization is to exonerate the wrongly convicted through the use of DNA evidence and, more broadly, to reform the criminal justice system. See Innocence Project Mission, *supra*. With the help of the Project’s lobbying efforts, forty-three states have passed legislation granting prisoners access to DNA testing to prove their innocence. See Innocence Project, Fix the System: Access to DNA Testing, <http://www.innocenceproject.org/fix> (follow “DNA Testing Access” hyperlink) (last visited Apr. 6, 2010).

⁴ See Rochelle Cooper Dreyfuss & Dorothy Nelkin, *The Jurisprudence of Genetics*, 45 VAND. L. REV. 313, 315, 321–27 (1992) (discussing impact of DNA in family and trusts and estates law); Memorandum from Michael D. Cronin, Acting Executive Assoc. Comm’r, U.S. Dep’t of Justice, Immigration & Naturalization Servs., to All Reg’l Dirs., All Dist. Dirs., All Officers In Charge, All Serv. Ctr. Dirs., FLETC, & Artesia (July 14, 2000) (available at 77 INTERPRETER RELEASES 1096, app. (July 31, 2000)) [hereinafter Cronin Memorandum] (discussing DNA and immigration proceedings). Indeed, DNA technology is now so commonplace that individuals display replicas of their DNA as artwork and commercial establishments offer at-home tests. See Andrew Pollack, *The Wide, Wild World of Genetic Testing*, N.Y. TIMES, Sept. 12, 2006, at G4 (describing the perils of direct-to-consumer genetic testing); Myriad Genetics, <http://www.myriad.com> (last visited Apr. 6, 2010) (offering BRAC Analysis, a genetic test for hereditary breast and ovarian cancer, Melaris, a genetic test for hereditary melanoma, Colaris AP, a genetic test for adenomatous polyposis syndromes, Colaris, a genetic test for hereditary nonpolyposis colorectal cancer (HNPCC), and Ther-aGuide 5-FU, a genetic test to predict toxicity to 5-FU/capecitabine-based chemotherapy).

⁵ See STAFF REPORT OF THE SELECT COMM’N ON IMMIGRATION AND REFUGEE POLICY, ED211613, U.S. IMMIGRATION POLICY AND THE NATIONAL INTEREST 177–80 (1981) [here-

was used to discourage the immigration of certain less favored groups and played a significant role in immigration policy.⁶ The early proponents of the eugenics movement were concerned about the genetic makeup of immigrants.⁷ New immigrants were “considered culturally different and incapable of this country’s version of self-government, not because of their backgrounds but because they were thought to be biologically and inherently inferior.”⁸ They were therefore “disliked and feared.”⁹ Prominent scholars of the day believed that biology prevented these new immigrants from becoming “100 percent American.”¹⁰

Scientists argued that the improvement of the American stock required the exclusion of feeble-minded people.¹¹ Some immigration authorities allowed scientists to conduct tests on immigrants upon arrival in the United States to screen out those immigrants they deemed to be “moron[s].”¹² In 1924, The National Origin Quota Act, known as the Immigration Act of 1924, established a system which restricted im-

inafter IMMIGRATION POLICY]; JAMES D. WATSON & ANDREW BERRY, *DNA: THE SECRET OF LIFE* 17–25 (2003).

⁶ See WATSON & BERRY, *supra* note 5, at 17–23.

⁷ See *id.* at 18 (“[B]y making conscious choices about who should have children, eugenics believed they could head off the ‘eugenic crisis.’”). According to Watson, Galton, a British citizen, espoused “positive eugenics,” encouraging genetically superior people to reproduce. *Id.* at 18–21. On the other hand, the American focus was on eliminating bad genes, based on family studies of “degeneration” and “feeble-mindedness.” *Id.* at 21.

⁸ IMMIGRATION POLICY, *supra* note 5, at 178.

⁹ *Id.*

¹⁰ See Dave McCurdy, *The Future of U.S. Immigration Law*, 20 J. LEGIS. 3, 5 (1994).

¹¹ PAUL SPICKARD, *ALMOST ALL ALIENS: IMMIGRATION, RACE, AND COLONIALISM IN AMERICAN HISTORY AND IDENTITY* 271 (2007). Spickard reports that in 1912, H.H. Goddard, a former schoolteacher and University of Southern California football coach convinced the authorities to allow him and two assistants to test immigrants arriving at Ellis Island. *Id.*

One assistant would scan the room for people who, to his eyes, looked stupid. They were pulled out of line and tested by the second assistant. If the test found them to be, in Goddard’s terminology, an “idiot,” an “imbecile,” or a “moron,” they were denied entry to the country. Goddard claimed that forty percent of steerage passengers were “feeble-minded.”

Id. A similar test was used for assignment of soldiers in World War I. *Id.* Carl Brigham, an army tester identified ethnic differences and claimed that “Alpine and Mediterranean ‘races’—that is, people of central and southern European origin—were ‘intellectually inferior to members of the Nordic race.’” *Id.*; see also Rachel Silber, Note, *Eugenics, Family and Immigration Law in the 1920s*, 11 GEO. IMMIGR. L.J. 859, 862 (1997) (“Human progression, eugenicists found, had multiple stages. The highest stage of human progression was that of the white race, though scientists disagreed whether Nordic or Teutonic genes were the most important.”).

¹² See SPICKARD, *supra* note 11, at 271.

migration to two percent of the number of foreign-born persons for each nationality enumerated in the 1890 census.¹³ This system, which favored some nationalities over others, remained essentially unchanged until 1965.¹⁴

Today, DNA testing is used to “screen” potential immigrants before entry into the United States.¹⁵ This type of “screening” occurs when a United States citizen applies for his foreign-born child to join him in the United States as a lawful permanent resident, commonly known as a green card holder.¹⁶ If the father is unable to provide his child’s birth certificate or his petition has some irregularity or missing information, the United States Immigration and Citizenship Service (USCIS) may suggest DNA testing to prove the paternal relationship.¹⁷ Although DNA tests are not currently required, they may be considered as secondary documentation when primary documentation such as marriage licenses, birth certificates and adoption papers are not available.¹⁸ These tests are promoted as a means of thwarting fraud, but adoption of a wholesale policy of DNA testing poses a host of potential problems.¹⁹

Using examples from areas of law in which DNA evidence has already been adopted—criminal law, trusts and estates law, and family law—this article proposes a workable policy for the use of this technology in immigration cases. Part I discusses immigration law’s goal of family reunification. Part II introduces some potential problems that may arise

¹³ See Immigration Act of 1924, Pub. L. No. 68-139, ch. 2, § 11(a), 43 Stat. 153, 159 (1924).

¹⁴ See *id.*; SPICKARD, *supra* note 11, at 337-41.

¹⁵ Cronin Memorandum, *supra* note 4.

¹⁶ See *id.* at 1.

¹⁷ See Memorandum from Michael L. Aytes, Assoc. Dir., Domestic Operations, to Field Leadership 3 (Mar. 19, 2008) (on file with USCIS) [hereinafter Aytes Memorandum]; see also Cronin Memorandum, *supra* note 4 (“Since blood parentage testing can be a valuable tool to verify a relationship, it may generally be required when initial and secondary forms of evidence have proven insufficient to prove a claimed relationship.”). Michael D. Cronin, then “Acting Executive Associate Commissioner of the INS instituted USCIS policy concerning DNA testing in a July 2000 memorandum.” See Aytes Memorandum, *supra*, at 2. The policy allows field offices to “suggest” DNA testing when other forms of evidence as to the child’s parentage have proved inconclusive. See *id.*

¹⁸ See Aytes Memorandum, *supra* note 17, at 2; Cronin Memorandum, *supra* note 4. The memorandum from Cronin states that while 8 C.F.R. 204.2(d)(2)(vi) allows directors “to require Blood Group Antigen or Human Leukocyte Antigen (HLA) blood parentage tests, there is no similar statutory or regulatory authority allowing them to require DNA testing.” Cronin Memorandum, *supra* note 4.

¹⁹ See, e.g., Rachel L. Swarns, *DNA Tests Offer Immigrants Hope or Despair*, N.Y. TIMES, Apr. 10, 2007, at A1 (showing adoption of DNA testing in the immigration context poses problems).

if no limits are placed on how DNA evidence is used in immigration proceedings. Part III describes how DNA testing is used in criminal law, trusts and estates law and family law. Part IV then discusses more thoroughly potential problems that may arise from the use of DNA evidence in immigration proceedings. Part V presents some potential solutions to these problems. Finally, the article concludes by arguing that more oversight of the DNA testing companies and also policies regarding quality assurance and privacy are necessary and that immigration law—like family law—should embrace a more expansive concept of paternity.

I. THE GOAL OF FAMILY REUNIFICATION

*The family is the first social unit. All good citizenship and all good government rest upon the integrity of the home.*²⁰

In America, the family is fundamental, not only as a social unit, but also as the bedrock of the nation.²¹ Since the passage of the Immigration and Nationality Act (INA) in 1952, one of the guiding principles of immigration law has been to reunite families.²² The structure of the current statute illustrates this policy.²³

The statute imposes a priority system related to the closeness of the family member to the U.S. citizen or lawful permanent resident.²⁴ Immediate relatives are at the top of this priority system for lawful permanent resident status.²⁵ Immediate relatives are defined by the statute as spouses of citizens, children (under twenty-one) of citizens and parents

²⁰ Silber, *supra* note 11, at 865 n.32 (quoting *Immigration of Relatives of Citizens: Hearing on H.R. 5, H.R. 38, H.R. 50, H.R. 190, H.R. 317, H.R. 482, H.R. 3757, H.R. 3941, H.R. 5004, H.R. 5042, H.R. 5820, H.R. 6238, H.R. 7089, H.R. 7097, H.R. 7379, H.R. 7474, and H.R. 7968 Before the H. Comm. on Immigration and Naturalization*, 69th Cong. 101 (1926) (letter from Dr. Alfred Williams Anthony, Federal Counsel, Churches of Christ in America, to Hon. Albert Johnson, Chair, House Comm. on Immigration and Naturalization (Feb. 1926))).

²¹ *See id.* at 864.

²² *See* Immigration and Nationality Act of 1952, Pub. L. No. 82-414, 66 Stat. 163 (1952) (emphasizing familial relations). The current INA continues this tradition of unifying temporarily divided families by exempting immediate relatives from the family-based quotas. *See* 8 U.S.C. §§ 1101(b)(1), 1151(b)(2)(A)(i) (2006) (defining children and establishing comprehensive family-based preferences).

²³ *See* 8 U.S.C. §§ 1101(b)(1), 1151(b)(2)(A)(i).

²⁴ *See id.* § 1153(a).

²⁵ *Id.* § 1151(b)(2)(A)(i).

of citizens over twenty-one.²⁶ The statute does not impose quotas on immediate relatives, or “beneficiaries” as they are known.²⁷ Consequently, beneficiaries can join their citizen family members in the United States with minimum delay.²⁸

After immediate relatives, the family-based preference order is as follows. The first preference allows unmarried sons and daughters to be sponsored by their United States citizen parents.²⁹ The second preference category allows lawful permanent residents to sponsor their spouses and unmarried children no matter what age.³⁰ The third preference permits married children over twenty-one to be sponsored by their United States citizen parents.³¹ Finally, in the least favored group are brothers and sisters of United States citizens.³² Literally hundreds of thousands of people from this last category are waiting for admission into the United States.³³ As a result, many wait sometimes ten years or more to join their siblings in the United States.³⁴

II. THE PROBLEM OF DNA USE IN IMMIGRATION

Before DNA testing became readily available, the USCIS verified family relationship by government documents, school records or photographs or, when these were not available, affidavits from either family

²⁶ See *id.* §§ 1101(b)(1), 1151(b)(2)(A)(i) (providing that “the children, spouses, and parents of a citizen of the United States” will be defined as “immediate relatives,” and are not subject to numerical limitations imposed upon other family-sponsored immigrants).

²⁷ See AUSTIN T. FRAGOMEN, JR. & STEVEN C. BELL, *IMMIGRATION FUNDAMENTALS: A GUIDE TO LAW AND PRACTICE* § 3:1.1 (4th ed. 2009).

²⁸ *Id.* Immediate relatives are not subject to numerical limits on family-based visas issued annually; therefore, this is a highly favored category. *Id.*

²⁹ *Id.*; see also 8 U.S.C. § 1153(a)(1) (“unmarried sons and daughters of citizens”). The INA defines “child” as an unmarried person under twenty-one years of age. 8 U.S.C. § 1101(b)(1). “Son” and “daughter” refers to those who do not fall within the definition of “child” because they are either married, or over twenty-one years of age, or both. See FRAGOMEN & BELL, *supra* note 27, at 3.

³⁰ 8 U.S.C. § 1153(a)(2).

³¹ *Id.* § 1153(a)(3).

³² *Id.* § 1153(a)(4).

³³ See NAT’L IMMIGRATION PROJECT, NAT’L LAWYERS GUILD, *IMMIGRATION LAW AND DEFENSE* § 4:31 (3d ed. 2009).

³⁴ FRAGOMEN & BELL, *supra* note 27, § 3:1.1. According to the State Department Visa Office, as of January 2009, “pending active family-based preference system cases registered with U.S. consulates totaled 2,723,352.” NAT’L IMMIGRATION PROJECT, *supra* note 33, at § 4:31. Family-based fourth preference cases, where a United States citizen applies for his or her sibling, account for about forty-five percent of this total (over 1.2 million). *Id.* As of January 2009, Mexico’s family-based preference registrants totaled 961,744, and those born in the Philippines totaled 401,849. *Id.*

members or medical professionals.³⁵ The unavailability of a birth certificate creates a presumption of ineligibility against the beneficiary.³⁶ Although secondary evidence is acceptable, the credibility and authenticity of such evidence is closely scrutinized.³⁷ In the past, if none of these forms of evidence was available, the USCIS would deny the application.³⁸ The advent of DNA testing, therefore, offered hope to families who did not have these types of documents by offering another avenue by which they could prove family relationships.³⁹ DNA testing, however, can be used against immigrants.⁴⁰ For instance, suspicious documents will trigger an investigation which may include checking the authenticity of the supporting documents and/or requiring blood tests or “suggested” DNA testing.⁴¹ Refusal to take such a test in turn can lead to denial of the petition despite the documentary evidence.⁴²

Deoxyribonucleic acid is an organic polymer that exists in the cells of all living organisms.⁴³ The substance is used to assemble and regulate all life forms.⁴⁴ Each individual (except an identical twin) has unique DNA in the nucleus of every cell.⁴⁵ Accordingly, DNA testing for identi-

³⁵ See 8 C.F.R. §§ 103.2(b)(2)(i), 204.2(d)(2)(v) (2009); Alan R. Davis, Comment, *Are You My Mother? The Scientific and Legal Validity of Conventional Blood Testing and DNA Fingerprinting to Establish Proof of Parentage in Immigration Cases*, 1994 BYU L. REV. 129, 129.

³⁶ 8 C.F.R. § 103.2(b)(2)(i).

³⁷ See *id.* § 204.2(d)(2)(v).

³⁸ See *id.* § 103.2(b)(8)(1); Davis, *supra* note 35, at 146. Processing is not routine if the documents establishing the relationship are ambiguous. See FRAGOMEN & BELL, *supra* note 27, § 12.23.

³⁹ See Davis, *supra* note 35, at 146; see also Aytes Memorandum, *supra* note 4, at 2 (stating that DNA testing may be used in situations when credible evidence is not sufficient to prove a biological relation).

⁴⁰ See Swarns, *supra* note 19.

⁴¹ See FRAGOMEN & BELL, *supra* note 27, § 12.23.

⁴² See *id.*

⁴³ Micah A. Luftig & Stephen Richey, *DNA and Forensic Science*, 35 NEW ENG. L. REV. 609, 609 (2001); see LYNCH ET AL., *supra* note 1, at 24. DNA is “described as a ‘double helix’—a molecule composed of two twisting strands.” LYNCH ET AL., *supra* note 1, at 24. Each cell contains two identical copies of DNA. See Luftig & Richey, *supra*, at 609.

As a carrier of genetic information, its key feature is the ordering of four chemical units called “bases” known as adenine (A), thymine (T), cytosine (C) and guanine (G). The two strands of DNA’s double helix are held together through the complementary pairing of base A on one strand with T on the other, and C on one strand with G on the other. This “complementarity” between pairs of bases explains the faithful replication of the DNA molecule (and genetic information) from one generation to the next.

LYNCH ET AL., *supra* note 1, at 24.

⁴⁴ See Luftig & Richey, *supra* note 43, at 609–10.

⁴⁵ See LYNCH ET AL., *supra* note 1, at 24.

fication purposes can be performed on semen, blood, hair and other tissues—even by cheek swab at home.⁴⁶ Early forensic testing was called “restriction fragment length polymorphism” (RFLP) where an enzyme was used to break DNA into small pieces called “restriction fragments.”⁴⁷ This technique analyzes differences within multiple samples.⁴⁸ Although it is still used, its utility is limited because the test requires large amounts of non-degraded DNA, a substance which is difficult to find outside of the human body.⁴⁹ Polymerase Chain Reaction (PCR) or “molecular Xeroxing” is a more advanced technique that requires only small DNA samples for testing.⁵⁰ This method uses an enzyme called a “polymerase” to produce millions of copies of the initial DNA sequence.⁵¹

In the immigration context, DNA testing is an emerging industry that the government, scientists and laboratories welcome.⁵² It is expected to become routine.⁵³ Currently, the USCIS may only suggest

Each human cell contains about two meters of DNA located in a compartment called the nucleus. Here it is tightly packaged into twenty-three pairs of chromosomes, each of which contains a single DNA molecule of, on average, roughly 150 million base pairs. The totality of nuclear DNA in a cell—which in most people is virtually identical in every cell in the body—is popularly known as a “genome.”

Id.

⁴⁶ See Luftig & Richey, *supra* note 43, at 611; Press Release, Identigene, Identigene DNA Paternity Test Kit Store Sales Rocket Through the New Retail Paradigm for Genetic Testing (May 11, 2009) (on file with Identigene Public Relations) (discussing the increase in use of over-the-counter DNA paternity test kits at local pharmacies). Identigene DNA Paternity Test Kits allegedly became the first kits sold over the counter in March 2008. See Press Release, Identigene, *supra*. These kits permit testing of DNA through a cheek swab collected in the privacy on one’s own home. See *id.*

⁴⁷ See LYNCH ET AL., *supra* note 1, at 25–26.

⁴⁸ See *id.* at 26.

⁴⁹ See Luftig & Richey, *supra* note 43, at 610; see also LYNCH ET AL., *supra* note 1, at 25–48 (discussing thoroughly DNA profiling techniques). Exposure to heat, humidity, light and the chemicals found at a crime scene leads to decay of DNA samples, making them unsuitable for RFLP analysis. See LYNCH ET AL., *supra* note 1, at 31.

⁵⁰ See LYNCH ET AL., *supra* note 1, at 31 (noting that testing can be done using only “a blood spot the size of a large pinhead”); Luftig & Richey, *supra* note 43, at 610. This technique, invented by Kary Mullis in 1986, is revolutionizing “not only forensic DNA science, but all of molecular biology.” See Luftig & Richey, *supra* note 43, at 610; see also Cronin Memorandum, *supra* note 4 (acknowledging rapid changes in parentage testing technology and recommending the PCR test through buccal (mouth or cheek cavity) swabs instead of drawing blood).

⁵¹ See LYNCH ET AL., *supra* note 1, at 31.

⁵² See Press Release, DNA Diagnostics Ctr., DDC Lab Director Hosts Immigration Workshop at International DNA Symposium (Oct. 18, 2007) (on file with author).

⁵³ See *id.* A press release from the DNA Diagnostics Center (“DDC”) reporting on the pre-Symposium activities of the October 2007 Eighteenth International Symposium on

Human Leukocyte Antigen (HLA) or DNA testing when an applicant cannot provide documentary proof of the family relationship through labs accredited by the American Association of Blood Banks (AABB).⁵⁴ Under current policy, however, USCIS cannot require such testing of the applicant.⁵⁵

In light of society's preoccupation with scientific accuracy, the Department of Homeland Security (DHS) may be pressured to change the policy. Other countries currently use DNA testing in family reunification cases.⁵⁶ France statutorily implemented the use of DNA testing in 2007, and Switzerland has used DNA testing since 2004.⁵⁷ Further, several other European countries use such tests in family reunification cases.⁵⁸ Even if the current non-mandatory testing policy remains the

Human Identification where a workshop entitled "Immigration DNA Profiling Issues" was sponsored to explore the application of DNA tests to prevent fraud in immigration cases. *See id.* Representatives of the U.S. State Department, U.S. Department of Homeland Security, scientists and immigration experts gathered to discuss anticipated changes. *See id.* Dr. Michael Baird of DDC stated "DNA testing for immigration is a rarity right now. However, DNA testing is expected to play an integral part in the immigration process in the near future." *See id.*

⁵⁴ Davis, *supra* note 35, at 132–33. HLA is a tissue-typing test developed to determine if an organ transplant recipient will accept or reject the donated organ. *Id.* at 132. Because HLA antigens are inherited, it is possible to use the test to determine parentage with a high degree of certainty. *Id.* at 132–33. "The process is accurate, reliable and scientifically and legally valid; therefore, the State Department should encourage and facilitate the use of DNA fingerprinting to determine the parentage of naturalized United States citizens who are seeking visas for their families." *Id.* at 146. Johnny, a Chinese refugee from Vietnam escaped with his uncle and younger brother to a refugee camp in Hong Kong. *Id.* at 130. The uncle, to keep the family together, claimed Johnny as his son, and migrated to the United States. *Id.* As an adult Johnny petitioned for his parents in China, but the petition was denied, until Johnny established the familial relationship with blood grouping and DNA tests. *Id.* at 130–31.

⁵⁵ Aytes Memorandum, *supra* note 17, at 2. For a listing of accredited testers, see AABB, AABB Accredited Relationship Testing Facilities, Mar. 1, 2010, <http://www.aab.org/Content/Accreditation> (follow "Relationship (DNA) Testing Laboratories" hyperlink; then follow "AABB Accredited Relationship Testing Laboratories" hyperlink). There are stringent guidelines to assure that the tests are accurate. Christian M. Rultberg et al., *STRBase: A Short Tandem Repeat DNA Database for the Human Identity Testing Community*, 29 NUCLEIC ACIDS RES. 320, 320 (2000). The accredited laboratories are permitted to use only the polymerase chain reaction-short tandem repeats and the restriction fragment length polymorphism (RFLP) methods of DNA testing. *Id.* at 321.

⁵⁶ *See* Tera Rica Murdock, Note, *Whose Child Is This: Genetic Analysis and Family Reunification Immigration in France*, 41 VAND. J. TRANSNAT'L L. 1503, 1529–30 (2008).

⁵⁷ *See id.* at 1529 (citing Doreen Carvajal, *French Council Approves DNA Testing for Immigrants*, INT'L HERALD TRIB., Nov. 15, 2007, <http://www.iht.com/articles/2007/11/15/europe/france.php>.)

⁵⁸ *See id.* at 1530 (stating that DNA testing for immigration purposes is used in "Germany, Austria, Belgium, Denmark, Italy, Lithuania, Norway, the Netherlands, Britain and Sweden").

same in the United States, genetic identity will likely be viewed as paramount, a reflection of the applicant's real identity. Moreover, relationships forged by genetic connections may be seen as superior to those established by other unscientific means.

In 2007, the *New York Times* reported that several families willingly submitted to DNA tests to prove paternity, only to discover that the citizen petitioner was not biologically related to the beneficiary.⁵⁹ One such family was the Owusu family.⁶⁰ Mr. Owusu, a U.S. citizen father, petitioned to bring his four sons from Ghana to the United States after his wife's death.⁶¹ When DHS requested DNA testing to expedite the petition, Mr. Owusu and his sons complied willingly.⁶² When the results came back, Mr. Owusu was heartbroken to discover that his eldest son was the only boy who was genetically related to him.⁶³ Faced with the results of the tests, Mr. Owusu had to choose between abandoning three boys he saw as his own sons or fighting to once again reunite his family and facing additional immigration hurdles in the process.⁶⁴ In a society structured by social, rather than genetic essentialism, all four boys would unquestionably be his sons and would be able to join him in the United States without unnecessary delay.⁶⁵ Instead, his eldest son was the only one granted a visa.⁶⁶

If DNA evidence were to be the first line of evidence used in reunification cases and not merely a last resort as it is now, it could have a devastating effect on the purported reunification goal of the Immigration and Nationality Act.⁶⁷ By promoting the use of DNA evidence, so-

⁵⁹ See Swarns, *supra* note 19.

⁶⁰ See *id.*

⁶¹ See *id.*

⁶² See *id.*

⁶³ See *id.*

⁶⁴ See Swarns, *supra* note 19.

⁶⁵ Compare *id.*, with *LeFevre v. Sullivan*, 785 F. Supp. 1402, 1407 (C.D. Cal. 1991) (holding that though DNA testing was "relevant" in a trusts and estates case to proving paternity, paternity must be established "by clear and convincing evidence that the father has openly and notoriously held out the child as his own"), and *Steven W. v. Matthew S.*, 39 Cal. Rptr. 2d 535, 539 (Ct. App. 1995) (awarding custody to social father rather than biological father under the best interest of the child standard in a child custody case, noting "the strong social policy in favor of preserving the on-going father and child relationship" and that "[t]his social relationship is much more important, to the child at least, than a biological relationship of actual paternity").

⁶⁶ See Swarns, *supra* note 19.

⁶⁷ See Immigration and Nationality Act of 1952, Pub. L. No. 82-414, 66 Stat. 163 (1952) (emphasizing familial relations). The current Immigration and Nationality Act continues this tradition of unifying temporarily divided families by exempting immediate relatives

cial interests could become subservient to genetic interests. The beneficiaries could become mere genetic entities, whose genetic relationship is paramount. Familial relationships—like Mr. Owusu's with his four sons—that were forged by years of interaction, care and sacrifice could be devastated by one simple test.⁶⁸

In a legal regime where genetic essentialism reigns, Mr. Owusu's three younger children are orphans.⁶⁹ Without more information about their genetic father—or fathers—or any biological connection to Mr. Owusu, they lose their immigration priority.⁷⁰ Mr. Owusu could attempt to adopt his own children, under the laws of his former country, and then apply to the USCIS to bring them here.⁷¹ Ironically, unless he adopts his own sons they would be given less priority than a stepchild through a second marriage.⁷² For example, if Mr. Owusu married a woman with a son under the age of eighteen, that stepson would be given immigration preference over Mr. Owusu's three sons even though each would be equally genetically unrelated to Mr. Owusu.⁷³

It is not surprising that the DHS would welcome the use of DNA in resolving difficult questions of proof. Immigration law is rife with the potential for fraud.⁷⁴ Science and scientific evidence like DNA testing

from the family-based quotas. *See* 8 U.S.C. §§ 1101(b)(1), 1151(b)(2)(A)(i) (2006) (defining children and establishing comprehensive family-based preferences).

⁶⁸ *See* Swarns, *supra* note 19; *see also* 8 C.F.R. § 204.2(d) (2009) (explaining the test).

⁶⁹ *See* Swarns, *supra* note 19; *see also* 8 C.F.R. § 204.2(d).

⁷⁰ *See* Swarns, *supra* note 19; *see also* 8 C.F.R. § 204.2(d).

⁷¹ *See* 8 U.S.C. § 1101(b)(1); Swarns, *supra* note 19. The Immigration and Nationality Act allows parents to petition for adopted children to become permanent residents of the United States. 8 U.S.C. § 1101(b)(1). The children must be adopted before the age of sixteen after having two years legal custody and residence with the adopting parent. *Id.* Naturally, this would add one additional layer of legal entanglement for people like Mr. Owusu. *See id.*; Swarns, *supra* note 19. He would have to adopt his own child, under Ghanaian laws, before that child could join him in the United States. *See* 8 U.S.C. § 1101(b)(1); Swarns, *supra* note 19. The social stigma, questions and expense that would arise in his local community when a father files to adopt a child born in wedlock and presumed to be the child of the father, could be daunting.

⁷² *See* 8 U.S.C. § 1101(b)(1)(B).

⁷³ *See id.* The definition of a child under the Immigration and Nationality Act is an unmarried person, under twenty-one years of age and includes a step-child, even if he or she is not born in wedlock, as long as the child was under eighteen at the time the step-parent relationship was created. *See id.*; *see also* *Palmer v. Reddy*, 622 F.2d 463, 463–64 (9th Cir. 1980) (discussing the stepchild preference of the INS); *In re McMillan*, 17 I. & N. Dec. 605, 606–07 (B.I.A. 1981) (explaining the INS stepchild preference and that “the mere fact of a marriage which technically creates a step relationship does not in itself establish a stepparent-stepchild relationship for purposes of the immigration laws”).

⁷⁴ *See* Swarns, *supra* note 19; U.S. State Dep't, Bureau of Population, Refugees, & Migration, *Fraud in the Refugee Family Reunification (Priority Three) Program: Fact Sheet*, Feb. 3, 2009, <http://www.state.gov/g/prm/> (follow “What We Are Saying” hyperlink; then

offer the illusion of certainty and neutrality.⁷⁵ DNA testing has no political bias. As such, DNA testing's scientific neutrality seems to present the perfect solution to difficult immigration questions where the potential for errors and fraud is rampant.⁷⁶ Federal officials understandably see the certainty and neutrality of genetic testing as an easy way to verify that a beneficiary is related to a U.S. citizen or lawful permanent resident.⁷⁷

DNA testing is particularly helpful for beneficiaries emigrating from developing and war-torn countries—marriage and birth certificates may be missing or can be easily forged for a fee.⁷⁸ For example, DNA testing has been used in the admission of refugees.⁷⁹ Since the 1980s, the United States has implemented a Refugee Admissions Program based on family ties to reunite refugees with their U.S. citizen or lawful permanent resident family members.⁸⁰ In the chaos of the condi-

follow "Fact Sheets" hyperlink; then follow "Fraud in the Refugee Family Reunification (Priority Three) Program" hyperlink).

⁷⁵ See Jason Borenstein, *DNA in the Legal System: The Benefits Are Clear, the Problems Aren't Always*, 3 CARDOZO PUB. L. POL'Y & ETHICS J. 847, 848, 853–55 (2006).

⁷⁶ See Swarns, *supra* note 19; U.S. State Dep't, Bureau of Population, Refugees, & Migration, *supra* note 74. *But see* Borenstein, *supra* note 75, at 853–56 (discussing that despite the view of DNA as "the epitome of reliable evidence," DNA can nevertheless become unreliable due to human fallibility among other factors).

⁷⁷ See Swarns, *supra* note 19; U.S. State Dep't, Bureau of Population, Refugees, & Migration, *supra* note 74; *see also* Borenstein, *supra* note 75, at 848 (discussing the benefits of using DNA evidence). *But see* Borenstein, *supra* note 75, at 853–56 ("Even though it may be viewed by some as nearly infallible, DNA evidence is susceptible to the same kinds of problems that afflict other types of evidence." (citing Adam Liptak, *The Nation; You Think DNA Evidence Is Foolproof? Try Again*, NY TIMES, Mar. 16, 2003, at D5)).

⁷⁸ See Marisa Silenzi Cianciarulo, *The W Visa: A Legislative Proposal for Female and Child Refugees Trapped in a Post-September 11 World*, 17 YALE J.L. & FEMINISM 459, 481 (2005); Swarns, *supra* note 19; U.S. Dep't of State, Bureau of Population, Refugees, & Migration, *supra* note 74.

⁷⁹ See U.S. Dep't of State, Bureau of Population, Refugees, & Migration, *supra* note 74.

⁸⁰ *See id.* Coordination and management of the Refugee Admissions Program occurs through the State Department's Bureau of Population, Refugees and Migration (PRM). *See id.* The Refugee Admissions Program handles three categories of cases. *See id.* Priority One and Two cases gain access to the program through an individual referral by the United Nations High Commissioner for Refugees, a U.S. Embassy or qualified non-governmental organization. *See id.* They may also be designated as qualifying for the program by virtue of their need for resettlement. *See id.* Priority Three (P-3) cases include individuals seeking family reunification with certain legal residents in the United States. *See id.* Reuniting refugees with their family members is a goal of this program, and in the chaos of the conditions that generate refugees, government issued identity documents are frequently unavailable. *See* Cianciarulo, *supra* note 78, at 481; U.S. Dep't of State, Bureau of Population, Refugees, Migration, *supra* note 74. The program offers an interesting case study where P-3 refugees were DNA tested for family reunification purposes. *See* U.S. Dep't of State, Bureau of Population, Refugees, & Migration, *supra* note 74.

tions that generate refugees, government issued identity documents are frequently unavailable.⁸¹ In response to reports of fraud, program administrators used DNA testing in approximately three thousand refugee cases—primarily with refugees from Somalia and Ethiopia.⁸²

In some cases, the DNA test is a welcome relief, an opportunity to prove a relationship where no other proof exists.⁸³ In other circumstances, however, the test reveals long-hidden and shameful secrets that can cut to the core identity of the bewildered and unsuspecting petitioner or beneficiary.⁸⁴ Stories such as Mr. Owusu's are not rare. One DNA testing expert estimates that in 2004 about fifteen to twenty percent of the 75,000 DNA tests in immigration cases did not produce a match.⁸⁵ Moreover, the government's growing reliance on DNA testing places a financial burden on immigrants.⁸⁶ In fact, testing of a parent or child often costs \$450 or more.⁸⁷

When the genetic relationship revealed by DNA testing shows that the social relationship between parties does not rest upon a firm genetic foundation, those who are disappointed do have alternatives.⁸⁸ For instance, a U.S. citizen can adopt a child who is under sixteen and bring him to the United States.⁸⁹ When the child is adopted, he will be granted automatic citizenship under the Child Citizenship Act of 2000.⁹⁰ Unfortunately, officials usually do not inform petitioners—even in cases where fraud is not suspected—of this and other alternative solutions.⁹¹

⁸¹ See Cianciarulo, *supra* note 78, at 481. Ninety-five percent of the applications of individuals seeking family reunification with certain legal residents in the United States have been African—mainly Somalis, Ethiopians and Liberians. See U.S. Dep't of State, Bureau of Population, Refugees, & Migration, *supra* note 74.

⁸² See U.S. Dep't of State, Bureau of Population, Refugees, & Migration, *supra* note 74. DHS/USCIS and PRM tested a sample of approximately three thousand refugee cases—primarily Somali and Ethiopians in Nairobi, Kenya and refugees in Ethiopia, Uganda, Ghana, Guinea, Gambia and Cote d'Ivoire. See *id.* The subjects were family members applying for P-3. See *id.* The initial DNA testing was not between the applicants and anchor relatives in United States. See *id.*

⁸³ See Davis, *supra* note 35, at 146; Swarns, *supra* note 19.

⁸⁴ See Swarns, *supra* note 19.

⁸⁵ See *id.* The estimates were made by Mary K. Mount, a DNA testing expert for the AABB—formerly known as the American Association of Blood Banks. *Id.*

⁸⁶ See *id.*

⁸⁷ *Id.*

⁸⁸ See Child Citizenship Act of 2000, 8 U.S.C. §§ 1431, 1433 (2006).

⁸⁹ See *id.*

⁹⁰ See *id.*

⁹¹ See Swarns, *supra* note 19.

III. LESSONS ON DNA EVIDENCE FROM OTHER AREAS OF LAW

A. *The Role of DNA in Criminal Law*

DNA forensics have been widely used since the late 1980s.⁹² The Federal Bureau of Investigation (FBI) maintains databases of DNA from convicted state and federal criminals.⁹³ Even with this experience and database, law enforcement officials do not base convictions exclusively on DNA evidence.⁹⁴ Other evidence, including eyewitness testimony, confessions and alibi evidence are vital parts of the prosecution's case.⁹⁵ Prosecutors and defense attorneys both caution that DNA evidence may be given undue weight by a jury and trump other more probative evidence.⁹⁶

Defendants have also challenged the use of DNA evidence at trial as potentially violating their constitutional rights.⁹⁷ For instance, involuntary extraction of blood for DNA testing has been challenged under the

⁹² See Chief Justice Thomas J. Moyer & Stephen P. Anway, *Biotechnology and the Bar: A Response to the Growing Divide Between Science and the Legal Environment*, 22 BERKELEY TECH. L.J. 671, 684 (2007) (discussing the history of DNA forensics and the challenges to judges as gatekeepers to assess scientific evidence in the aftermath of *Daubert v. Merrell Dow Pharmaceuticals, Inc.*).

⁹³ See DNA Identification Act, 42 U.S.C. §§ 14131–14134 (1994); Borenstein, *supra* note 75, at 858. In 1994, the federal government passed the DNA Identification Act, which authorized the FBI to establish the Combined DNA Index System Program (“CODIS”) database, which has produced matches to identify suspects in many cases, from DNA samples from approximately 1.6 million convicted criminals. See 42 U.S.C. §§ 14131–14134; Borenstein, *supra* note 75, at 858. All fifty states have legislation mandating that certain classes of criminals—for instance, convicted sex offenders—submit biological samples for testing. See Moyer & Anway, *supra* note 92, at 702.

⁹⁴ See Borenstein, *supra* note 75, at 849. Professor Borenstein notes that DNA evidence must be assessed along with the probative value of other types of evidence, especially since in most felony cases, biological samples are not an integral part of the evidence presented to the court. *Id.*

⁹⁵ See *id.* at 849–50.

⁹⁶ See *id.* at 850. The availability of DNA evidence is such a daunting prospect that it has been used deceptively to elicit a confession from the defendant. See *State v. Chirokovskic*, 860 A.2d 986, 990–91 (N.J. Super. Ct. App. Div. 2004) (finding a confession inadmissible where law enforcement fabricated a lab report to falsely claim that the defendant's DNA was recovered at the crime scene.); see also Borenstein, *supra* note 75, at 851 (“[*State v. Chirokovskic*] arguably leaves open the possibility that, in rare circumstances, DNA test results could be used in a deceptive manner during interrogating.”). Professor Borenstein points out that there are also no consistent standards for determining when DNA evidence should be admitted and how much weight should be given to such evidence, especially in the non-match context. Borenstein, *supra* note 75, at 851–53. Other potential problems identified include the standards for testing methods that will be acceptable in various state courts. *Id.* at 852–83. Yet, should a defendant be exonerated merely because the DNA at the crime scene does not match? See *id.* at 852.

⁹⁷ See Moyer & Anway, *supra* note 92, at 702–03.

Fourth Amendment as an unlawful search and seizure and under the Fifth Amendment as a violation of the right against self-incrimination.⁹⁸ Appellate courts, however, have rejected Fourth Amendment challenges on the ground that the governmental interest in preventing future crimes outweighs the prisoner's lessened expectation of privacy.⁹⁹ Similarly, the Supreme Court found that extraction of blood and its chemical analysis is not "testimonial or communicative" evidence and therefore DNA testing cannot violate a defendant's Fifth Amendment right against self-incrimination.¹⁰⁰ Defendants have also argued that involuntary extraction of genetic information violates their constitutional right to privacy.¹⁰¹ This argument is unlikely to be successful because the Supreme Court, in *Whalen v. Roe*, held that a governmental database containing the names and addresses of prescription drug users did not violate the Constitution.¹⁰²

Moreover, some scholars have expressed concern regarding the expanding use of DNA testing in criminal cases.¹⁰³ DNA was first used in cases involving sex offenders and violent felons.¹⁰⁴ Now many states have expanded their statutes to require DNA collection from individuals convicted of a wide range of crimes.¹⁰⁵ In the wake of these laws and others, some have argued for stricter quality control mechanisms and privacy protections as well as a greater consideration of the social, individual and legal issues presented by the embrace of this new technology.¹⁰⁶

The use of DNA testing in the criminal context, however, is very different from its use in immigration law. In criminal law, DNA testing plays an important role in convicting or exonerating individuals accused of crimes.¹⁰⁷ In immigration law, DNA testing is helpful in proving or disproving paternity where other sources are unavailable.¹⁰⁸ It should not, however, be used to separate families where social familial ties exist.

⁹⁸ *Id.*

⁹⁹ See Gaia Bernstein, *Accommodating Technological Innovation: Identity, Genetic Testing, and the Internet*, 57 VAND. L. REV. 965, 1013 (2004); e.g., *Patterson v. State*, 742 N.E.2d 4, 11 (Ind. Ct. App. 2000).

¹⁰⁰ See *Schmerber v. California*, 384 U.S. 757, 762–65 (1966).

¹⁰¹ See Moyer & Anway, *supra* note 92, at 702–03.

¹⁰² See 429 U.S. 589, 591, 605–06 (1976); see also Borenstein, *supra* note 75, at 858–59.

¹⁰³ See Michelle Hibbert, *DNA Databanks: Law Enforcement's Greatest Surveillance Tool?*, 34 WAKE FOREST L. REV. 767, 768–72 (1999).

¹⁰⁴ See *id.* at 773–74.

¹⁰⁵ See *id.* at 775–77.

¹⁰⁶ See *id.* at 813–14.

¹⁰⁷ See Borenstein, *supra* note 75, at 847–48.

¹⁰⁸ See Davis, *supra* note 35, at 129–31.

B. *The Role of DNA in Trusts and Estates Law*

Intestacy law permits family members to inherit a decedent's estate.¹⁰⁹ This legal fiction is meant to approximate a decedent's desires when he fails to execute a will.¹¹⁰ Though intestacy statutes differ somewhat from state to state, all give priority to the decedent's spouse and children.¹¹¹

New York's Estates Powers and Trusts Law (EPTL), however, permits non-marital children to inherit as well if a DNA test administered during the decedent's lifetime proves paternity.¹¹² Prior New York law based on English common law gave no rights to a non-marital child.¹¹³ This law was seen as a punitive measure against the parents' fornication.¹¹⁴ Gradually, though, attitudes shifted with respect to "illegitimate" or "bastard" children.¹¹⁵ As such, the common law rule prohibiting illegitimate children from inheriting their parents' estate was seen as unfairly causing these children to suffer for the acts of their parents.¹¹⁶

The next logical shift is one where the parent-child relationship—and not genetics—is paramount.¹¹⁷ Trusts and estates law scholars argue that "the existence and nature of the parent-child relationship"

¹⁰⁹ RESTATEMENT (THIRD) OF PROP.: WILLS AND OTHER DONATIVE TRANSFERS § 2.2 (1998).

¹¹⁰ *Id.* Section 2.2 of the *Third Restatement of Property* provides:

An intestate decedent's surviving spouse takes a share of the intestate estate as provided by statute. The exact share differs among the states. Not infrequently, the spouse takes the entire intestate estate if the decedent leaves no surviving descendants or parents and, in some states, if the decedent also leaves no other specified relative such as a descendant of a parent. . . . Under the Revised Uniform Probate Code, the surviving spouse takes either the entire intestate estate or a specified lump sum plus a specified percentage of the excess, if any, depending on what other relatives survive the decedent.

Id.

¹¹¹ *See id.*

¹¹² N.Y. EST. POWERS & TRUSTS LAW § 42.1(a)(2)(D) (McKinney 2009).

¹¹³ *See* Megan Pendleton, Note, *Intestate Inheritance Claims: Determining a Child's Right to Inherit When Biological and Presumptive Paternity Overlap*, 29 CARDOZO L. REV. 2823, 2828 (2008) (discussing the history of Lord Mansfield's Rule and the view that a child born out of wedlock was the child of no one and therefore could not inherit).

¹¹⁴ *See id.* at 2828–29.

¹¹⁵ *See id.* at 2829.

¹¹⁶ *See id.*

¹¹⁷ *See* Ilene Sherwyn Cooper, *Advances in DNA Techniques Present Opportunity to Amend EPTL to Permit Paternity Testing*, 71 N.Y. ST. B.J. 34, 34 (1999); Pendleton, *supra* note 113 at 2859.

should be the “the threshold inquiry” in inheritance cases.¹¹⁸ In fact, the Uniform Parentage Act allows judges in paternity suits discretion to allow genetic testing in order to establish paternity.¹¹⁹ This discretion either to allow or forbid DNA testing allows the judge to base his finding of paternity “on the nature of the parent-child relationship, rather than biology or presumptions alone.”¹²⁰

The shift in trusts and estates law toward relying on paternal relationships and not genetics should also be implemented in the immigration context. I propose that when a genetic relationship cannot be established through documentation, the parent-child relationship should allow immigration benefits to accrue.

New York Family Court statutes provide that DNA tests can be admitted into evidence to prove paternity in cases where an illegitimate child’s inheritance is disputed.¹²¹ Posthumous DNA testing is allowed in cases where a child had been born out of wedlock but the decedent had “openly and notoriously acknowledged the child as his own.”¹²²

In New York, a child born in a marriage is presumed to be legitimate.¹²³ A non-marital child can inherit if he proves paternity by one of four ways: 1) a paternity judgment from a court; 2) an acknowledgment signed by the putative father and filed in Albany; 3) a positive match between his DNA and DNA of the father taken during the father’s life; or 4) clear and convincing evidence of paternity coupled with open and notorious acknowledgment of paternity.¹²⁴ Once a child proves open and notorious acknowledgment, New York courts have allowed the use of DNA, whether pre or post-mortem, to satisfy the clear and convincing evidence prong of the test.¹²⁵

For example, in *In re Poldrugovaz*, the court allowed the child to use posthumous DNA testing to establish clear and convincing evidence of paternity because the child provided “some evidence that the decedent openly and notoriously acknowledged the non-marital child as his

¹¹⁸ See Pendleton, *supra* note 113, at 2859.

¹¹⁹ *Id.*

¹²⁰ *Id.*

¹²¹ N.Y. FAM. CT. ACT § 532(a) (McKinney 2009). The establishment of a bona fide parent-child relationship is paramount in my proposal although the EPTL bases such a relationship on the genetic connection. See N.Y. EST. POWERS & TRUSTS LAW § 4-2.1(a)(2)(D).

¹²² *Anne R. v. Estate of Francis C.*, 634 N.Y.S.2d 339, 342-43 (Fam. Ct. 1995), *aff’d*, 651 N.Y.S.2d 539 (App. Div. 1996).

¹²³ See Nicholas S. Andrews, Note, *Atkinson v. Atkinson: Adoption of the Equitable Parent*, 1988 DETROIT C.L. REV. 119, 121.

¹²⁴ N.Y. EST. POWERS & TRUSTS LAW § 4-2.1(a)(2).

¹²⁵ See *id.*; *Anne R.*, 634 N.Y.S.2d at 343.

own.”¹²⁶ The court noted that the child must also establish that DNA testing “is practicable and reasonable under the circumstances.”¹²⁷ This holding both clarified and lowered the evidentiary requirement New York courts had previously used.¹²⁸ The previous evidentiary standard—established in *In re Davis*—required a child to show clear and convincing evidence that the decedent openly and notoriously acknowledged paternity.¹²⁹ By lowering the standard of proof so that only some evidence of open and notorious acknowledgement is required, the threshold question becomes whether the decedent made some kind of open and notorious acknowledgement of the child.¹³⁰ Only after that question is answered in the affirmative will the court admit evidence of posthumous genetic testing to establish paternity.¹³¹ As a result, the parent’s open and notorious acknowledgement of paternity takes precedence over and becomes more important than the results of the genetic tests.¹³²

¹²⁶ 851 N.Y.S.2d 254, 255 (App. Div. 2008).

¹²⁷ *Id.* at 263. The Appellate Division, Second Department clarified its holding in *Matter of Davis*. *Id.* at 257–58. In light of *Poldrugovaz*, the Appellate Division remitted *Matter of Davis* to the Surrogate’s Court. *See In re Davis*, 869 N.Y.S.2d 99, 100–01 (App. Div. 2008).

¹²⁸ *See Poldrugovaz*, 851 N.Y.S.2d at 254.

¹²⁹ *See In re Davis*, 812 N.Y.S.2d 543, 546–47. (App. Div. 2006). Professor Margaret V. Turano, in her commentary in McKinney’s *Estates, Powers, and Trusts Law*, approves of the reasoning of the Appellate Division, Second Department as striking an appropriate balance in the objectives of the statute:

The Legislature wanted to protect nonmarital children but not to invite everyone on earth to offer their DNA for comparison to decedent’s. When a petitioner can prove paternity by DNA that was gathered during a decedent’s lifetime, the balance holds. When the decedent widely acknowledged the child as his own, it is appropriate to use any DNA available (whether from blood or tissue and even if gathered posthumously), to make the proof required by subparagraph (A)(2)(C). Without open and notorious acknowledgement, however, to permit proof by posthumously-obtained DNA would be like inviting the whole hopeful world to jump into the fray.

N.Y. EST. POWERS & TRUSTS § 4-1.2, *supp. cmt.* (McKinney 2006). The Court in *Poldrugovaz* cites, with approval, Professor Turano’s commentary. *See* 851 N.Y.S.2d at 258.

¹³⁰ *See Poldrugovaz*, 851 N.Y.S.2d at 258.

¹³¹ *See id.*

¹³² *See id.* In *Poldrugovaz*, the petitioner submitted: the report of the medical examiner; her own affidavit attesting to, among other things, her resemblance to the decedent and a meeting she had with the decedent at which, she contends, the decedent acknowledged in the presence of another person that she was his child; individual photographs of the decedent and the petitioner which, she contends, evince their like and familial features; and the affidavits of several other acquaintances of the decedent who attest that the decedent openly acknowledged that he was the petitioner’s father. *See id.* at 256. The court found this was sufficient evidence of open and notorious acknowledgement to warrant posthumous DNA testing. *See id.* at 264–65.

Some courts have even ignored DNA test results in favor of evidence of a social bond between parent and child.¹³³ In *Le Fevre v. Sullivan*, the United States District Court for the Central District of California disregarded DNA test results conducted prior to the putative father's death.¹³⁴ The court reasoned that DNA evidence could not be admitted because under the Social Security Act an illegitimate child could only be recognized as the child of the putative father if the father had acknowledged that the child was his in writing.¹³⁵ The court also noted that the child could prove entitlement to the decedent's estate if she could establish entitlement under California's intestacy laws.¹³⁶

The child did not bring forth any evidence to prove that paternity was presumed under California law.¹³⁷ Moreover, the court upheld the Administrative Law Judge's decision that California law did not allow "DNA testing to provide presumptive proof of parentage."¹³⁸ Instead, the court acknowledged that DNA testing—though "relevant" to the question of paternity—was not sufficient to establish paternity under California law.¹³⁹ Rather, paternity must be established "by clear and convincing evidence that the father has openly and notoriously held out the child as his own."¹⁴⁰

Although some courts have held that paternity should not be decided on the basis of DNA testing alone, some scholars argue that intestate succession should rely more heavily on DNA testing.¹⁴¹ For instance, Beckstrom proposes to solve the difficulty of intestate succession by relying on genetics.¹⁴² He proposes that a decedent's assets should be given to individuals most able to perpetuate the decedent's genes.¹⁴³ Empirical evidence—such as actual wills and surveys of individuals—

¹³³ See *Le Fevre v. Sullivan*, 785 F. Supp. 1402, 1407 (C.D. Cal. 1991).

¹³⁴ See *id.* In *Le Fevre*, a daughter born out of wedlock applied for insurance benefits under the Social Security Act. See *id.* at 1403. Although she presented DNA test results as evidence, the court held that those test were not sufficient to meet the "openly held out" standard required under the Social Security Act. See *id.* at 1407.

¹³⁵ See 42 U.S.C. § 416(h)(2)–(3) (2006); *Le Fevre*, 785 F. Supp. at 1405.

¹³⁶ *Le Fevre*, 785 F. Supp. at 1405.

¹³⁷ *Id.* at 1405–06.

¹³⁸ *Id.* at 1406–07.

¹³⁹ See *id.*

¹⁴⁰ *Id.* at 1407.

¹⁴¹ See, e.g., *Le Fevre*, 785 F. Supp. at 1406–07; Cooper, *supra* note 117, at 34–35.

¹⁴² See JOHN H. BECKSTROM, *SOCIOBIOLOGY AND THE LAW: THE BIOLOGY OF ALTRUISM IN THE COURTROOM OF THE FUTURE* 15 (1985).

¹⁴³ See *id.* at 14–15.

suggest that when given a choice, genetics is not always at the forefront of the testators' wishes.¹⁴⁴

This standard of whether the father had "openly held out" the child as his own is a standard that could be employed in the immigration context when faced with questions of disputed paternity and there is no DNA match. Open and notorious acknowledgment of the child is a reliable indication of the father's intent not only in trusts and estates, but also in immigration cases involving DNA.¹⁴⁵

C. *The Role of DNA in Family Law Models*

1. The Best Interest of the Child Standard

A paramount goal in both immigration and family law is family reunification.¹⁴⁶ In the latter field, the family as a social structure is the source of proper care and education of children and the optimal means of providing for the physical and emotional needs of each member.¹⁴⁷ In English common law, this philosophy contributed towards keeping marriages intact.¹⁴⁸ Under Lord Mansfield's Rule, husbands could not deny paternity of a child born to their wives during the marriage.¹⁴⁹ If a child was born during a marriage, his actual paternity was inferior to the presumed paternity of the husband.¹⁵⁰ A woman could not deny the fatherhood of a man whom she had allowed to act as the father of her child.¹⁵¹

¹⁴⁴ See *id.* at 15, 17, 51–53.

¹⁴⁵ See Pendleton, *supra* note 113, at 2827, 2859.

¹⁴⁶ See Dreyfuss & Nelkin, *supra* note 4, at 321–22; *supra* note 22 and accompanying text.

¹⁴⁷ See Dreyfuss & Nelkin, *supra* note 4, at 321.

¹⁴⁸ See *id.* at 321–22.

¹⁴⁹ *Id.*; see *Goodright v. Moss*, (1777) 98 Eng. Rep. 1257 (K.B.); see also Andrews, *supra* note 123, at 119–20 (explaining Lord Mansfield's Rule). Lord Mansfield's Rule was overturned two hundred years later by the Michigan Supreme Court in *Serafin v. Serafin*. Andrews, *supra* note 123, at 120; see also *Serafin v. Serafin*, 258 N.W.2d 461, 463 (Mich. 1977) ("Neither is the peace of general society fostered by continued adherence to Lord Mansfield's rule."). There, the court ruled that since the adverse consequences of illegitimacy no longer applied, the policy considerations favored a change in the rule but left intact the presumption of legitimacy, which can be rebutted by evidence that the husband is not the child's biological father. *Serafin*, 258 N.W.2d at 462–63.

¹⁵⁰ See Dreyfuss & Nelkin, *supra* note 4, at 321–22; Pendleton, *supra* note 113, at 2859; Brenda J. Runner, Note, *Protecting a Husband's Parental Rights When His Wife Disputes the Presumption of Legitimacy*, 28 U. LOUISVILLE J. FAM. L. 115, 115–16 (1989–90).

¹⁵¹ See *Goodright*, 98 Eng. Rep. at 1258; Runner, *supra* note 150, at 115–16; N.Y. JUD. CT. ACTS LAW § 532 & cmt (McKinney 2009).

Family law today still values the social relationship between children and fathers because it helps maintain the stability of the family and the society.¹⁵² Even when the public policy underpinnings of Lord Mansfield's rule lost their force, the presumption of paternity remained.¹⁵³ Although this presumption could be rebutted with blood tests and, eventually, DNA evidence, the law still recognized concepts such as equitable adoption and estoppel as exceptions that would prevent a husband denying his duty to support the non-biological child.¹⁵⁴

Mandatory use of DNA in immigration law would place the pre-eminence of the family in jeopardy by replacing social relationships with genetic relationships. In the immigration context, the results can be particularly devastating because the parties are frequently separated by many miles and maintaining the social relationship is challenging.

2. Genetic Essentialism

Genetic essentialism or biological determinism is the belief that the sum and substance of each of us is our DNA.¹⁵⁵ Professor Bender argues that although Aldous Huxley's novel *Brave New World* did not use the term "genetic essentialism," he "was satirizing and warning against" a world in which genetics "defines our family and our history and predicts our futures."¹⁵⁶

Scientists have allied with government to promote genetic essentialism.¹⁵⁷ Scholars such as Mary R. Andrlik and Mark A. Rothstein present three different arguments to support their view that federal welfare policy has influenced the prevalence of identity testing.¹⁵⁸ First, they point specifically to statutes such as the Family Support Act of 1988, the Omnibus Budget Reconciliation Act of 1993, and the Personal Responsibil-

¹⁵² See Pendleton, *supra* note 113, at 2829.

¹⁵³ Andrews, *supra* note 123, at 119–20.

¹⁵⁴ See Pendleton, *supra* note 113, at 2823.

¹⁵⁵ See Leslie Bender, *Genes, Parents, and Assisted Reproductive Technologies: Arts, Mistakes, Sex, Race and Law*, 12 COLUM. J. GENDER & L. 1, 40 (2003) (citing DOROTHY NELKIN & M. SUSAN LINDEE, *THE DNA MYSTIQUE: THE GENE AS A CULTURAL ICON* (1995) and RUTH HUBBARD & ELIJAH WALD, *EXPLODING THE GENE MYTH* (1993)); see also Dreyfuss & Nelkin, *supra* note 4, at 316–21 (explaining the concept of genetic essentialism).

¹⁵⁶ See Bender, *supra* note 155, at 41 (citing ALDOUS HUXLEY, *BRAVE NEW WORLD* (First Perennial Classics ed., Harper Collins 1998) (1932)).

¹⁵⁷ See Mary R. Anderlik & Mark A. Rothstein, *DNA-Based Identity Testing and the Future of the Family: A Research Agenda*, 28 AM. J.L. & MED. 215, 217–18 (2002).

¹⁵⁸ See *id.*

ity and Work Opportunity Act of 1996, which helped to grow the commercial identity-testing industry.¹⁵⁹

Second, Anderlick and Rothstein argue that the focus on genetic testing has firmly established the concept that biological or genetic relationship and parental status are entwined.¹⁶⁰ They note that since genetic essentialism has become part of the “cultural atmosphere” it has become “easy to slide into the view that [DNA] is the essence of fatherhood.”¹⁶¹ They further argue that this reliance on DNA testing could be used to argue that the absence of a genetic match could be used to terminate a parent’s duty of support.¹⁶²

Their third argument supports the cynical view that it is “all about the money.”¹⁶³ Government promotion of testing, they contend, is designed to increase financial support by parents and thereby reduce public spending on child welfare programs.¹⁶⁴ Some members of the fathers’ rights movement complain that “DNA testing stacks the deck against them—a positive DNA test will establish support obligations, but a negative test will not eliminate such obligations.”¹⁶⁵

Other scholars have proposed that the “intent” and “conduct” of the parties rather than biology or marriage should be the determining factor of a legal family.¹⁶⁶ These arguments have been reflected in court decisions. For instance, in *Steven W. v. Matthew S.*, the California Supreme Court decided a complex parental rights case by looking primarily to the social bonds between child and parent.¹⁶⁷ At issue in that case was whether a boy, Michael, was to be raised by either Steven, the

¹⁵⁹ See *id.* at 218 (citing Personal Responsibility and Work Opportunity Reconciliation Act of 1996, Pub. L. No. 104-193, § 103,110 Stat. 2105, 2110–11 (1996) (codified at 42 U.S.C. § 601 (2006)); Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-06, § 13721, 107 Stat. 312, 658 (codified at 42 U.S.C. § 666(a)(5) (2006)); Family Support Act of 1988, Pub. L. No. 100-485, 102 Stat. 2443 (1988) (codified in scattered sections of 42 U.S.C.)).

¹⁶⁰ See *id.*

¹⁶¹ *Id.*

¹⁶² See Anderlick & Rothstein, *supra* note 157, at 218.

¹⁶³ See *id.*

¹⁶⁴ See *id.*

¹⁶⁵ See *id.* at 219.

¹⁶⁶ See Deborah H. Wald, *The Parentage Puzzle: The Interplay Between Genetics, Procreative Intent, and Parental Conduct in Determining Legal Parentage*, 15 AM. U. J. GENDER SOC. POL’Y & L. 379, 381 (2007) (discussing a variety of scenarios where the traditional rules are inadequate—for example, surrogacy, same sex parents, etc. and public policy dictates a more expansive view of parenthood).

¹⁶⁷ See *Steven W. v. Matthew S.*, 39 Cal. Rptr. 2d 535, 539 (Ct. App. 1995).

man who raised him, or Matthew, his biological father.¹⁶⁸ Upon Michael's birth, Steven had assumed the role of father, until blood tests revealed that Matthew was the biological father.¹⁶⁹ In the ensuing custody and visitation dispute, the court held that in the best interests of the child, Michael's social relationship with Steven trumped the biological one with Matthew.¹⁷⁰ The court explained that:

[I]n the case of an older child [over two years of age] the familial relationship between the child and the man purporting to be the child's father is considerably more palpable than the biological relationship of actual paternity. A man who has lived with a child, treating it as his son or daughter, has developed a relationship with the child that should not be lightly dissolved. . . . This social relationship is much more important, to the child at least, than a biological relationship of actual paternity.¹⁷¹

The court also noted that Steven "developed the enduring father-child relationship with Michael" by "openly [holding] Michael out as his son to his family, to the school, to the world."¹⁷² The court explained that Steven had "signed the birth certificate, gave Michael his surname, and participated in all aspects of his emotional and financial support for the first four years of the child's life."¹⁷³ Finally, the court cited "the strong social policy in favor of preserving the on-going father and child relationship" when it upheld Steven's right to custody and visitation.¹⁷⁴

¹⁶⁸ See *id.* at 536–37. Julie, the biological mother, lived with Steven, but maintained a secret, sexual relationship with her husband, Matthew. *Id.*

¹⁶⁹ See *id.* at 537.

¹⁷⁰ See *id.* at 539.

¹⁷¹ See *id.* (alteration in original) (citing *Susan H. v. Jack S.*, 37 Cal. Rptr. 2d. 120, 124 (Ct. App. 1994); see also *Atkinson*, 408 N.W.2d at 519 (applying equitable parenthood theory to find, over the objection of the mother, in favor of a husband who was not genetically related to a marital child). In *Atkinson v. Atkinson*, the Court found that a husband who is not the biological parent of a child may be the legal parent of the child where (1) the husband and child acknowledge a relationship as father and child, or where such a relationship was fostered by the mother of the child prior to the filing of divorce, (2) the husband wants parental rights, and (3) the husband is willing to pay child support. See 408 N.W.2d at 519.

¹⁷² See *Steven W.*, 39 Cal Rptr. 2d at 539.

¹⁷³ *Id.*

¹⁷⁴ *Id.*; see also *Atkinson*, 408 N.W.2d at 519–20 (adopting an "equitable parent" doctrine based upon the best interests of the child to give custody of child to non-biological father); Andrews, *supra* note 123, at 130–32 (recognizing the importance of *Atkinson* in the development of equitable adoption, in the elevation the psychological well-being of the child,

Professor Jacobs argues that paternity laws should recognize a child's right to have a relationship with both a biological and a social father.¹⁷⁵ She observes that "biological fatherhood has been subordinated to social fatherhood to preserve an intact familial relationship"¹⁷⁶ She notes, however, that "biological fatherhood has served as the sole means to establish the legal benefits and obligations of paternity."¹⁷⁷ She advocates the abandonment of the traditional two-parent paradigm in favor of a multiple parent model.¹⁷⁸ Moreover, she challenges courts to recognize a social father's right to share, with the biological father, the responsibilities and benefits of fatherhood—thereby "protect[ing] the institution of parenthood and acknowledge[ing] that parentage is defined by much more than DNA."¹⁷⁹

The American Law Institute recognizes parents by estoppel and de facto parents.¹⁸⁰ Equitable adoption and virtual adoption may also establish paternity despite the lack of a genetic relationship.¹⁸¹ These

and in the placement of women on equal footing with a man by allowing a woman to submit a blood test as proof of non-paternity); Christi Gill Baumach, Note, *The Role of Equitable Adoption in a Mistaken Baby Switch*, 31 U. LOUISVILLE J. FAM. L. 501, 508–13 (1992–93) (discussing the implications of the "best interests of the child" policy behind Atkinson's "equitable parent" doctrine on mistaken baby situations).

¹⁷⁵ See Melanie P. Jacobs, *My Two Dads: Disaggregating Biological and Social Paternity*, 38 ARIZ. ST. L.J. 809, 855 (2006).

¹⁷⁶ See *id.* at 810–11.

¹⁷⁷ See *id.*

¹⁷⁸ See *id.* at 811.

¹⁷⁹ See *id.* at 813–14.

¹⁸⁰ AM. LAW INST., PRINCIPLES OF THE LAW OF FAMILY DISSOLUTION: ANALYSIS AND RECOMMENDATIONS § 2.03(1) (2000).

¹⁸¹ See Michael J. Higdon, *When Informal Adoption Meets Intestate Succession: The Cultural Myopia of the Equitable Adoption Doctrine*, 43 WAKE FOREST L. REV. 223, 225 (2008). Equitable adoption is also called putative or constructive adoption and is recognized as an inherent power of the court, in the best interests of the child, in adoption cases. See *id.* at 256–57; see also Karl A.W. DeMarce, Note, *Stepparent Adoption and Involuntary Termination of Parental Rights: When Petitioners Come to Court with Unclean Hands*, 61 MO. L. REV. 995, 1014–16 (1996) ("It has been maintained that adoption is an equitable power based on the 'long-standing equitable power under which children may be removed from the custody of their parents under the doctrine of *parens patriae*.'" (quoting Helen Simpson, *The Unfit Parent: Conditions Under Which a Child May Be Adopted Without the Consent of His Parent*, 39 U. DET. L.J. 347, 353 (1962))); James R. Robinson, Comment, *Untangling the "Loose Threads": Equitable Adoption, Equitable Legitimation, and Inheritance in Extralegal Family Arrangements*, 48 EMORY L.J. 943, 955 (1999) ("Equitable adoption, also called adoption by estoppel, virtual adoption, de facto adoption, or specific performance of a contract to adopt, is a nonstatutory remedy fashioned by courts to avoid what is perceived as an inequitable or unjust result of strict application of the intestacy statute." (citation omitted)). Some courts have limited the doctrine. See Jan Ellen Rein, *Relatives by Blood, Adoption, and Association: Who Should Get What and Why*, 37 VAND. L. REV. 711, 780–84 (1984); Elizabeth A. Gaudio, Comment, *Limiting the Scope of Equitable Adoption, the Maryland Survey: 1993–1994: Recent Deci-*

doctrines allow a court to decree that a parent has adopted a child if the parent makes certain promises or acts in a manner that creates a responsibility on the part of the parent even if there is no court order or formal legal contract between the parent and child.¹⁸² If, for example, an adult took a child into his home for an extended period of time and then denied parentage, equity would hold the parent responsible for the child's welfare, as if the child had been formally legally adopted.¹⁸³ Adoption by estoppel is similar, and has most often been invoked when a parent dies without a will and a minor child whom she supported makes a claim on the estate based on the doctrines of equitable adoption or equitable estoppel.¹⁸⁴ It is possible for a child to make this claim even when the child is not named in the parent's will.¹⁸⁵

The Revised Uniform Parentage Act provides obstacles to challenging the paternity of a child with a presumed father.¹⁸⁶ This federal law requires that, in the best interests of the child, a proceeding to adjudicate parentage may only be commenced within two years after birth.¹⁸⁷ Moreover, it allows a court to deny a request for genetic testing if (1) the conduct of the mother or presumed father estoppes that party from denying parentage; and (2) disproving the relationship would be "inequitable."¹⁸⁸ The Revised Uniform Parentage Act therefore ac-

sions: The Maryland Court of Appeals, 54 MD. L. REV. 822, 822 (1995). For a discussion of virtual adoption, see Rebecca C. Bell, *Virtual Adoption: The Difficulty of Creating an Exception to the Statutory Scheme*, 29 STETSON L. REV. 415 (1999), which explores the history of virtual adoption, examines the underlying contractual and estoppel theories that address when a foster parent dies intestate after agreeing to legally adopt but failing to finalize the adoption, and concludes that a constructive trust is an effective alternative to the estoppel and contractual theories.

¹⁸² See Rein, *supra* note 181, at 767.

¹⁸³ See *id.* at 766–67.

¹⁸⁴ See 2 AM. JUR. 2D *Adoption* § 60 (2004); Tracy Bateman Farrell, Annotation, *Modern Status of Law as to Equitable Adoption or Adoption by Estoppel*, 122 A.L.R. 205, 205, 230 (5th ed. 2004).

¹⁸⁵ See *First Nat'l Bank v. Phillips*, 344 S.E.2d 201, 205 (W. Va. 1985) (holding that if equitable adoption were established by clear, cogent and convincing evidence, even when there is an intestate death, an equitably adopted child could inherit as the sister of another child of the adoptive parent).

¹⁸⁶ See UNIF. PARENTAGE ACT, Prefatory Note, 9B U.L.A. 297–98 (2002). The federal incursion into the paternity arena in 1973 established a civil scheme for establishing parentage for non-marital children in an effort to ensure that these children have two parents providing financial and emotional support. See *id.*

¹⁸⁷ See *id.* § 607(a) at 341.

¹⁸⁸ See *id.* § 608(a) at 341–43; Anderlik & Rothstein, *supra* note 157, at 227. The concept of "parent by estoppel" contemplates a man who believed in good faith that he was the child's father, lived with the child and accepted responsibilities of parenthood for at least two years, and is therefore estopped to deny parental obligation. See AM. LAW. INST., *supra* note 180, § 2.03(1)(b).

knowledges the importance of a social-parental relationship that is more important than the genetic relationship in the best interest of a child over two-years old.¹⁸⁹

IV. POTENTIAL PROBLEMS

A. *Quality Control of Samples*

In the criminal context, questions concerning DNA testing procedures reflect unresolved disputes in the scientific community.¹⁹⁰ These concerns should also give us pause in the immigration context, especially because USCIS relies on testing of family members in foreign countries.¹⁹¹ Although the immigration regulations require that petitioners and beneficiaries seek the services of an American Association of Blood Banks (AABB) approved genetics lab, the laboratory techniques at even these labs may not be as sophisticated as those in the United States.¹⁹² There are, however, strict policies regarding collection and chain-of-custody of the samples.¹⁹³

The integrity, competency and fallibility of the technicians, and the handling and labeling of samples in the United States and in the foreign country become crucial in immigration cases.¹⁹⁴ For instance, if

¹⁸⁹ See UNIF. PARENTAGE ACT § 608(a) at 341–43.

¹⁹⁰ See Anderlik & Rothstein, *supra* note 157, at 225; Borenstein, *supra* note 75, at 851–55.

¹⁹¹ See Cronin Memorandum, *supra* note 4.

¹⁹² See Aytes Memorandum, *supra* note 17, at 3–4.

¹⁹³ See U.S. Dept. of State, Bureau of Consular Affairs, DNA and Parentage Blood Testing, http://travel.state.gov/visa/immigrants/info/info_1337.html (last visited Mar. 29, 2010). The manual states: “[u]nder no circumstance should any other party, including those being tested, be permitted to carry or transport blood or tissue samples or test results.” *Id.*

¹⁹⁴ See Borenstein, *supra* note 75, at 855–56; Cronin Memorandum, *supra* note 4. Dr. Robert E. Wenk, director of an AABB-accredited lab that performs DNA tests for U.S. immigration, recently uncovered a new type of fraud. E-mail from Dr. Robert E. Wenk, Director, BRT Laboratories, to author (Jan. 6, 2010, 11:02 A.M. EST) (on file with author). Dr. Wenk found:

[There have been instances] in which close blood relatives of a petitioner (or the petitioner himself/herself) substitute their blood samples for those of beneficiaries who are unrelated to the petitioner but pretend to be. Corrupt blood collectors in one West African nation engaged in systematically substituting the blood samples in over 3% of alleged families emigrating from that nation. When examined by an unsuspecting lab, the DNA profiles of the blood falsely demonstrate a relationship, enabling the non-relative beneficiaries (impostors) to immigrate. Since the substituted blood samples often are actually those of the petitioner’s relatives who already immigrated to the U.S., the DNA profile of the relative and the one reused by the impostor are identical so that I termed this kind of DNA identity theft “genotype recycling”. My

the technicians improperly collect or store the samples, they could become contaminated and the results would be useless.¹⁹⁵ Consequently, adequate provisions for the storage of the DNA collected by these private companies is imperative.

B. *Privacy Interests*

Our legal system provides that there is a privacy interest in medical information and financial records that requires an affirmative waiver of those rights before the information can be released.¹⁹⁶ Yet there appear to be no safeguards on the use of DNA information once it is submitted to DHS.¹⁹⁷ For instance, it is unclear if relatives of individuals whose DNA is stored can also be tracked using that information.¹⁹⁸ If mitochondrial DNA is stored, rather than nucleic DNA, the siblings of the owner of the banked DNA could potentially be identified because all of a woman's offspring have the same mitochondrial DNA sequence.¹⁹⁹ There is a genuine concern that this DNA, once entered in the data-

detailed findings of the systemic fraud will be published in the Journal of Forensic Sciences (March 2011). In searching my lab's data of emigrants from other nations, I found non-systematic (single cases) of the same fraud. I plan to publish these "sporadic genotype recycling" cases of fraud, as well. As a result of reporting my findings to the fraud unit of the State Dept., all overseas sample collection procedures have been changed. Buccal (cheek) swabs are collected now instead of blood. Now, there is very strict oversight of sample collectors and sample labeling, packaging and shipping by cleared embassy officers. In addition, a lab (based in the U.S.) can detect genotype recycling as a quality control procedure by searching for identical DNA profiles in its database. Finally, the U.S. plans to establish its own database of DNA-tested immigrants that will allow electronic searches for reused DNA profiles. With a common database, a petitioner will be unable to use more than one lab to avoid fraud detection.

Id.

¹⁹⁵ See Borenstein, *supra* note 75, at 855–56.

¹⁹⁶ See Julie A. Braun et al., *Recent Developments in Medicine and Law*, 35 TORT & INS. L.J. 487, 526 (2000); Hibbert, *supra* note 103, at 784–85.

¹⁹⁷ See Hibbert, *supra* note 103, at 786–87; Swarns, *supra* note 19.

¹⁹⁸ See Hibbert, *supra* note 103, at 786–87.

¹⁹⁹ See *id.* at 783–84 (describing the arrest and conviction for rape of the brother of an individual whose DNA was banked, because the DNA was so similar that the laboratory suggested that the DNA might belong to the relative, and questioning the ethical and legal legitimacy of this practice of genomic intrusion by asking whether a sibling loses “privacy expectations of being free of searches merely because he is related to an offender”); see also Frederick R. Bieber, *DNA Fingerprinting and Civil Liberty*, 34 J.L. MED & ETHICS 222, 226 (2006) (relating several examples where analyzing DNA of family members has been used to identify suspects, leading to arrests and confessions).

bank, could be used against the immigrant and his relatives by law enforcement.

Over thirty years ago, Justice William Brennan identified potential privacy hazards in storing medical information in computer databases.²⁰⁰ He noted that the “central storage and easy accessibility of computerized data vastly increase the potential for abuse of that information, and I am not prepared to say that future developments will not demonstrate the necessity of some curb on such technology.”²⁰¹ Aside from this general predicament, genetic information stored in governmental or private databases has even greater potential for abuse and privacy infractions.²⁰²

Nevertheless, for undocumented immigrants, courts have denied the expectation of privacy.²⁰³ Likewise, in February 2007 the Department of Justice departed from its prior policy that only convicted felons were required to provide DNA evidence.²⁰⁴ The Department supplemented its prior mandate with one to collect DNA from arrested undocumented workers and thereby expanded its governmental powers.²⁰⁵

Information is timeless; yet, DNA tests can provide information protected by the Fourth Amendment.²⁰⁶ This predicament can pose problems for petitioners, beneficiaries and their relatives identifiable by the DNA. Accordingly, procedures must be instituted for the samples and/or results to be discarded so that they cannot be used again for other purposes.

C. *Grounds of Inadmissibility*

The INA provides that aliens seeking to enter the United States as permanent residents or on a temporary basis as non-immigrants may be deemed inadmissible based on health concerns such as “communicable disease of public health significance,” physical or mental disor-

²⁰⁰ See *Whalen v. Roe*, 429 U.S. 589, 606 (1977) (Brennan, J., concurring); Hibbert, *supra* note 103, at 819.

²⁰¹ *Whalen*, 429 U.S. at 607 (Brennan, J., concurring).

²⁰² See Moyer & Anway, *supra* note 92, at 706–07, 714 (discussing federal and state legislation governing the use of genetic information and predicting that “as early judicial decisions shaped the future of DNA forensics, so too will early decisions shape the future of genetic engineering and genetic privacy”).

²⁰³ See *Katz v. United States*, 389 U.S. 347, 359 (1967).

²⁰⁴ Julia Preston, *U.S. Set to Begin a Vast Expansion of DNA Sampling*, N.Y. TIMES, Feb. 5, 2007, at A1.

²⁰⁵ See *id.*

²⁰⁶ See U.S. CONST. amend. IV.; Preston, *supra* note 205 (discussing the potential of DNA profiles to reveal intimate information).

ders, or as persons determined to be drug abusers or addicts.²⁰⁷ Consequently, government access to health information hidden in DNA may be damaging to a beneficiary. In addition, information from these tests may make a petitioner or beneficiary unattractive to insurance companies or employers. Thus, discrimination in hiring or in obtaining health or life insurance could ensue if these tests reveal a potential for future health problems.

The INA provides inadmissibility on such health grounds and further creates a catch-all category making inadmissible those “likely at any time to become a public charge.”²⁰⁸ If there are no clear limits on the use of the DNA information collected from petitioners and beneficiaries, this “public charge” category could be used to deny entrance based on present or future health risks. For example, if the DNA test shows that the beneficiary carries the gene for breast cancer, the results could be used to deny admission.²⁰⁹ Similarly, HIV positive individuals may be denied admission because the potential cost of health care for someone who develops AIDS is staggering and would undoubtedly implicate a “public charge” concern.²¹⁰

The routine collection and storage of this DNA material, given voluntarily, for an important purpose, could devolve into a means of keeping a check on potential criminal immigrants in an anti-immigrant environment. Although this might seem far-fetched, it is no more unbelievable than former New York Mayor and presidential candidate Rudolph Giuliani’s suggestion that the New York legislature seek to collect DNA samples from each newborn for the state databank.²¹¹ Giuliani’s

²⁰⁷ 8 U.S.C. § 1182(a)(1)(A)(i), (iii), (iv) (2006).

²⁰⁸ *Id.* § 1182(a)(1)(A)(i), (iii), (iv), (a)(4)(A). The totality of the circumstances approach was used by the INS in determining who is likely to become a public charge includes (I) age; (II) health; (III) family status; (IV) assets, resources and financial status; and (V) education and skills. *Id.* § 1182(a)(4)(B)(i). Fortunately a “properly filed, non-fraudulent I-864” Affidavit of Support, is a legally binding document that is normally sufficient to overcome the public charge ground of inadmissibility. *Id.* § 1183, 1183(a); *State Dept. Releases Guidance on Affidavits of Support*, 75 INTERPRETER RELEASES, June 29, 1998, at 865, 879.

²⁰⁹ *See* 8 U.S.C. § 1182(a)(4)(A), (B)(II).

²¹⁰ *See id.* § 1182(a)(1)(A)(i), (a)(4)(A). The Department of State recognizes that the public charge ground may be appropriate even when a valid affidavit of support is provided by the petitioner. “Chronic illness, physical or mental handicaps, extreme age or other serious conditions” are among the conditions identified. *See id.* § 1182(a)(4)(B) (stating that factors and affidavit are only considerations in the decision whether an alien is admissible); *see also* Affidavits of Support on Behalf of Immigrants, 8 C.F.R. § 231a (2009).

²¹¹ *See* David Seifman, *Getting DNA Samples at Birth Fine with Rudy*, N.Y. POST, Dec. 17, 1998, at 34.

very justification for this measure was to facilitate his or her apprehension should the child grow up to be a criminal.²¹²

V. POTENTIAL SOLUTIONS

DNA tests offer administrative convenience and perceived accuracy, yet the USCIS should resist any pressures to require the test for all family-based applicants. Instead its current policy on the use of such tests should be maintained. Specifically, the USCIS should recommend DNA tests to prove the biological relationship between the petitioner and beneficiary only if a set of documents is questionable or unavailable. In many such cases, DNA testing will confirm the relationship and parties will be reunited. If the results demonstrate that there is no genetic relationship, however, a procedure consistent with the legislative intent of the INA should be employed.²¹³ In crafting the INA, Congress recognized the importance of reunification of families as a primary goal of the statute.²¹⁴ Indeed, for immigrant families, adjusting to cultural, financial, and even language differences, the vital supportive role that a family can play cannot be underestimated. Accordingly, the USCIS should recognize social fatherhood to allow families to remain intact.

Advocates of DNA testing will point out that such tests can eliminate the potential for fraud.²¹⁵ Yet, it cannot be assumed that should DNA show no match, there is necessarily attempted fraud. In fact, as Mr. Owusu's story demonstrates, DNA testing can reveal unexpected results for parties with good intentions.²¹⁶ Furthermore, familial bonds can be strong where there is no blood or adoptive relationship.²¹⁷ Therefore, the equitable concept of estoppel should be employed to permit these families to reunite.

²¹² See *id.*

²¹³ See H.R. Rep. No. 85-1199, at 7 (1957), reprinted in 1957 U.S.C.C.A.N. 2016, 2020; H.R. Rep. No. 82-1365, at 29 (1952), reprinted in 1952 U.S.C.C.A.N. 1653, 1680 (recognizing "the underlying intention of our immigration laws regarding the preservation of the family unit."). The Supreme Court acknowledged this Congressional intent to unite family members of U.S. citizens: "Congress has accorded a special 'preference status' to certain aliens who share relationships with citizens" *Fiallo v. Bell*, 430 U.S. 787, 795 n.6 (1977); see also RUTH ELLEN WASEM, U.S. IMMIGRATION POLICY ON PERMANENT ADMISSIONS 1, 3 tbl.1 (2006).

²¹⁴ See H.R. Rep. No. 82-1365, at 29.

²¹⁵ See Press Release, Indentigene, *supra* note 52 (noting the hope that DNA testing will be used to counter the problem of fraud in some areas of the world); see also Davis, *supra* note 35, at 145-46 (DNA is dispositive in the resolution of immigration cases where parentage is at issue).

²¹⁶ See Swarns, *supra* note 19.

²¹⁷ See *id.*

In addition, the government is capable of detecting immigration fraud without blindly relying on the results of a DNA test. Several precautions to discourage fraudulent applications derived from the Immigration Marriage Fraud Amendments Act of 1986 illustrate this truth.²¹⁸ For example, the Act authorizes granting two-year conditional permanent residence for beneficiaries married less than two years and then requires a joint filing of a petition (Form I-751) to remove the conditional permanent residence status.²¹⁹ This burden serves to deter sham marriages.²²⁰ In addition, a marriage is presumed to be fraudulent, and the alien is subject to deportation, if the marriage was entered into within two years prior to obtaining lawful permanent residence, is judicially annulled, or terminated within two years after the lawful permanent resident's entry in the United States.²²¹ In all subsequent deportation proceedings, the alien has the burden of rebutting the presumption that she attempted to evade the immigration laws.²²² Finally, the penalties for marriage fraud are substantial—imprisonment for up to five years and/or up to a \$250,000 fine.²²³ Likewise, a finding of fraud will bar the alien from obtaining permanent residence, even through a subsequent marriage to another United States citizen or lawful permanent resident that is genuine.²²⁴ Given the utility of these

²¹⁸ See Immigration Marriage Fraud Amendments of 1986, Pub. L. No. 99-639, 100 Stat. 3537 (1986) (codified in scattered sections of 8 U.S.C.).

²¹⁹ See 8 U.S.C. § 1186a(b)(3)(B), (g)(1) (2006). The IMFA established a procedure for the removal of the conditional residence. See *id.* § 1186a(d)(2)(A). Ninety days prior to the second anniversary of the granting of the lawful permanent residence status, the couple must file a joint petition that establishes that the marriage is valid under the laws where it occurred, was not judicially annulled or terminated (except through the death of a spouse), was not entered into to obtain immigration benefits, and no fee was paid for the filing of the petition. See *id.* § 1186a(d)(1)(A). An interview with both parties may be required. See *id.* § 1186a(c)(1)(B).

²²⁰ See *id.* § 1186a(c)(1)(B), (d)(1)(A), (d)(2)(A).

²²¹ *Id.* § 1227(a)(1)(G)(i).

²²² See *Rodriguez v. INS*, 204 F.3d 25, 28 (1st Cir. 2000) (finding that the state court judgment ending a marriage that was based upon a finding of fraudulent intent to evade the immigration laws was a "presumption plus" that was not sufficiently rebutted).

²²³ See 8 U.S.C. § 1325(c).

²²⁴ See *id.* § 1154(c) (providing a bar to permanent residence on the basis of an immediate relative petition if one engages in fraud or attempts or conspires to engage in fraud); see also *In re Isber*, 20 I. & N. Dec. 676, 677 (B.I.A. 1993) ("[The Marriage Fraud Amendments's] language was intended to prohibit 'approval of a petition for an alien whose *prior marriage* was determined by the Attorney General to have been entered into for the purpose of evading the immigration law'" (quoting S. Rep. No. 748 (1965), *reprinted in* 1965 U.S.C.C.A.N. 3228, 3341-42 (emphasis added))); NAT'L IMMIGRATION PROJECT, *supra* note 33, § 4:40 n.7 (3d ed. 2009) (indicating that "a finding of fraud . . . does not preclude approval of a second spousal visa petition filed by a petitioner on behalf of the same beneficiary if new evidence can be presented to overcome the earlier finding").

mechanisms, in cases of claimed social fatherhood similar penalties could be used to discourage fraud.

A useful example in the New York district is the Stokes interview, a mechanism currently used to discourage marriage fraud.²²⁵ The Stokes interview is a secondary interview where the USCIS officer separates the parties and questions them using questions that a couple living together should be able to answer.²²⁶ To compare their responses, they may be asked about their courtship, the marriage ceremony and honeymoon, color of their toothbrushes or sleeping attire.²²⁷ Inconsistencies in Stokes interview responses then help the USCIS detect marriage fraud.²²⁸ Similarly, in family-based cases when the DNA results are inconclusive or show no familial relationship and the parties make an equitable claim of social fatherhood, procedures like the Stokes interview could be implemented to combat fraud and yet allow for a more thorough determination of the case.

CONCLUSION

More oversight of the DNA testing companies and stronger policies regarding quality assurance and privacy are necessary before the results of such testing are made paramount in family-based immigration cases. Although the economic efficiency and administrative ease of DNA testing may lull us into complacency, the potential for its abuse is substantial and, once released, the DNA genie cannot be put back in

²²⁵ See *Stokes v. INS*, 393 F. Supp. 24, 27 (S.D.N.Y. 1975); see also NAT'L IMMIGRATION PROJECT, *supra* note 33, at § 4:40. *Stokes v. INS* was a class action in the Immigration and Naturalization's New York district in response to perceived abuses by examiners—interviews with few due process safeguards and extremely personal questions. See *Stokes*, 393 F. Supp. at 27; NAT'L IMMIGRATION PROJECT, *supra* note 33, § 4:40. The *Stokes* judgment provides for “adjudicatory proceedings” before a “presiding immigration officer” with many due process safeguards, including, inter alia:

- (1) written notice to the parties of their rights, including the right to an attorney;
- (2) the right to present evidence, including live witnesses, to cross-examine, and to rebut adverse evidence;
- (3) the right to inspect the record of proceedings;
- (4) the right to subpoena witnesses and documents;
- (5) verbatim record of the proceeding (done by recording);
- (6) referral back to the presiding officer for further adjudicatory proceedings after an investigation, if any; and
- (7) a decision based solely on evidence of record.

NAT'L IMMIGRATION PROJECT, *supra* note 33, § 4:40.

²²⁶ See NAT'L IMMIGRATION PROJECT, *supra* note 33, § 4:40.

²²⁷ See *id.*

²²⁸ See *id.*

the bottle. Therefore, we should proceed with caution. Additionally, the legislative intent of the INA is consistent with the movement in family law towards the recognition of social fatherhood and the equitable concept of estoppel. Consequently, immigration law should accept this more expansive view of fatherhood and allow fathers who are not the biological parent to sponsor and be sponsored for lawful permanent residence.

