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Flying under the Radar: Two Decades of DNA Testing at IRCC

Ida Ngueng Feze, Gabriel Marrocco, Miriam Pinkesz, Jacqueline Lacey, and Yann Joly*

Abstract

Since the early 1990s, Immigration, Refugees and Citizenship Canada (formerly Citizenship and Immigration Canada) began using DNA testing technology in the processing of family reunification applications. Over the years, Canadian citizens, permanent residents, and family members living abroad have been increasingly suggested, or required to undergo DNA testing to either facilitate or enable them to reunite in Canada, under the family reunification procedure. This practice, although said to be rare, has since grown in popularity, and is used more extensively for applications coming from certain regions, including Africa, Asia, and the Caribbean. Through analysis of recent case law, this paper explores the ethical, legal, and social issues raised by the use of DNA testing technology and genetic information to confirm familial relationships in the context of family reunification, and provides potential avenues to address these challenges.

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Annex 1

I. INTRODUCTION

In the late 19th century, Friedrich Engels famously described Aboriginal systems of consanguity to the curious intellectual. His presentation captured a significantly different conception of family to the one commonly accepted among Europeans and the non-Indigenous population of North America. For example, Engels described the Hawaiian system of consanguity as consisting of "all first cousins" who are "without exception. . . regarded as brothers and sisters, and as the common children, not only of their mother and her sisters, or of the father and his brothers, but of all the brothers and sisters of both their parents without distinction." Engels' instructive account bears testimony to the range of family structures and relationships, which are each "expressions of ideas. . . concerning proximity and remoteness" and therefore representative of authentic family bonds, although different from the quintessential nuclear family. Although outdated in some respects, Engels' account on family structures is relevant to

Friedrich Engels, *The Origin of the Family, Private Property, and the State* (London: Penguin Classics, 2010, first published in 1884) at 34.

² *Ibid.* at 32.

³ For example, Engels' terminology regarding Indigenous Peoples.

current discussions concerning the (narrow) array of family relationships accepted under Canada's family reunification regime.

A more contemporary definition of family is offered in the Convention on the Rights of the Child (CRC), which presents family as the "fundamental group of society and the natural environment for the growth and well-being of all its members."4 Modern psychology and anthropology recognizes that family relationships are imbued with social, psychological, and often, economic and biological components.⁵ The structure of family units varies throughout time, culture, and the given socio-political condition. In the Canadian immigration context, however, and more specifically in family reunification, it appears that genetic relation represents the gold standard to assess family relationships. However, it is here that the key question surfaces in the probing mind: what constitutes family? Although there is no universal definition, the CRC's broad understanding of family allows for variability in family structures across cultures and throughout time. However, outside the human rights context, where other interests and goals are at stake, this inclusive definition is seemingly replaced with another, narrower one. In immigration, more often than not, the idea of family is reduced to biological relatedness, which, under certain circumstances, may need to be determined via DNA testing.

In Canada, DNA tests were introduced to the family reunification procedure since the early 1990s. The test is intended to fill gaps where information or documentation provided by a sponsor is deemed incomplete or unsatisfactory. This practice is fairly widespread, as 21 countries, including 17 European nations, have adopted legislation or policies authorizing DNA testing to confirm biological relation in immigration. Despite recent growth in academic critiques

Convention on the Rights of the Child, 20 November 1989, Can TS 1992/3 preamble (entered into force 12 January 1992) [CRC].

See James Georgas, "Family: Variations and Changes Across Cultures. Online Readings in Psychology and Culture" (2003) 6:3 Online Readings in Psychology and Culture, online: <doi.org/10.9707/2307-0919.1061 > [Georgas].

⁶ Ihid

Jackie Taitz, Jacqueline E. M. Weekers & D. T. Mosca, "The Last Resort: Exploring the Use of DNA Testing for Family Reunification" (2002) 6:1 Health & Hum. Rts. 20 at 25 [Taitz et al.]; Palmira Granados Moreno, Ida Ngueng Feze & Yann Joly, "Does the End Justify the Means? A Comparative Study of the Use of DNA Testing in the Context of Family Reunification" (2017) 4:2 J. L. & Biosciences at 265 [Granados Moreno, Ngueng Feze & Joly].

Among these countries are Australia, Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Hungary, Italy, Lithuania, Luxembourg, Malta, the Netherlands, New Zealand, Norway, Switzerland, Sweden, the U.K., and the U.S.: Torsten Heinemann & Thomas Lemke, "Biological Citizenship Reconsidered: The Use of DNA Analysis by Immigration Authorities in Germany" (2014) 39:4 Science, Technology & Human Values 493 [Heinemann & Lemke]; Granados Moreno, Ngueng Feze & Joly, *supra* note 7 at 256-257.

on the use of DNA tests in immigration, the absence of official statistics in Canada makes clear documentation of past and current trends challenging. 10

Nevertheless, case law and NGO reports¹¹ shed light on DNA testing in Canadian immigration procedures, and suggest that it is on the rise internationally.¹² Although there are legitimate grounds for conducting DNA testing in family reunification procedures, as will be discussed further, its limitations must be acknowledged as well. An important consideration noted by scholars is that equating parent-child relationships with genetic relatedness "glosses over the multiple nuances and meanings of family." As previously highlighted, various components and dynamics are at play in family relationships. Therefore, turning to scientific means (i.e. DNA tests) to establish a claimed family relationship seems to turn a blind eye to the fundamental human bond giving rise to the relationship. Additionally, jurisprudence illustrates that the weight placed on DNA test results, as opposed to other possible valid forms of evidence of family relationships, questions the application of the last resort policy, required of DNA testing in immigration. The importance placed on genetic relatedness, formal adoption, and the definition of "dependent child" in relevant immigration legislation depart from Canada's treatment of filiation in family law, as well as the CRC, to which Canada is signatory. Furthermore, as will be discussed in later sections, requests for DNA testing may employ overly coercive language thus contributing to possible undue pressure of applicants to undergo DNA testing. This is problematic in terms of ethical requirements demanding free and informed consent to such procedures. 14

Torsten Heinemann & Thomas Lemke, "Suspect Families: DNA Kinship Testing in German Immigration Policy" (2013) 47:4 Sociology 810; Edward S. Dove, "Back to Blood: The Sociopolitics and Law of Compulsory DNA Testing of Refugees" (2013) 8 U. Mass. L. Rev. 466 [Dove]; Corona Joyce, "Misuse of the Right to Family Reunification: Ireland" (2012) Economic and Social Research Institute (ESRI) Research Series; Encarnación La Spina, "DNA Testing for Reunifica Europe: An Exceptional Resource?" (2012) 6:3 Migraciones Internacionales 39; Martin G Weiss, "Strange DNA: The Rise of DNA Analysis for Family Reunification and its Ethical Implications" (2011) 7:1 Life Sciences Society and Policy 1 [Weiss 2011].

A request to obtain such information was sent to IRCC's Information and Privacy Division, however, the agency stated that it does not have any record where such information could be found. A copy of the response letter is on file with the authors.

Canadian Council for Refugees, "DNA Tests: A Barrier to Speedy Family Reunification" (October 2011), online: < ccrweb.ca/files/dnatests.pdf > [Canadian Council for Refugees].

Torsten Heinemann, Ursula Naue & Anna-Maria Tapaninen, "Verifying the Family? A Comparison of DNA Analysis for Family Reunification in Three European Countries (Austria, Finland and Germany)" (2013) 15:2 Eur. J. Migr. & L. 183 at 184; Weiss 2011, supra note 9 at 2.

Dove, supra note 9 at 485.

¹⁴ See title III, section A of this paper.

The focus of this paper is DNA testing required to establish filiation between a sponsor-parent and a sponsored child.¹⁵ We critically assess the appropriateness of the use of DNA testing by Immigration, Refugees and Citizenship Canada (IRCC) through in-depth examination of the application of Canadian immigration policies and administrative practices from the past two decades. ¹⁶ As this practice involves a particularly vulnerable populations (minors and immigrants), we argue that the application of DNA testing should provide for adequate ethical and legal oversight, which is our point of interest. There are two overriding critiques in this paper: 1) ethical and legal issues related to the application of DNA testing in the family reunification process, and 2) the narrow conception of family and parent-child relationships in the immigration context. This article begins with introducing definitions of a few key concepts present in the family reunification procedure. Further, the historical context giving rise to the current state and use of DNA testing in family reunification will be briefly analyzed, and the issues associated with DNA testing will be assessed through critical enquiry of relevant case law. Once the foundations are set in terms of delineating the uses of DNA testing in family reunification, we will turn to the ethical, legal, and socio-economic issues of DNA testing in this context. Among these are concerns regarding free and informed consent, privacy, and potential discrimination. After problematizing the application of DNA testing in family reunification, we present our critique of the law: namely, the inconsistency in the definition and treatment of parent-child relationships in Canadian immigration law compared to domestic family law and international standards. A central theme in our critique is that not only does the use of DNA testing in family reunification pose ethical and legal concerns, but the very basis for this practice in the law is flawed, namely, the narrow definition of family. Finally, we propose a number of practical avenues to further develop practices¹⁷ in the spirit of the objectives of immigration legislation and human rights law: family reunification;¹⁸ protecting national interest;¹⁹ fostering human rights:²⁰

The method used in this type of DNA testing identifies shared alleles in short tandem repeat (STR) markers between father, mother, and child. STRs are short sequences of DNA that repeat in the same location of an individual's DNA. STR markers are used to determine relatedness between two individuals because it is unlikely that two unrelated individuals have the same alleles or repetitions for a particular STR marker. Each child inherits one allele from the father and one allele from the mother for each STR marker. However, there may be mutations in the child's and the parents' genotypes that could create inconsistencies in certain sections of the test. With this in mind, a standard test will analyze the STR of 12-16 loci. Yann Joly et al., "DNA Testing for Family Reunification in Canada: Points to Consider" (2017) 18:2 Int. Migration & Integration 391 at 394 [Joly et al.].

¹⁶ The authors take into account legislative amendments and policy changes made along the way.

Some of these avenues were previously identified following a 2015 meeting between stakeholders, including IRCC (then CIC), culminating in a series of articles published in 2017: Joly et al., *supra* note 15; Granados Moreno, Ngueng Feze & Joly, *supra* note 7.

ensuring that rules are applied in compliance with the Canadian Charter of Rights and Freedoms (Charter);²¹ protecting individuals from discrimination;²² and denying entry to those presenting a threat to public health or security.²³ We are mindful of the different contexts in which similar issues related to DNA testing may arise, such as, sponsorship of other family members (e.g. siblings or grandparents); however, these are not addressed in this paper. Additionally, we will not discuss other uses of genetic information by immigration and border authorities, although these are delineated in Table 3.²⁴

II. THE CONTEXT: THE EVOLUTION OF THE FAMILY REUNIFICATION PROCESS

A. Preliminary notions

1. Defining "family" and "dependent child" in the context of family reunification

The primary legislation and regulations setting the legal framework for family reunification procedures in Canada are the *Immigration and Refugee Protection Act (IRPA)*²⁵ and *Immigration and Refugee Protection Regulations (IRPR)*.²⁶ In the context of family reunification, this framework offers a definition of family that encompasses the sponsor's dependent children, parents, grandparents, and siblings.²⁷ Importantly, the regulations define "child" as being the biological child of the sponsor, or otherwise formally adopted.²⁸

It is evident that this legal scheme gives primacy to genetic relatedness, or formal adoption over family relationships based on other socially and often legally accepted grounds, such as, psychosocial relationships.²⁹ For example, Canadian family law, encoded by various provinces, accepts that a factual demonstration of the parental relationship between a child and parent, the

Immigration and Refugee Protection Act, S.C. 2001, c. 27, s. 3(1)(d) [IRPA].

¹⁹ *Ibid.* at s. 3(1)(h).

²⁰ *Ibid.* at s. 3(1)(i).

²¹ Canadian Charter of Rights and Freedoms, Part 1 of the Constitution Act, 1982, being Schedule B to the Canada Act 1982 (U.K.), c. 11 [Charter].

²² *IRPA*, *supra* note 18 at s. 3(3)(d).

²³ *Ibid.* at s. 3(2)(g)-(h).

²⁴ See Table 3 for genomic tests currently in use and others that may become of potential interest to immigration and border authorities in the future.

²⁵ IRPA, supra note 18.

²⁶ Immigration and Refugee Protection Regulations, SOR/2002-227 [IRPR].

²⁷ *Ibid.* at s. 117(1)

Ibid. at s. 2; see also Québec Immigration Regulation, CQLR, c. I-0.2.1, r. 3 at s. 1 [Regulations].

See generally Dove, supra note 9 at 483 ff.; Savescu c. Canada (Ministre de la Citoyenneté & de l'Immigration), 2010 FC 353, 2010 CarswellNat 793, 2010 CarswellNat 3555 (F.C.) at paras. 26-27.

presumption of paternity, or voluntary acknowledgement thereof are valid means to establish filiation, ³⁰ as will be developed further in the article. ³¹

B. Introducing DNA testing

Canadian citizens and permanent residents undergoing family reunification began submitting DNA tests in support of applications since the early 1990s. This practice has since grown in popularity, although there is no clear indication as to the use of DNA testing in family reunification in *IRPA* or *IRPR*. However, a reference to DNA testing procedures has been explicitly included in IRCC's policy documents, including immigration bulletins, application/instruction forms, and operating manuals since 2006. Hor example, IRCC's website entitled "DNA testing web module" provides that IRCC will accept genetic material from "both parents and from the child or children. . . [or] from both the sponsor and the sponsored relative" to establish a parent-child relationship. Although IRCC does not carry out DNA testing itself, it requires that the laboratory used for testing be accredited by the Standards Council of Canada (SCC), and only accepts DNA test results demonstrating accuracy equal to or greater than 99.8%. 36

Where DNA test results confirm a lack of genetic relatedness with the sponsoring parent, the application may be refused. In such a case, the sponsor can appeal this decision to the Immigration Appeal Division (IAD) of the Immigration and Refugee Board of Canada (IRB).³⁷ If in disagreement with the decision of the IAD, the sponsor can then apply for leave to the Federal Court.³⁸

³⁰ Civil Code of Québec, CQLR c CCQ-1991, arts. 523-527, 530-531 [CCQ].

See title IV of this paper.

Taitz et al., *supra* note 7 at 21; Heinemann & Lemke, *supra* note 8 at 811.

³³ IRPA, supra note 18; IRPR, supra note 26.

³⁴ IRCC has now archived these documents. The 2006 version is the earliest we could retrieve. See IRCC, OP 2 Processing Members of the Family Class, (14 November 2006), online: www.canada.ca/content/dam/ircc/migration/ircc/english/resources/manuals/op/op02-eng.pdf>.

³⁵ IRCC, "DNA testing" (last modified 23 January 2019), online: < www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/operational-bulle-tins-manuals/standard-requirements/dna-testing.html > [DNA testing web module].

Jibid. The accuracy of the procedure is ensured by reliance on SCC's strict technical and managerial requirements for accredited laboratories. The SCC emits accreditation to laboratories for IRCC's purposes following the same guidelines it uses for forensic testing laboratories: SCC, SCC Requirements and Guidance for the Accreditation for Forensic Testing Laboratories (July 2017), online: https://www.scc.ca/en/system/files/publications/ASB_RG_Forensic-Laboratories_v1_2017-07-17.pdf [SCC 2017]; SCC, SCC Requirements and Guidance for the Accreditation of Testing Laboratories, (April 2018), online: www.scc.ca/en/system/files/publications/ASB_RG_LAP-2017_v0_2018-03-23.pdf [SCC 2018].

³⁷ *IRPA*, *supra* note 18 at s. 63(1).

The latter is not an appeal; it is an application for judicial review, which does not always entail a complete re-examination of the given case. In fact, it is often merely an evaluation of the reasonableness of the decision rendered, depending on the qualification of the question presented to the court.³⁹ For example, questions of procedural fairness entail a complete re-examination (i.e. the standard of correctness), while findings of fact are only considered within a reasonable spectrum of possible decisions.⁴⁰ However, where the evidence submitted, including DNA test results, do not convince the visa officer that the applicant-child is a member of the family class, the application will not necessarily be refused. The visa officer may consider the application, upon request by the applicant or on his own initiative,⁴¹ through humanitarian and compassionate grounds (H&C), which can, if warranted, grant permanent residency status to the applicant.⁴²

As previously noted, the chief justifications for turning to DNA testing in family reunification is that it can prove useful where documentation is lacking. Although critiques abound concerning the manner in which these tests are applied, there are numerous advantages to DNA testing in immigration.

1. Technological and procedural advantages of DNA testing in family reunification

As the field of genetics advances, recognition of the usefulness and value of genetic information is on the rise. Genetic technologies have subsequently been introduced into various domains, such as immigration. ⁴³ DNA-based identity testing has numerous advantages, and Canadian case law illustrates several instances where it proved beneficial for all parties involved. DNA testing can provide evidence of biologically based family relationships between individuals from countries that do not employ certain official documentation (such as birth certificates) or in cases where these documents have been lost. ⁴⁴ In certain cases, providing adequate documentary proof of filiation may be too burdensome for

³⁸ *Ibid.* at s. 72(1).

See generally *Baker v. Canada (Minister of Citizenship & Immigration)*, 1999 SCC 699, 1999 CarswellNat 1124, 1999 CarswellNat 1125 (S.C.C.) [*Baker*]; *Dunsmuir v. New Brunswick*, 2008 SCC 9, 2008 CarswellNB 124, 2008 CarswellNB 125 (S.C.C.) [*Dunsmuir*].

Canada (Minister of Public Safety & Emergency Preparedness) v. Martinez-Brito, 2012 FC 438, 2012 CarswellNat 1060, 2012 CarswellNat 1730 (F.C.) at paras. 15-16 [Martinez-Brito F.C.], aff'g Martinez-Brito, I.A.D., infra note 89.

⁴¹ *IRPA*, *supra* note 18 at s. 25.1.

⁴² Ibid. at s. 25(1). Note that child-applicants receive permanent residency status upon acceptance under family reunification.

⁴³ Dove, *supra* note 9 at 468.

⁴⁴ DNA testing web module, *supra* note 35: "in cases in which documentary evidence has been examined and there are still doubts about the authenticity of a parent-child genetic relationship, or when it is not possible to obtain satisfactory relationship documents."

applicants for a number of reasons. For example, applicants may live at the poverty level, and paying for a birth certificate may be too costly. Additionally, based on applicant narratives, the issue of corrupt bureaucratic processes is a real impediment to obtaining proper documentation, as this entails long wait periods and elevated costs, sometimes due to the necessity of bribery. In these instances, the submission of a DNA test as additional evidence can be beneficial to sponsors and applicants because IRCC officers rarely question its accuracy. Indeed, applicants have noted that in the case of a lack of required documentation, DNA testing provides them with a promising avenue to reunite with their family.

From a national security perspective, DNA evidence can be advantageous where there are suspicions regarding an individual's identity. ⁵⁰ Additionally, the benefits of implementing DNA testing in immigration are particularly salient in cases of suspicion of mistake, misrepresentation or fraud, to confirm ⁵¹ or rebut ⁵² such allegations. The suggestion of DNA testing, or negative genetic test results (showing the absence of a genetic link), may also persuade individuals to disclose incidents of fraud or misrepresentation. ⁵³ Furthermore, immigration authorities around the world often argue that it is a useful tool to fight human trafficking. ⁵⁴ Nevertheless, DNA testing does not always represent the ideal course of action. Various limitations and potential misuses (or abuses) of DNA testing challenge the current application of such tests by IRCC.

⁴⁵ Llida Barata et al., "What DNA Can and Cannot Say: Perspectives of Immigrant Families about the Use of Genetic Testing in Immigration" (2015) 26 Stan. L. & Pol'y. Rev. 597 at 614 [Barata et al.].

Although these come from applicants to the U.S., the narratives may also represent possible experiences that applicants under the Canadian family reunification regime may share, as the two share important similarities.

⁴⁷ Barata et al., *supra* note 45 at 615.

⁴⁸ See e.g. Lin v. Canada (Minister of Citizenship and Immigration), [2010] I.A.D.D. No. 3567 (I.A.D.) at para. 25 ("DNA collection is minimally intrusive and results are determinative") [Lin]; but see Liu v. Canada (Minister of Citizenship and Immigration), [2015] I.A.D.D. No. 363 (I.A.D.) at para. 13 [Liu].

⁴⁹ Barata et al., *supra* note 45 at 614.

Ali v. Canada (Minister of Citizenship & Immigration), 2007 FC 283, 2007 CarswellNat 5474, 2007 CarswellNat 580 (F.C.) at paras. 20-22.

⁵¹ See *Dena v. Canada*, [2011] I.A.D.D. No. 3289 (I.A.D.) at paras. 7, 10-11.

Dhaliwal v. Canada (Minister of Citizenship & Immigration), 2008 FC 296, 2008 CarswellNat 1544, 2008 CarswellNat 1545 (F.C.) at paras. 40, 42 [Dhaliwal].

⁵³ Uppal v. Canada (Minister of Citizenship & Immigration), 2009 FC 445, 2009 CarswellNat 1209, 2009 CarswellNat 6692 (F.C.) at paras. 4, 7, 9 and 11 [Uppal]; Lhamo v. Canada (Minister of Citizenship and Immigration), 2013 FC 692, 2013 CarswellNat 2168, 2013 CarswellNat 2253 (F.C.) at paras. 21-22 [Lhamo].

⁵⁴ Granados Moreno, Ngueng Feze & Joly, supra note 7 at 257; Dove, supra note 9 at 469; Canadian Council for Refugees, supra note 11 at 13.

2. Problematizing DNA testing and the legal requirement for biological relatedness or formal adoption

DNA testing to prove identity and filiation as well as the stringency of requiring biological relatedness in family reunification present challenges that cannot be overlooked, as they may pose equally important considerations as those previously discussed. Some issues of DNA testing are intrinsic to the technology itself, but many also stem from the manner in which the technology is applied. Although error rates are exceedingly rare and decrease as the technology develops, a residual technical risk of error nevertheless remains. ⁵⁵ Issues concerning quality control of the samples may also have an impact on the test results, whether due to the technology itself, or to human error during collection, transportation and handling of samples, or the analysis phase (e.g. in sample labeling, or through sample contamination). ⁵⁶

The above-cited issues could be addressed by instituting additional precautions. Nevertheless, another important consideration remains: technology can only make a scientific, and not a social assessment of family bonds.⁵⁷ In the context of a narrow definition of "dependent child," which will be further problematized in title IV, relying on DNA testing presents a move away from psychosocial ties in favour of biological relatedness.⁵⁸ This may not reflect the reality of many family bonds, which, as previously noted, are mostly rooted in psychological and emotional attachment rather than genetic relatedness.⁵⁹ Additionally, formal adoption may be particularly challenging, given cultural standards or the socio-political situation in the applicants' country of origin, as will be further discussed in title II, section C. Furthermore, there may be other reasons for informally adopting a child. For example, it is common practice in certain countries to accept a child into one's family where the child is orphaned due to war or infectious disease, or where the child's parents cannot afford to feed or educate them. 60 For cultural reasons, families will often not disclose the adoption to the child as well as their own biological children.⁶¹

⁵⁵ Joly et al., *supra* note 15 at 496.

Janice D. Villiers, "Brave New World: The Use and Potential Misuse of DNA Technology in Immigration Law" (2010) 30 B.C. Third World L.J. 239 at 264-265.

Martin Weiss, "Chapter 5: Ethical Aspects of DNA Testing for Family Reunification" in Torsten Heinemann et al., eds., *Suspect Families: DNA Analysis, Family Reunification and Immigration Policies* (Abingdon: Routledge, 2015) at 79 [Weiss 2015].

Ibid. at 91-92. Although formal adoption, which is not biological, is recognized by IRCC, it does not include families that have not gone through that process. As will be discussed, many families may not be able to formally adopt a child for religious, cultural, or sociopolitical reasons. Additionally, in cases where parents were unaware of the non-genetic relation between them and a child, yet the emotional and psychosocial bond exists, they may be denied a bona fide attempt at family reunification.

Georgas, *supra* note 5; Taitz et al., *supra* note 7 at p 26.

⁶⁰ Barata et al., *supra* note 45 at 14.

⁶¹ Ibid.

Regardless of the circumstances of a child's relation to the sponsor-parent, scholars underscore that a family is not a biological construct, and therefore, turning to DNA testing to inform (or in some cases, hinge) a decision as to whether a child can qualify as a "dependent child" under the family reunification regime ignores this reality. 62 An additional point to consider is that the use of a strict requirement of a biological or adoptive link between a parent and child may fail to take into account certain advances in assisted human reproduction (AHR). 63 This was evidenced in the case of Kandola 64, where, through AHR, two infertile parents had a child who was not genetically related to either of them. 65 Despite evidence on the child's birth certificate naming both parents, their citizenship application was rejected due to the lack of genetic relatedness with the child. 66 Although this case occurred in the context of citizenship, an identical situation would likely be handled similarly in the family reunification process. IRCC maintains that the definition of "dependent child" in IRPR encompasses children born through AHR, however, "provided the female spouse or partner gave birth to the child and that it is consistent with Canadian family law,"67 (emphasis added), which suggests that children not born to either of the partners (such as, through a surrogate mother, and does not share the genetic characteristics of either sponsor-parent), will not be subsumed under the legislative definition of "dependent child." Furthermore, in 2014, the IAD ruled that the restrictive definition of "dependent child" (requiring a genetic link) for the purpose of family reunification should not be broadened; this decision reflects the IAD's intent to conform with the wording of IRPR and the Federal Court of Appeal ruling in Kandola.⁶⁸ Therefore, unless IRPR is amended or

⁶² Taitz et al, *supra* note 7 at 26.

For example, where parents choose to make use of reproductive technologies (e.g. in vitro fertilization) or engage in surrogacy arrangements where neither the father's nor the mother's reproductive material is used to conceive the child, as was the case in *Kandola (Guardian at Law) v. Canada (Minister of Citizenship and Immigration)*, 2014 FCA 85, 2014 CarswellNat 810, 2014 CarswellNat 5332 (F.C.A.) [*Kandola*]. In *Kandola* at para. 75, the Federal Court of Appeal commented in an *obiter dictum* that this issue could be contrary to the prohibition on discrimination in the *Charter* because it treats children differently on the basis of their manner of conception. See title IV in this paper; Stefanie Carsley, "DNA, Donor Offspring and Derivative Citizenship: Redefining Parentage Under the Citizenship Act" (2016) 39:2 Dal. L. J. 525 at 540 ff. See also *Xia v. Canada (Minister of Citizenship and Immigration)*, [2014] I.A.D.D. No. 1740 (I.A.D.) at para. 12 [Xia].

⁶⁴ Kandola, supra note 63.

⁶⁵ Ibid.

⁶⁶ Ibid.

⁶⁷ IRCC, "Dependent children" (12 March 2018) online: < www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/operational-bulletins-manuals/permanent-residence/non-economic-classes/dependent-children.html > .

Kia, supra note 63 at para. 15; see also generally Tian v. Canada (Minister of Citizenship & Immigration), 2011 CarswellNat 5901, [2011] I.A.D.D. No. 1065 (Imm. & Ref. Bd. (App.

Kandola is overturned, children lacking genetic relatedness with their sponsor, including those born through AHR, cannot benefit from family reunification unless they are formally adopted, or successfully request an exemption from this requirement on H&C grounds. Nonetheless, the inclusion of certain forms of AHR in *IRPR* represents a step forward, although we could retrieve only one IAD case where this was applied.⁶⁹

3. The last resort policy

Since the introduction of DNA testing procedures in its internal policy documents (such as the OP1 manual), IRCC has maintained that such tests should be used as a last resort. Since the introduction of DNA testing procedures in its internal policy documents, IRCC has maintained that such tests should be used as a last resort. To IRCC further posits that the decision to undertake a DNA test should be voluntary, and that refusal to undergo the test will result in a decision based on information submitted with the application. In further support of the last resort policy, Federal Court jurisprudence underscores that DNA evidence is "qualitatively different from other forms of evidence" and "must be carefully and selectively utilized." As such, visa officers must give sponsors and applicants the chance to submit supplementary documentation or alternative evidence before requesting a DNA test.

The absence of publically available and relevant statistics regarding IRCC's implementation of the last resort policy (via DNA test requests) makes it difficult to evaluate the consistency and circumstances of its application. Moreover, in many cases, the IAD and the Federal Court do not clearly note the circumstances warranting the submission of a DNA test by a sponsor or applicant. Hence, it

Div.)) where the IAD upheld the constitutionality of the definition of a dependent child as requiring a genetic link, despite the argument that it kept children born through surrogacy from accessing family reunification.

⁶⁹ Khosa v. Canada (Minister of Citizenship and Immigration), [2010] I.A.D.D. No. 2203 (I.A.D.).

⁷⁰ DNA testing web module, *supra* note 37.

⁷¹ Ihid

O. (M.A.) v. Canada (Minister of Citizenship & Immigration), 2003 FC 1406, 2003 CarswellNat 4420, 2003 CarswellNat 3840 (F.C.) at para. 84 [M.A.O. 2003]; Martinez-Brito F.C., supra note 40 at para. 44.

A request to obtain such information was sent to IRCC's Information and Privacy Division, however, the agency stated that it does not have any record where such information could be found. A copy of the response letter is on file with the authors. The only statistically relevant information on DNA testing we found is a small 2012 survey of visa officers outside of Canada on the percentage of cases in which they used DNA testing: Citizenship and Immigration Canada, "Evaluation of the Family Reunification Program" (February 2014) at 49-50, online: < www.canada.ca/en/immigration-refugees-citizenship/corporate/reports-statistics/evaluations/family-reunification-program.html > .

⁷⁴ See for example Chery c. Canada (Ministre de la citoyenneté et de l'immigration), 2014

is challenging to distinguish between cases where tests were submitted voluntarily and those where it was required, implicitly or explicitly by a visa officer, and whether DNA testing was even warranted. Furthermore, if applicants are not aware that DNA testing is only to be suggested as a last resort, it is unlikely that they will question a visa officer's request for a DNA test. As such, many cases justifying reexamination may not make their way to the IAD or Federal Court.

C. An overview of the jurisprudence: M.A.O. and beyond

The case of O. (M.A.) v. Canada (Minister of Citizenship & Immigration) (hereafter M.A.O.), 75 is a landmark Canadian decision that brought to light some of the prime issues associated with IRCC's use of DNA testing in family reunification applications, as well as the narrow definition of "dependent child," among others. This case involved a sponsor-father (M.A.O.), a Canadian permanent resident of Somali citizenship, who applied to reunite with his three children living in Kenya. The application was submitted during the Somali civil war, and like many Somalis, he was unable to provide sufficient documentary proof of his children's birth registrations, as the responsible bureaucratic infrastructures were decimated. ⁷⁶ M.A.O. was strongly encouraged to submit a DNA test in support of his application. The results revealed that his youngest son was not genetically related to him. 77 Due to the negative DNA test results, the visa officer⁷⁸ rejected the application of the youngest child, finding that the child was not a member of the family class, as required under IRPR.⁷⁹ This decision was subsequently appealed, and the IAD upheld the officer's decision based on the DNA results. The IAD concluded that DNA tests provide the "best evidence currently available" to determine biological relationships, and therefore did not place considerable value on M.A.O.'s evidence that both Islamic law and Somali tradition consider a child born in a legal marriage as the husband's, regardless of genetic relatedness. 80 Rather, the IAD interpreted "issue" 81 to require a biological link between the child and the parent-sponsor.⁸²

FC 382, 2014 CarswellNat 1279, 2014 CarswellNat 1746 (F.C.) at paras. 10-12 [Chéry]; Adjani v. Canada (Minister of Citizenship & Immigration), 2008 FC 32, 2008 CarswellNat 102, 2008 CarswellNat 1261 (F.C.) at para. 4 [Adjani].

⁷⁵ 2002 CarswellNat 1212, 21 Imm. L.R. (3d) 28, [2002] I.A.D.D. No. 89 (Imm. & Ref. Bd. (App. Div.)) [*M.A.O.* 2002], judicial review allowed in *M.A.O.* 2003, supra note 72 and remitted back to a different member of the IAD to be heard as [2005] I.A.D.D. No. 18 (I.A.D.) [*M.A.O.* 2005].

⁷⁶ *M.A.O.* 2002, supra note 75 at para. 21.

⁷⁷ *M.A.O.* 2003, supra note 72 at para. 8.

[&]quot;Visa officer" refers to either visa officers in another country or officers in Canada. See IRCC, "Immigration, Refugees and Citizenship Canada (IRCC) Offices" (31 August 2018), online: < www.canada.ca/en/immigration-refugees-citizenship/corporate/contact-ircc/offices.html>.

⁷⁹ *M.A.O.* 2002, *supra* note 75 at para. 13.

⁸⁰ M.A.O. 2002, supra note 75 at para. 23; Cindy L. Baldassi, "DNA, Discrimination and

Upon judicial review, the Federal Court identified a problematic factor in the facts of the case: the visa officer inappropriately used coercive language in the DNA test request letter. The court therefore set aside the results of the DNA test, ⁸³ and allowed the application for judicial review. The case was subsequently referred back to the IAD for a new evaluation where once again, it was dismissed on the basis of a lack of credible evidence establishing the sponsor's paternity. ⁸⁴ During these proceedings, immigration regulations were amended to include a new definition of "dependent child" explicitly referring to the necessity of a biological link with the sponsor-parent. ⁸⁵

M.A.O. unearthed key systemic flaws that legal scholars, NGOs, and other stakeholders have since publicized. Of importance to our analysis are the following issues raised in the case:

- (1) The weight placed on the results of DNA tests, in comparison with other evidence
- (2) The undue pressure and coercive language used to induce M.A.O. and his children to undergo DNA testing
- (3) The narrow definition of "dependent child" present in family reunification regulations

In-depth analysis of these issues will be discussed in the following section. Nevertheless, examination of post-M.A.O. jurisprudence reveals that the enumerated concerns are still prevalent. We reviewed jurisprudence from the IAD and the Federal Court via LexisNexis, Quicklaw, and CAIJ legal databases to identify the most cited reasons for rejecting a family reunification application, using the keywords "DNA test" or "genetic test" and "family reunification" or "family class" or "family sponsorship." The research yielded 649 results for the IAD and 61 for the Federal Court. We subsequently narrowed the research to include only permanent residents and citizens sponsoring a dependent child, or permanent residency applicants with an accompanying dependent, by adding "citizens or permanent residents" and "dependent child" as keywords. We obtained 217 results for the IAD and 23 for the Federal Court. Although we may have missed some cases, these keywords effectively reduced the yield to a manageable number of cases and ensured their relevance. The final results yielded 81 cases between January 2006 and August 2018. As such, the cases identified represent recent case law involving DNA testing in the family reunification procedure, therefore shedding light on how the IAD and the Federal Court currently treat such cases.

the Definition of Family Class: M.A.O. v. Canada (Minister of Citizenship and Immigration)" (2007) 21 J.L. & Soc. Pol'y. 5 at 9 [Baldassi].

This term was later amended in *IRPR* to "dependent child."

⁸² *M.A.O.* 2002, *supra* note 75 at para. 32-35.

⁸³ *M.A.O.* 2003, supra note 72 at para. 91.

⁸⁴ *M.A.O.* 2005, *supra* note 75 at paras 16-17.

⁸⁵ Regulations, supra note 28 at s. 1.

As expected, our analysis of the case law revealed that most decisions did not feature a thorough examination of visa officers' DNA test requests. 86 However, we were still able to draw the following observations from our analysis:

(1) In 10 of the reviewed cases, the visa officer considered DNA testing to be required in order to render a decision. Of these cases, seven were remanded to a new visa officer for failure to follow the last resort policy, 87 and three

the visa officer's demand, but the context of the DNA test request is not discussed. This totaled 29 cases where we identified the use of the following words: "he asked" (9 times), "he requested" (15 times), "he invited" (2 times), "he gave the option/opportunity or offered" (3 times); see for example Essindi v. Canada (Citizenship and Immigration), 2018 FC 288, 2018 CarswellNat 910, 2018 CarswellNat 985 (F.C.) at para. 7; Sibanda v. Canada (Citizenship and Immigration), 2018 FC 806, 2018 CarswellNat 4077, 2018 CarswellNat 4423 (F.C.) at para. 12; Louissaint v. Canada (Minister of Citizenship and Immigration), [2011] I.A.D.D. No. 3115 (I.A.D.) at para. 4. (2)the IAD or the Federal Court only mentions the use of DNA evidence by the visa officer, but it is impossible to determine if the submission of the DNA test was voluntary or not. This was observed in 26 cases, see for example Leblanc c. Canada (Citoyenneté et Immigration), [2017] I.A.D.D. No. 91 (I.A.D.), affirmed 2017 FC 811, 2017 CarswellNat 7101, 2017 CarswellNat

(1)the IAD or the Federal Court uses softer terms such as "request" or "invitation" to describe

4302 (F.C.); Toure v. Canada (Minister of Citizenship and Immigration), [2017] I.A.D.D. No. 287 (I.A.D.); Chéry, supra note 74; Chéry c. Canada (Ministre de la Citoyenneté & de l'Immigration), 2012 FC 922, 2012 CarswellNat 3382, 2012 CarswellNat 2740 (F.C.).

(3)the IAD or the Federal Court mentions that the visa officer "required" a DNA test indicating that testing might not have been voluntary, but does not discuss the context of the DNA test request further. This was identified in the seven following cases: Mavula v. Canada (Minister of Citizenship and Immigration), [2015] I.A.D.D. No. 206 (I.A.D.) at para. 2; Osisanwo v. Canada (Minister of Citizenship & Immigration), 2011 FC 1126, 2011 CarswellNat 4812, 2011 CarswellNat 3886 (F.C.) at para. 3 [Osisanwo]; Ibrahim v. Canada (Minister of Public Safety and Emergency Preparedness), [2011] I.A.D.D. No. 2526 (I.A.D.) at para. 3; Dhondup v. Canada (Minister of Citizenship & Immigration), 2011 FC 108, 2011 CarswellNat 1004, 2011 CarswellNat 213 (F.C.) at para. 5; Kolawole v. Canada (Minister of Citizenship and Immigration), [2009] I.A.D.D. No. 1505 (I.A.D.) at para. 16; Santiago v. Canada (Minister of Citizenship and Immigration), [2008] I.A.D.D. No. 1552 (I.A.D.) at para. 5; Canada (Ministre de la Citovenneté & de l'Immigration) c. Kante, 2007 FC 1345, 2007 CarswellNat 4607, 2007 CarswellNat 6294 (F.C.) at para. 8.

(4)in accordance with the Federal Court's rulings in M.A.O. 2003, supra note 72 at para. 84 and Martinez-Brito F.C., supra note 40 at para. 44 that DNA evidence is a qualitatively different type of evidence and must be used only in rare cases where no other type of evidence is available, the IAD or the Federal Court examines the request for DNA testing sent by the visa officer notwithstanding the language used (see Annex 1; these 18 cases are featured in Table 1)

(5)a DNA test is submitted voluntarily by the applicants without prior request from IRCC. This was observed in the five following cases: Kwabla v. Canada (Minister of Citizenship and Immigration), [2016] I.A.D.D. No. 589 (I.A.D.) at para. 4; Julien v. Canada (Minister of Citizenship and Immigration), [2015] I.A.D.D. No. 1428 (I.A.D.) at para. 6; Fullerton v. Canada (Minister of Citizenship and Immigration), [2014] I.A.D.D. No. 572 (I.A.D.) at para. 11; Chen v. Canada (Minister of Citizenship and Immigration), [2012] I.A.D.D. No. 1040 (I.A.D.) at para. 6; Wesley v. Canada (Minister of Citizenship and Immigration), [2006] I.A.D.D. No. 1038 (I.A.D.)

M.A.O. 2003, supra note 72; Tagore v. Canada (Minister of Citizenship and Immigration), [2007] I.A.D.D. No. 2514 (I.A.D.); Mohamad-Jabir v. Canada (Minister of Citizenship & Immigration), 2008 CarswellNat 2366, 2008 CarswellNat 2367, [2008] I.A.D.D. No. 44 (Imm. & Ref. Bd. (App. Div.)) [Mohamad-Jabir]; Martinez-Brito v. Canada (Minister of Citizenship and Immigration), [2011] I.A.D.D. No. 629 (I.A.D.) [Martinez-Brito I.A.D.], aff'd Martinez-Brito F.C., supra note 40; Niaz-Muhammad v. Canada (Minister of Citizenship and Immigration), [2014] I.A.D.D. No. 96 (I.A.D.); Yao

We formed five categories of cases:

- resulted in the IAD's concurrence with the officer's demand of a DNA test. 88 This illustrates that a significant number of applicants under the family reunification regime are requested to undergo DNA testing, even though such a request is not employed as a last resort or necessary to prove family relation. The significance of this cannot be overlooked, as it suggests that DNA testing in family reunification is not being implemented as it was intended by the regulations, and may therefore breach applicants' and sponsors' rights as will be discussed below.
- (2) Our review of the jurisprudence suggests that in order to comply with the duty of procedural fairness⁸⁹ a request for DNA testing by a visa officer must clearly establish its voluntary nature, and must only be made after the sponsors and applicants had the opportunity to submit alternative evidence to which the visa officer must give due consideration. 90 Financial capabilities and religious or cultural imperatives might also be taken into account in evaluating procedural fairness in the context of DNA testing.⁹¹ These findings point to the Federal Court's acknowledgment of various factors requiring consideration before, or in the request to undergo DNA testing, such as cultural and economic circumstances. Indeed, the courts have expressed that procedural fairness may be unduly compromised where a DNA test has not been undertaken voluntarily, or where applicants were not afforded the opportunity to provide other means of evidence. 92 Based on the observations outlined above, procedural fairness has likely been breached in the cases we reviewed, where DNA testing was not requested as a last resort, and consent was not fully free (such as in M.A.O., where the court found that the language used in the request was coercive)⁹³.

v. Canada (Minister of Public Safety and Emergency Preparedness), [2018] I.A.D.D. No. 80 (I.A.D.); Meer v. Canada (Minister of Citizenship and Immigration), [2014] I.A.D.D. No. 449 (I.A.D.).

Tesfaye v. Canada (Minister of Citizenship and Immigration), [2008] I.A.D.D. No. 2311 (I.A.D.); Badji v. Canada (Minister of Citizenship and Immigration), [2011] I.A.D.D. No. 2179 (I.A.D.).

For a summary of the duty of procedural fairness see IRCC, "Procedural fairness" (22 August 2018) online: < www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/operational-bulletins-manuals/service-delivery/procedural-fairness.html >; see also *Baker*, *supra* note 39 at paras 18-28; but see *Brhane v. Canada (Citizenship and Immigration)*, 2018 FC 220, 2018 CarswellNat 662, 2018 CarswellNat 608 (F.C.) where the court mentions that although there is a duty of procedural fairness owed to foreign nationals who make a permanent residency application, it is at the low end of the spectrum of this duty.

Martinez-Brito I.A.D., supra note 87 at para. 41, though we note that the IAD did not go so far as to require that the visa officer provide detailed reasons for requesting a DNA test.

⁹¹ *Ibid.* at para. 22; see also *Mohamad-Jabir*, *supra* note 87 at para. 33.

Watzke v. Canada (Minister of Citizenship and Immigration), 2014 FC 19, 2014 CarswellNat 18, 2014 CarswellNat 597 (F.C.).

- (3) Over the years, the Federal Court was consistent in its stance that DNA testing evidence is qualitatively unique, and must be used as a last resort. 94 Our findings that there are a number of instances where DNA testing is not employed as a last resort questions the extent to which the courts' determination is being applied by visa officers.
- (4) The lack of scrutiny afforded to the manner in which DNA evidence was obtained in the majority of cases may be interpreted as a growing reliance on and, complacency toward DNA testing. However, the lack of scrutiny may be due to appellants not bringing the issue to the attention of the panel or judge, or as a result of their ignorance of the last resort policy. Although this observation remains uncertain, the seeming over reliance and deference to DNA testing in family reunification raises concerns, given the procedural fairness and ethical issues it can give rise to. Furthermore, greater reliance on DNA testing may mean that other forms of evidence proving genuine emotional and psychosocial bonds among family members are not considered.

Examination of the jurisprudence points to significant factors rendering the current application of DNA testing in the family reunification context problematic. Most notable, case law suggests that, often enough, such tests are not requested as a last resort. This finding further problematizes the implementation of DNA testing given the ethical, legal, and socio-economic challenges it poses.

III. ETHICAL, LEGAL AND SOCIO-ECONOMIC CHALLENGES ASSOCIATED WITH THE USE OF DNA TESTING IN FAMILY REUNIFICATION PROCEDURES

This section explores the ethical, legal, and socio-economic challenges posed by the current use of DNA testing in family reunification procedures. The first portion of this section examines relevant ethical concerns of free and informed consent as well as privacy protection of genetic information. Additionally, we consider whether the use of DNA testing in family reunification procedures remains a contentious issue in light of IRCC's recent changes, including archiving the operational manuals that contained information on DNA testing before August 2017, and the introduction of a web module to replace them.

A. Free and informed consent and privacy

Canadian jurisprudence as well as provincial legislation establish that procedures impacting personal integrity, such as invasive DNA testing, require

⁹³ *M.A.O.* 2003, supra note 72 at para. 91.

Jibid. at para. 84; Tesfaye v. Canada (Minister of Citizenship & Immigration), 2007 FC 1143, 2007 CarswellNat 3774, 2007 CarswellNat 4709 (F.C.) at paras. 20-21; Martinez-Brito F.C., supra note 40 at para. 44.

free and informed consent from the participant. 95 The "free" element of free and informed consent demands that the consent reflect the will of the participant, and not be due to, among other things, duress, coercion, or undue influence. 96 In the instance of family reunification, where the stakes are high, it is easy to see where consent may be provided due to pressure, and may therefore not be fully free, as will be later examined. Additionally, and equally important, consent must be informed. The rules delineating the requirements for informed consent emerged mostly from medical law jurisprudence and contract law, yet the key principles may apply to DNA testing in the immigration context as well.⁹⁷ This requires that participants are informed of the potential risks associated with DNA testing prior to providing consent to the procedure. 98 As will be discussed, DNA testing in the family reunification context may produce considerable psychological risks, and even physical and economic harm affecting an entire family due to cultural taboo or stigma, where misattributed parentage is revealed. Furthermore, a significant consideration in the discussion of informed consent in the context of family reunification is the fact that minors may be requested to undergo DNA testing. When considered, this last factor renders potential applicants undergoing DNA testing, particularly vulnerable, as they may be in an insecure position (socio-politically, economically, or may have language or cultural barriers) and may be a minor. Where an applicant is a minor, the legal parent or guardian of the child has authority to consent to DNA testing for the child.⁹⁹ However, ironically enough, parents consenting to this procedure may find out that they are, in fact, not the (biological) parents of the child according to immigration law.

DNA testing, especially via a buccal swab, poses minimal bodily intrusion. However, as the procedure requires sampling either blood or saliva, free and informed consent is a necessary prerequisite to conduct the test. ¹⁰⁰ Moreover, the

See generally Reibl v. Hughes, 1980 CarswellOnt 614, 1980 CarswellOnt 646, [1980] 2 S.C.R. 880 (S.C.C.) [Reibl]; Hopp v. Lepp, 1980 CarswellAlta 315, 1980 CarswellAlta 243, [1980] 2 S.C.R. 192 (S.C.C.) [Hopp]; Charter of Human Rights and Freedoms, CQLR, c C-12, art. 1(1) [CHRF]; CCQ, supra note 30 at arts. 3, 10-11; An Act Respecting Health Services and Social Services, CQLR c S-42, art. 8-9 [ARHSSS]; also see Ciarlariello v. Schacter, 1993 CarswellOnt 803, 1993 CarswellOnt 976, [1993] 2 S.C.R. 119 (S.C.C.).

Reibl, supra note 95 at 11. See also Edwardson v. St. Joseph's Healthcare Hamilton, 2012 ONCA 719, 2012 CarswellOnt 13256 (Ont. C.A.) at para. 9 [Edwardson]; Peter H. Schuck, "Rethinking Informed Consent," (1994) 103 Yale L.J. 4.

⁹⁷ Granados Moreno, Ngueng Feze & Joly, *supra* note 7 at 22.

Trainor v. Knickle, 1996 CarswellPEI 74, [1996] P.E.I.J. No. 55 (P.E.I. T.D.); Kelly v. Hazlett, 1976 CarswellOnt 390, 75 D.L.R. (3d) 536 (Ont. H.C.) at 558-559 [D.L.R.]; Hopp, supra note 95; Reibl, supra note 95. See also Gallant v. Brake-Patten, 2012 NLCA 23, 2012 CarswellNfld 135 (N.L. C.A.) at paras. 42-43, leave to appeal refused 2012 CarswellNfld 390, 2012 CarswellNfld 391 (S.C.C.); Reid v. Maloney, 2011 ABCA 355, 2011 CarswellAlta 2058 (Alta. C.A.) at paras. 11-12.

⁹⁹ Granados Moreno, Ngueng Feze & Joly, *supra* note 7 at 22.

¹⁰⁰ Bartha M. Knoppers, Denise Avard & Adrian Thorogood, "Informed Consent in

DNA contained in samples, although collected for identification purposes, can reveal sensitive personal information, such as paternity, family relationships, ancestry, and health status. ¹⁰¹ This information is protected by Canadian privacy laws where it is stored by laboratories in Canada. ¹⁰²

1. Is consent to DNA testing in family reunification truly free?

For immigrants seeking entry into Canada under the family reunification scheme, IRCC is the entity that decides their fate, namely, whether they will be reunited with their family in Canada. The potential benefits (or losses) at stake underscore the pressure and anxiety sponsors and applicants may experience upon receiving a request for DNA testing. In these circumstances, many may accede to the request, even where inappropriate, so as not to be perceived as uncooperative, or having something to hide, thus rendering the voluntariness of DNA testing somewhat illusory. 103 Indeed, interviews with applicants who have undergone DNA testing for the purpose of family reunification have expressed that they felt they had no choice but to take the test, or that the test was mandatory. 104 Of course, applicants and sponsors are free to decline, yet in the presence of undue pressure or coercion, the free exercise of their right to decline would not be considered "free" as per Canadian legal and ethical norms on consent to genetic testing: 1) visa officers requesting DNA testing are in a relationship of authority and control over applicants and sponsors, which increases the risk of undue influence; 2) sponsors and more specifically, applicants, are often vulnerable and dependent (such as minors or those who are in socially or economically vulnerable situations), and are therefore more prone to undue influence or coercion. 105 Issues pertaining to undue pressure become even more disconcerting where DNA testing is inappropriately requested, but was nevertheless undertaken by sponsors and applicants, as was identified in a number of cases we reviewed. For example, the wording of the

Genetics" in *eLS* (Chichester, UK: John Wiley & Sons, Ltd, 2001) at 3; *CCQ*, *supra* note 30, s. 11(1); Ludvig Beckman, "Democracy and Genetic Privacy: The Value of Bodily Integrity" (2005) 8:1 Med Health Care Philos 97 at 98.

¹⁰¹ Weiss 2015, *supra* note 57 at 85.

See also Privacy Act, R.S.C. 1985, c. P-21, s. 3, 7; Genetic Non-Discrimination Act, S.C. 2017, c. 3.

Granados Moreno, Ngueng Feze & Joly, supra note 7 at 271; Heinemann & Lemke, supra note 8 at 815-816.

¹⁰⁴ Barata et al., supra note 45 at 11, 16. Of note again that these applicants were undergoing family reunification under the U.S. system, yet their experiences may just as well apply to those undergoing family reunification under the Canadian scheme.

Reibl, supra note 95 at 11; See also Edwardson, supra note 96 at para. 9; Canada, Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, and Social Sciences and Humanities Research Council of Canada, Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (Ottawa: Secretariat on Responsible Conduct of Research, 2014) at chapter 3, online: < www.pre.ethics.gc.ca/pdf/eng/tcps2-2014/tcps 2 final web.pdf > [TCPS2].

letter requesting a DNA test in *Martinez-Brito*¹⁰⁶ perfectly illustrates how individuals may be overcome with undue pressure to consent by the wording of the DNA test request letter: "*If you wish to proceed* with this application, Luilly and Luilivin *will be required* to undergo DNA testing to establish the relationship . ."¹⁰⁷ (emphasis added). Such terminology may leave an applicant feeling that there is no other recourse but to undergo testing. Indeed, as underscored in our discussion regarding M.A.O., where the visa officer used coercive language in the DNA test request letter, coercion will typically invalidate consent and render the test inadmissible as evidence.

It is important to acknowledge the recent progress made by IRCC on these issues. The replacement of operational manuals containing information on DNA testing by a web module dedicated to DNA testing in 2017 significantly improved the accessibility of the information to the public. It is foreseeable that such online access will increase awareness of the last resort policy amongst family reunification sponsors and applicants, which may alleviate some of the concerns identified above. However, most of the information in the DNA testing web module was already provided in IRCC's previous documents, such as the OP1 manual since 2006, which included a sample DNA test request letter that was not transferred to the web module. The increased accessibility to information has seemingly come at the expense of reduced transparency concerning how visa officers formulate requests to undergo DNA testing.

The above critique must be nuanced to an extent, with the consideration that pressure to undergo DNA testing is often intrinsic to any immigration procedure. Additionally, genetic testing in immigration raises considerations unique to its character and context, such as the element of vulnerability and possible language and cultural barriers. Importantly, potential immigrants do not have an unfettered right to enter Canada, let alone to be accepted under the family reunification procedure, and the government must ensure the identities of those entering the country for various reasons. However, there is an important caveat to this: such procedures should be done in a way that maximizes considerations of human rights and personal integrity, including individual autonomy. As such, the procedure will ensure that DNA testing is used in a way that allows for consent to be as free as possible, given the circumstances. A potential solution to this is that information be provided to applicants and sponsors regarding alternative modes of providing requisite proof of filiation and more neutral, less coercive language in DNA testing requests.

2. Is consent to DNA testing in family reunification truly informed?

Informed consent to DNA testing presupposes that applicants are familiar with the procedure. Scholars conducting interviews with applicants undergoing

¹⁰⁶ Martinez-Brito F.C., supra note 40.

¹⁰⁷ *Ibid.* para. 4.

¹⁰⁸ *IRPA*, *supra* note 18 at s. 16(3), 18(1).

the U.S. family reunification process highlight that numerous applicants who have undergone DNA testing did not even know what DNA is, let alone what the test could reveal. This highlights that there is a possibility that in many cases, consent to DNA testing in family reunification is not informed. This lack of information points to the need of supplying such information to applicants and sponsors in lay terms, and ensuring that it is readily accessible to all applicants.

Another important required disclosure for consent to be informed are the potential risks associated with such testing. There are a number of psychosocial risks that may arise depending on the results of the DNA test. 110 One of such risks is the possible distress that a parent or child may suffer in the instance of an unexpected negative result, revealing the absence of biological relatedness with a child. The disclosure of misattributed parentage may have serious consequences on family relationships and a child's personal identity, including anguish as incidents of sexual violence, ¹¹¹ infidelity, ¹¹² or other family secrets ¹¹³ may be revealed. Such revelations can result in anxiety, depression, and in more extreme cases, verbal, physical, or financial harm. 114 For example, an applicant who received results indicating misattributed paternity recounted that, upon learning the results, community members in the sponsor's country of origin began reacting against the children, such as, excluding them from social circles. 115 Furthermore, in regions where women are in more precarious situations (often lacking social and political rights) misattributed paternity can have serious social repercussions, including violence. 116 The risks posed to remaining family members in the sponsor's country of origin are exacerbated by the fact they

¹⁰⁹ Barata et al., *supra* note 45 at 11.

Weiss 2015, supra note 57 at 86; Granados Moreno, Ngueng Feze & Joly, supra note 7 at 271.

In the context of DNA testing in the U.S. P3 program in Nairobi, an interviewer reported that female applicants experienced rape in 70% of the hundreds of cases she heard. In one case, a rape victim required to undergo DNA testing asked the interviewer (who had no psychological training) to tell her son that he was a product of rape. Jill Esbenshade, "Discrimination, DNA Testing, and Dispossession: Consequences of U.S. Policy for African Refugees" (2011) 13 SOULS 175 at 186 [Esbenshade].

¹¹² Osisanwo, supra note 86 at 14-15.

¹¹³ Sandhu v. Canada (Minister of Citizenship & Immigration), 2012 FC 217, 2012 CarswellNat 564, 2012 CarswellNat 7935 (F.C.) at para. 5 (where discussion about DNA testing prompted the disclosure of an adoption that was kept secret from the child).

A lack of biological relatedness may also point to other causes, such as an error made during in vitro fertilization, or mistaken attribution of a child to the wrong parents by healthcare personnel: Amulya Mandava, Joseph Millum & Benjamin E. Berkman, "When Should Genome Researchers Disclose Misattributed Parentage?" (2015) 45:4 Hastings Cent Rep 28 at 2, 5-6 (where caution is advised in the disclosure of misattributed parentage to lessen the possibility of violence between the parents or abandonment of the child by a parent).

¹¹⁵ Barata et al., *supra* note 45 at 13.

¹¹⁶ *Ibid.* at 16.

may not immigrate immediately, thus being left to face potential discrimination, stigma, or violence alone, until the application is approved- if ever. 117

Unlike other instances of genetic testing, where participants may exercise their right not to know, the circumstances of family reunification are completely different. Applicants and sponsors undergoing DNA testing will be provided with the results, as is intrinsic to the application process. As such, the risk of finding out potentially distressing information and suffering subsequent harm is a very tangible possibility. 118 Therefore, the only way to avoid revealing or receiving potentially troubling information is to refuse to undergo the DNA test. As such, the decision to undergo a DNA test must be informed, namely, that sufficient information is provided to sponsors and applicants regarding the possibility of psychological or other harms. However, according to available policy documents and jurisprudence, this is currently not the case. Interestingly, up until 2016, the OP1 manual stated that "officers should provide applicants with information that will allow them to make an informed decision about the testing laboratory they choose and whether to undergo DNA testing or not."119 This piece of instruction served as a valuable reminder that free and informed consent is an intrinsic part of the DNA testing procedure. However, this instruction is not reproduced in the DNA testing web module.

Providing sufficient information on the risks associated with DNA testing ensures that sponsors and applicants are psychologically prepared for unexpected results. This information is particularly relevant and important where minors are involved, or where applicants or sponsors who have already experienced trauma in their country of origin may need to seek additional assistance, such as counseling. Furthermore, considering the diversity of educational and cultural backgrounds of applicants and sponsors, some may not have prior knowledge about DNA testing, nor have the means to research such information. Therefore, providing sufficient information concerning the risks of DNA testing through various forms (such as pamphlets, or providing a phone number where applicants may inquire, etc.) is essential to ensuring that the family reunification process is conducted ethically and with human rights, the best interest of the child, and the personal integrity of those who undergo it at its core.

¹¹⁷ *Ibid.* at 13.

The results are systematically sent to both IRCC and the individuals who submitted the DNA test; see DNA testing web module, *supra* note 35.

Canada, Immigration, Refugees, and Citizenship Canada, *OP1: Procedures*, Overseas Processing Manual (Ottawa: IRCC, 15 March 2016) at 5.12.

¹²⁰ See, e.g., Mohamad-Jabir, supra note 87 at para. 14 (where the sponsor experienced various traumas before becoming a permanent resident). See also, e.g., Erica K. Lucast, "Informed Consent and the Misattributed Paternity Problem in Genetic Counseling" (2007) 21:1 Bioethics 41.

¹²¹ Weiss 2011, *supra* note 9 at 6.

3. Privacy concerns

SCC accredited laboratories collect and store biological samples, genetic information extracted during the DNA testing procedure, and a host of other personal information (e.g. names, addresses, photographs, payment information, etc.). Privacy issues that may arise in the context of DNA testing for family reunification include, among others, the possibility of secondary uses of personal data and lack of transparency as to whether or when bio-samples are destroyed. SCC accredited private testing laboratories and IRCC, are subject to federal, and in the case of private institutions, both federal and provincial privacy legislation. 122 Personal information obtained via DNA testing in the context of family reunification is protected personal information. 123 Therefore, laboratories conducting the DNA tests are required to: 1) collect information only necessary for an identified purpose; 2) obtain consent for the collection, use, and disclosure of personal information, and; 3) ensure the accuracy of the information they store. 124 Additionally, private DNA testing laboratories must provide individuals with access to their data, correct inaccurate information upon request from the individual concerned, and destroy or anonymize information that is not necessary for the purposes for which it was collected. 125 In the case where the testing laboratory is in Canada, and where applicants and sponsors are also in Canada, privacy concerns remain minimal. However, in the immigration context, this is often not the case.

Investigation into IRCC accredited laboratories reveals that one of the laboratories is located in the state of Ohio, and is therefore not under the scope of Canadian privacy legislation. This may increase privacy concerns where foreign laboratories are subsequently accredited in other jurisdictions, as privacy protection varies significantly between countries. Additionally, our survey of the privacy policies available on all seven SCC accredited laboratories' websites

Personal Information Protection and Electronic Documents Act, S.C. 2000, c. 5 [PIPEDA]; Privacy Act, supra 104. Note that Private entities such as private testing laboratories in Canada are regulated by PIPEDA, whereas government agencies and bodies, such as IRCC are governed by the Privacy Act.

This genetic data as well as biospecimens are encompassed in the legislative definition of "personal information" protected by privacy laws: *Privacy Act*, *supra* note 102 at s. 3; *PIPEDA*, *supra* note 122 at s. 2(1); Office of the Privacy Commissioner of Canada, "Genetic Information, the Life and Health Insurance Industry and the Protection of Personal Information: Framing the Debate" (December 2012), online: < www.priv.gc.-ca/en/opc-actions-and-decisions/research/explore-privacy-research/2012/gi_intro/>.

¹²⁴ PIPEDA, supra note 122 at Schedule 1.

¹²⁵ *Ibid.* at Schedule 1, 4.5.

¹²⁶ It is possible that the laboratory provides equivalent protection to the SCC for the purpose of accreditation, but we did not find an indication of this in their scope of accreditation or their public privacy policy.

¹²⁷ See generally Edward S. Dove and Mark Phillips, "Privacy Law, Data Sharing Policies, and Medical Data: A Comparative Perspective" in A. Gkoulalas-Divanis & G. Loukides, eds., Medical Data Privacy Handbook. (Cham: Springer, 2015) 639; Lee A.

revealed¹²⁸ that most laboratories do not provide a timeline for the destruction of samples. We also note that two laboratories permit secondary uses of personal information where, in one case, data is anonymized, ¹²⁹ and in the other, for activities such as teaching, research, and statistical analysis. ¹³⁰ Where data is not anonymized, this poses particular privacy concerns for applicants living abroad who may likely be unaware of such practices, and may face important barriers ¹³¹ hindering the exercise of their rights with regard to their personal information. Two considerations support this assertion: (1) applicants may not be in Canada at the moment of their application, and may never come to Canada if their application is refused; (2) the applicant is a dependent child, thus deserving special considerations in accordance *inter alia* with the rights recognized under the *CRC*. ¹³²

Drawing from the above submission, a strict policy regarding anonymization and the destruction of samples within a specified time frame would be more suitable. This is especially important in cases concerning children and individuals who are not Canadian residents. Based on the above analysis, accredited laboratory policies allowing secondary uses are especially alarming given the above-outlined considerations regarding the unique situation applicants are in.

Admittedly, IRCC cannot control everything private laboratories do. However, IRCC should take measures to ensure the privacy protection of data and specimens collected during the course of immigration procedures, as they direct applicants and sponsors to SCC accredited laboratories. For example, IRCC could compel accredited laboratories to refrain from secondary uses of samples and personal data collected for immigration purposes, and require that data be destroyed once the family reunification application has been processed. Further, IRCC is responsible for the DNA test results it receives from the laboratories. However, it is not clear what is meant by "DNA test results" as it could range from a simple percentile to more detailed genetic information. IRCC should therefore clarify the scope of information it receives from the laboratories as it may affect their compliance with the *Privacy Act*.

Bygrave, "Privacy Protection in a Global Context - A Comparative Overview" (2004) 47 Scandinavian Stud. L. 319.

¹²⁸ It is possible that such privacy protections exist, yet were simply not made public.

DNA Diagnostic Center (DDC), "Privacy policy" (May 2018) at 2.3, online: < dnacenter.com/about-ddc/privacy-policy/>.

Dynacare, "Privacy Policy" (accessed November 23, 2018) at 1.2, online: < www.dynacare.ca/privacy-policy.aspx >. Dynacare owns one of the accredited laboratories, Orchid PRO-DNA. The latter's website affirms that they follow the privacy policy available on Dynacare's website.

Such as language and educational barriers. Additionally, applicants may not even have access to the internet

¹³² See title II, section A, subsection 2 of this paper; CRC, supra note 4 at s. 16.

B. DNA testing can be too onerous

Although sponsors typically bear most costs related to bringing family members to Canada, ¹³³ applicants undergoing DNA testing also have to cover additional associated costs, including the shipping cost for the DNA sample kit. ¹³⁴ Moreover, applicants from jurisdictions lacking a visa office may be required to travel long distances at their own expense to have their samples taken. This can generate important expenses that applicants may not be able to afford. Importantly, the expense of DNA testing often comes in addition to other costs associated with the family reunification procedure, such as immigration and lawyers' fees. ¹³⁵ Applicants have expressed that the cost for DNA testing was very burdensome, especially given that many had low-wage jobs, or were unemployed in their country of origin. ¹³⁶ It should be noted that there seems to be some willingness from IAD panels to alleviate the financial burden imposed by the DNA testing procedure in cases where the financial situation of the sponsor makes it an unreasonable requirement, ¹³⁷ yet such cases are rare.

IRCC has made significant progress in alleviating the costs for DNA testing, and reducing bodily intrusion by requiring saliva samples instead of blood. ¹³⁸ However, even when using saliva samples, the cost of DNA testing can still be too elevated for applicants and sponsors who often have limited resources. ¹³⁹ As a case in point, Finland addressed this issue by publicly funding the DNA testing

See, e.g., required minimum income levels: Government of Canada, "Guide IMM5482 — Instruction to fill the Financial Evaluation form (IMM 1283)" (2 January 2018), online: < www.cic.gc.ca/english/information/applications/guides/5482Eguide.asp>.

¹³⁴ DNA testing web module, *supra* note 35. In cases where applicants apply from outside of Canada, sample kits are sent to Canadian visa offices abroad for them to ensure the integrity of the procedure.

¹³⁵ Barata et al., *supra* note 45 at 10.

¹³⁶ *Ibid*.

¹³⁷ Sheikhahmed v. Canada (Minister of Citizenship & Immigration), 1999 CarswellNat 3334, [1999] I.A.D.D. No. 818 (Imm. & Ref. Bd. (App. Div.)) (where the sponsor was not able to pay the \$3000 required for testing and benefited from an exemption for H&C grounds); Mohamad-Jabir, supra note 87 at para. 35 (where the court held a request for the sponsor to undergo DNA testing with his eight children unreasonable, given the thousands of dollars in costs and the modest revenues available to him); see also Thevaraja v. Canada (Minister of Citizenship & Immigration), 2005 FC 1110, 2005 CarswellNat 2260, 2005 CarswellNat 4191 (F.C.) (the judge ordered that in order to assess the H&C claim and in the "interest of justice" a DNA test had to be undergone and paid by IRCC to verify the relationship between the defendant and his putative daughter).

DNA testing web module, *supra* note 35. Up until the 2016 version of the OP1 manual, blood-based DNA testing was still in use, which is more costly and more invasive than saliva-based DNA testing procedure. See Mia Hemmes et al., "Specimen Collection within the Cancer Research Network: A Critical Appraisal" (December 2010) 8:3-4 Clinical Medicine & Research 191, online: < www.ncbi.nlm.nih.gov/pmc/articles/PMC3006521/>.

¹³⁹ For example, Genetrack Biolab, a laboratory accredited by the SCC, prices a paternity

procedure except in cases where the applicant or sponsor deliberately provided false information. 140

C. Potential discriminatory practices in the implementation of DNA testing

It is well known that immigrants do not enjoy an unqualified right to enter Canada. ¹⁴¹ Therefore, it is neither unlawful for the government to impose conditions on the acquisition of permanent residency through regulations, nor for IRCC to adopt policies that create distinctions between categories of immigrants as long as they "are made in good faith and are consistent with the purpose, objectives, and scheme of *IRPA*." ¹⁴² Indeed, as the Federal Court noted, "[b]y its nature, legislation governing immigration must be selective." ¹⁴³ However, this does not grant IRCC a *carte blanche*; although visa officers have a lot of discretion in the exercise of their duties, they do not have a license to discriminate on grounds prohibited by Canadian human rights laws or the *Charter*. ¹⁴⁴ An otherwise lawful regulation or policy could in fact be deemed contrary to Canadian human rights law¹⁴⁵ or, in some cases, unconstitutional. ¹⁴⁶ It is at this juncture, where the potential discriminatory uses of DNA tests are assessed through the lens of the Canadian *Charter*.

1. The Charter

Section 15 of the *Charter* offers protection to every individual in Canada against discrimination based on enumerated (i.e., race, national or ethnic origin, colour, religion, sex, age or mental or physical disability) or analogous grounds

- test for one child at \$395: Genetrack Biolab, "DNA Testing Fee Schedule (2019)" (accessed 15 July 2019), online: < www.genetrackcanada.com/fee > .
- Aliens Act, SDK 301/2004, s. 65(1) (Finland) [Aliens Act]; Ilpo Helen & Anna-Maria Tapaninen, "Closer to the Truth: DNA Profiling for Family Reunification and the Rationales of Immigration Policy in Finland" (2013) 3:3 Nordic J. Migration Research 153 at 156
- Chiarelli v. Canada (Minister of Employment & Immigration), 1992 CarswellNat 18, 1992 CarswellNat 653, [1992] 1 S.C.R. 711 (S.C.C.) at paras. 24-27; Charter, supra note 21 at s. 6
- ¹⁴² Vaziri v. Canada (Minister of Citizenship & Immigration), 2006 FC 1159, 2006 CarswellNat 3014, 2006 CarswellNat 4791 (F.C.) at para. 35, affirmed 2007 CarswellNat 849, 2007 CarswellNat 2058 (F.C.A.) [Vaziri].
- ¹⁴³ Chesters v. Canada (Minister of Citizenship & Immigration), 2002 FCT 727, 2002 CarswellNat 1502, 2002 CarswellNat 4368 (Fed. T.D.) at para. 125 [Chesters].
- Attaran v. Canada (Attorney General), 2015 FCA 37, 2015 CarswellNat 161, 2015 CarswellNat 4808 (F.C.A.) at paras. 34-35 [Attaran].
- ¹⁴⁵ Ibid. In this case IRCC's policy concerning processing delays for applications to sponsor parents was challenged under the Canadian Human Rights Act, R.S.C., 1985, c. H-6, s. 3(1), 5 [CHRA].
- See e.g. Charkaoui, Re, 2007 SCC 9, 2007 CarswellNat 325, 2007 CarswellNat 326 (S.C.C.) (where the former s. 84(2) of IRPA was struck by the Supreme Court because it violated s. 7 of the Charter).

resulting from acts of Parliament or administrative decisions, regardless of their status in the country. 147 As such, the Charter applies to IRCC's acts and decisions, and the rights it confers protect applicants and sponsors in Canada. For a law or administrative decision to infringe the *Charter's* equality provision, it must entail a positive answer to two questions: "1) Does [it] create a distinction that is based on enumerated or analogous grounds? 2) Does the distinction create a disadvantage by perpetuating prejudice or stereotyping?" ¹⁴⁸ The second part of the analysis is contextual and considers the historical disadvantage of the group, the real effect of the legislation or policy on the group, and the nature of the interest that is affected. ¹⁴⁹ Furthermore, even if a tribunal or court found that the IRPR or administrative decisions regarding DNA testing violate s. 15, the government could assert a justification under s. 1 of the Charter, which permits reasonable limits on conferred rights. In such a case, for the practice or disposition to be maintained, the Canadian government would need to show that the impugned provision or decision: (1) has a pressing objective, (2) that it has a rational connection to this objective, and (3) that it minimally impairs the individual right it encroaches upon. 150

1.1 Discrimination based on national origin

National origin is an illicit ground for discrimination under s. 15 of the *Charter*. Furthermore, it is common knowledge that ethnic minorities have a long history of oppression in Canada, ¹⁵¹ and any further distinction could perpetuate deeply rooted prejudices or stereotyping. Importantly, neither s. 2 of *IRPR* (that defines "dependent child" as the biological or formally adopted child), nor the DNA testing policy explicitly creates a distinction between individuals of different national origin when applied properly. ¹⁵² However, concerns arise where there is evidence that DNA testing is applied in a discriminatory manner.

Scholars in the field of genomics and law recognize that genetic information can be used to exacerbate already existing discriminatory practices, as individuals from vulnerable populations are disproportionately affected by the ethical, legal,

¹⁴⁷ *Charter*, *supra* note 21, s. 15 and 32.

Withler v. Canada (Attorney General), 2011 SCC 12, 2011 CarswellBC 379, 2011 CarswellBC 380 (S.C.C.) at para. 30.

¹⁴⁹ Canada, Department of Justice, "Section 15 — Equality rights" (June 2018) online: < www.justice.gc.ca/eng/csj-sjc/rfc-dlc/ccrf-ccdl/check/art15.html>.

Former Chief Justice Dickson's Oakes test is used to evaluate if a law can be kept in place despite its violation of a provision of the *Charter*. See *R. v. Oakes*, 1986 CarswellOnt 95, 1986 CarswellOnt 1001, [1986] 1 S.C.R. 103 (S.C.C.) at para. 68 ff..

¹⁵¹ Constance Backhouse, Colour-coded: A Legal History of Racism in Canada, 1900-1950 (Toronto: University of Toronto Press, 1999).

Miller v. Canada (Minister of Citizenship and Immigration), [2015] I.A.D.D. No. 1277 (I.A.D.) at paras. 20, 24-25 (because the DNA test request duly mentions the voluntary nature of testing).

and socio-economic challenges associated with genetic technologies. 153 Our case law¹⁵⁴ and literature¹⁵⁵ analyses support the claim that foreign nationals from Africa and other non-Western regions receive far more requests for DNA testing than Western applicants. As was underscored in title II, Section C of this paper, often times, there was no justification for the DNA test request, which points to potential discriminatory application of DNA testing by visa officers. Furthermore, an example of IRCC singling out national origin as a standard for differential treatment are the guidelines for family sponsorship intended for African applicants, as these are the only ones indicating that blood-based DNA testing may accelerate the reunification process, without justifying why this may be necessary. 156 There may be various reasons for this singling out. For example, the most noted reasons provided are to prevent fraud 157 and human trafficking. 158 There may also be sound arguments explaining why certain countries are subject to higher rates of DNA testing requests, as was highlighted in the U.S. P3 program. 159 For instance, this may be due to significant differences in legal and administrative regimes in terms of birth records and

¹⁵³ Joly et al., *supra* note 15 at 395.

Every case we retrieved featured a national from East Asia, India, Africa, the Middle-East or Central America.

Joly et al., supra note 15 at 396; Granados Moreno, Ngueng Feze & Joly, supra note 7 at 267-268; Baldassi, supra note 80 at 17.

Note that these guidelines were archived. See Citizenship and Immigration Canada, "Form IMM3912, Family Class — Sponsorship of a spouse, common-law partner, conjugal partner or dependent child living outside Canada — Part 3: Country Specific Instructions" (March 2010), online: < overseastudent.ca/migratetocanada/immforms/IMM3912E.pdf > [Form IMM3912].

Among the forms of fraud, U.S. immigration officials noted that there have been widespread reports of "brokers" selling refugee spots, and provided fraudulent documents and coached individuals for applicant interviews: Jill Esbenshade, "An Assessment of DNA Testing for African Refugees" (Washington, D.C.: Immigration Policy Center, 2010) at 10, online: < www.americanimmigrationcouncil.org/sites/default/files/research/Esbenshade_-_DNA_Testing_102110.pdf > .

Nita Farahany, Saheel Chodavadia & Sara H. Katsanis (2019) "Ethical Guidelines for DNA Testing in Migrant Family Reunification" 19:2 American J. Bioethics 4 at 5.

¹⁵⁹ In 2008, U.S. Citizenship and Immigration Services commenced a pilot study to examine the prevalence of fraudulent relationship claims among West African refugees. The study found that under 20% of family units were able to be confirmed as genetically related, and that 45% refused to undergo DNA testing: U.S. Department of State, *Fraud in the Refugee Family Reunification (Priority Three) Program* (Washington, DC: Bureau of Population, Refugees, and Migration, 4 December 2008), online: < 20012009.state.gov/g/prm/refadm/rls/fs/2008/112760.htm>; Katsanis, *supra* note 158 at 4. However, scholars pointed out that the P3 study was flawed as "no shows" were categorized as "fraudulent" and therefore fraud was overestimated: Dove, *supra* note 9. Other scholars argue that the cited fraud may be a combination of outright fraud intermingled with the complexities of fitting expansive African family systems into the U.S. (or Canadian) legal definition of family based on genetic relatedness and the nuclear family unit: Esbenshade, *supra* note 111.

identification documents, ¹⁶⁰ as well as unstable sociopolitical environments. In the case of *M.A.O.*, for example, government officials noted that due to the Somali civil war, IRCC implemented measures, such as DNA testing, to prevent war criminals from entering Canada under false identities. ¹⁶¹ However, questions linger as to the validity of such justifications and the actual reasons behind such a policy, as IRCC does not provide statistical data in support of their practices.

The discriminatory manner in which DNA testing is applied has been critiqued by the Canadian Council for Refugees and the African Canadian Legal Clinic. For example, the former alleged that, based on clients' experiences, DNA testing was routinely (and therefore questionably) requested of applicants at certain Canadian visa posts, although Canadian authorities responded to these allegations, stating that there was no evidence of misapplication of the DNA testing guidelines. Indeed, there is no evidence in either respect, as statistics and other potentially useful information is not provided by IRCC. This apparent lack of transparency as to the instances of requests (such as statistics) and the reasons for them creates a setting prone to discriminatory application of DNA testing beyond the purview of public scrutiny. 163 For example, requesting DNA testing could be discriminatory where this decision is based on unjustifiable distinctions, such as national or ethnic origin, race, ethnicity, or family and civil status. 164 It has been suggested that discrimination concerns are abated where the DNA testing policy is applied to each case equally, therefore only making a distinction where insufficient information is provided. 165 In such a determination, ethnic background or any other enumerated or analogues ground in the Charter would not be considered in the DNA testing request. In sum, it appears that where DNA testing is applied as it should be, i.e. as a last resort, the potential for discriminatory application is either eliminated or significantly reduced.

¹⁶⁰ Taitz et al., *supra* note 7 at 28.

OCASI Ontario Council of Agencies Serving Immigrants, "Somali Refugee Resettlement in Canada," (Paper presented at the 18th National Metropolis Conference in Toronto on Migration, Opportunities and Good Governance, March 2016), online: < ocasi.org/sites/default/files/OCASI_Presentation_Somali_Resettlement_Metropolis_2016.pdf >; scholars note however that most Somali refugees who lack the requisite documents are women and children, and that war criminals may be better positioned to have access to fraudulent identity documents: Baldassi, supra note 80 at 16.

¹⁶² Taitz et al., *supra* note 7 at 28.

¹⁶³ *Ibid.* at 25.

¹⁶⁴ Joly et al., *supra* note 15 at 396.

¹⁶⁵ *Ibid*.

IV. INCONSISTENCY IN THE PROCESS TO ESTABLISH FILIATION BY LAW

Establishing filiation under the Canadian family law regime and the definition of "dependent child" for family reunification purposes are considerably different. This discrepancy may be due to the different considerations and goals of the two legal schemes. For example, the immigration context may justifiably establish certain stringencies to protect national security and to combat fraud and human trafficking, 166 which is evidently not an aim of family law. Whereas a dependent child is required to be the biological child of the sponsor, or otherwise legally adopted, ¹⁶⁷ domestic family law regarding filiation encompasses a broader scope of parent-child relationships. For example, the Civil Code of Quebec provides that the "act of birth" proves filiation regardless of the circumstances of the birth. 168 This means that parenthood is presumed irrespective of civil or marital status, ¹⁶⁹ as well as cases of AHR, where neither parent shares genetic characteristics with the child. Alternatively, uninterrupted possession of status (i.e. a factual demonstration of the relationship between the child and parent), the presumption of paternity, or voluntary acknowledgement thereof, provide additional means to establish filiation. ¹⁷⁰ Although judges have authority to order DNA testing following the request of an interested party, ¹⁷¹ the family law context favours the social reality of the parent-child relationship, which renders the importance of DNA testing in this context less influential. 172

The palpable inconsistency between the *IRPR's* definition of dependent child and the one present in the family law context has not gone without its fair share of criticism.¹⁷³ The following are frequently cited concerns of this inconsistency: 1) it can lead to situations where filiation is recognized by provincial courts (or family law), but the child's application for family reunification is denied because

¹⁶⁶ See title II, section B, subsection 1 of this paper.

¹⁶⁷ *IRPR*, *supra* note 26 at s. 2, 117(1)(b).

¹⁶⁸ *CCQ*, *supra* note 30 at art. 523.

¹⁶⁹ There is a similar concept in the common law, known as Lord Mansfield's Rule where filiation is established between a father and child, where the child was born to the wife during the marriage, regardless of genetic relation with the father. This rule emerged from the case of *Goodright v. Moss* (1777), 2 Cowp. 591, 98 E.R. 1257 (Eng. K.B.) at 592 [Cowp.], where Mansfield L.C.J. stated that "... a father or mother, cannot be admitted to bastardize the issue born after marriage. ... it is a rule, founded in decency, morality, and policy, that they shall not be permitted to say after marriage, that they have had no connection, and therefore that the offspring is spurious. .."

¹⁷⁰ *Ibid.* at s. 523-527, 530-531.

¹⁷¹ *Ibid.* at s. 535.1.

Droit de la famille - 181478, 2018 QCCA 1120, 2018 CarswellQue 5690 (C.A. Que.) at para. 59, leave to appeal refused W.G. v. V.L., et al., 2019 CarswellQue 3, 2019 CarswellQue 4 (S.C.C.).

¹⁷³ Joly et al., *supra* note 15 at 401; Baldassi, *supra* note 80 at 24.

filiation is not recognized according to immigration law;¹⁷⁴ 2) whereas provincial legislation accounts for the variation in family organization due to reproductive technologies,¹⁷⁵cultural differences, and *de facto* relationships, immigration legislation restricts familial relationships to those that can be proven via DNA testing or documented adoption.

These concerns were echoed in a 2010 case¹⁷⁶ ruling in favour of IRCC (then CIC), concerning the rejection of a citizenship application for a child who was ostensibly conceived through AHR and was not genetically related either parent. Although this case does not involve DNA testing in the family reunification process and the court found that it was in fact, a case of fraud, this example raises important considerations in terms of the inconsistency present between immigration and family law. In this case, a married couple, both of whom were Canadian citizens, traveled to their country of origin, Morocco, where the wife allegedly gave birth to their child. The parents subsequently sought to attain citizenship status for their child, but the responsible IRCC analyst denied their application on the grounds that the couple's parentage of the child was doubtful (although the child's birth certificate and a notice of birth signed by a midwife were provided), and that a DNA test could not elucidate the situation because the child was not biologically related to them. 177 The argument pertinent to our analysis concerns the couple's claim that as per Quebec family law: filiation is demonstrated "by the act of birth, regardless of the circumstances of the child's birth" which is proved via a birth certificate. The couple argued that there was no reason to request DNA testing, as enough evidence was provided according to family law, where both would be considered the parents of the child (regardless of genetic relatedness). 180 Indeed, this case involves contentious facts and takes place in a different immigration setting, however it evidences how the inconsistency in the determination of filiation (or definition of "dependent child") may confuse applicants or sponsors, and render the family reunification procedure challenging to navigate in light of the broader conception of familial relationships in provincial family law.

Another important inconsistency, or rather, dialectic in legal instruments and international human rights doctrines recognizing children's cultural, social, and family rights, is the narrow understanding of family in Canadian immigration

¹⁷⁴ See for example Martinez-Brito F.C., supra note 40 at para. 10 (where the Children Court and social workers never questioned the sponsor's paternity during previous custody proceedings, but the visa officer still demanded a DNA test and rendered his decision on the basis of its negative results).

¹⁷⁵ *CCQ*, *supra* note 30 at arts. 538-542.

Azziz c. Canada (Ministre de la Citoyenneté & de l'Immigration), 2010 FC 663, 2010 CarswellNat 1859, 2010 CarswellNat 2645 (F.C.) [Azziz].

¹⁷⁷ *Ibid.* at para. 26.

¹⁷⁸ *CCO*, *supra* note 30 art. 523.

¹⁷⁹ Azziz, supra note 176 at para. 35.

¹⁸⁰ *Ibid*.

law, potentially preventing children from being reunited with their parents. The inconsistency in the treatment and definition of familial relationships vis-à-vis Canadian immigration law seemingly departs from international standards, such as those provided in the CRC, to which Canada is signatory. 181 The CRC suggests that familial relationships extend further than mere biological relation, and are essential to a child's ability to flourish and exercise his rights. 182 It explicitly demands that children be able to grow up in "a family environment" and recognizes that the family is the "fundamental group of society." 183 Of particular importance are articles 4 and 8, which demand that member states respect the cultural and social rights of the child, which is significantly linked with family structure, ¹⁸⁴ as well as the right to preserve a child's family relations. Where IRCC prevents family reunification, and the aforementioned rights and the child's best interests are not respected, (such as, hinging a decision based on biological relatedness alone) the obligations conferred by the CRC are neglected. 185 Case law on the definition of "dependent child" in the IRPR suggests that the provisions of IRPA/IRPR do not have to comply with the best interest of the child, ¹⁸⁶ where another stipulation, such as s. 25(1) of IRPA, ¹⁸⁷

Because Canada ratified the Convention, as per international law, Canada is expected to adhere to the norms set out in the *CRC* in its domestic law. Where Canada departs from the *CRC* in its domestic law, such as in immigration law, Canada is breaching its obligations vis-à-vis the Convention: Jean-François Noël, Government of Canada Department of Justice, "The Convention on the Rights of the Child" (7 January 2015), online: < www.justice.gc.ca/eng/rp-pr/fl-lf/divorce/crc-crde/conv2a.html > .

¹⁸² CRC, supra note 4 at s. 3(2), 5, 10(1): "States Parties shall respect the responsibilities, rights and duties of parents or, where applicable, the members of the extended family or community as provided for by local custom, legal guardians or other persons legally responsible for the child, to provide, in a manner consistent with the evolving capacities of the child, appropriate direction and guidance in the exercise by the child of the rights recognized in the present Convention" (emphasis added).

Whatcott v. Saskatchewan Human Rights Tribunal, 2013 SCC 11, 2013 CarswellSask 73, 2013 CarswellSask 74 (S.C.C.) at para. 67, reconsideration / rehearing refused 2013 CarswellSask 236, 2013 CarswellSask 237 (S.C.C.); and see generally Benjamin Oliphant, "Interpreting the Charter with International Law: Pitfalls & Principles" (2014) 19 Appeal 105.

For example, article 2 of the *CRC* protects children from discrimination, which includes discrimination based on birth or the type of family they come from: *CRC*, *supra* note 4 at art. 2; Government of Canada, "Rights of Children" (14 November 2017), online: < www.canada.ca/en/canadian-heritage/services/rights-children.html > .

CRC, supra note 4 at arts. 2(2), 3, 4, 5, 8(1), 9, 10, preamble. See also de Guzman v. Canada (Minister of Citizenship & Immigration), 2005 FCA 436, 2005 CarswellNat 4381, 2005 CarswellNat 6009 (F.C.A.) at para. 105, leave to appeal refused 2006 CarswellNat 1694, 2006 CarswellNat 1695 (S.C.C.) [De Guzman].

Warga v. Canada (Minister of Citizenship & Immigration), 2006 FCA 394, 2006 CarswellNat 5120, 2006 CarswellNat 4183 (F.C.A.); De Guzman, supra note 187 at para. 105.

This provision requires examination of an application, upon request of the applicant, based on H&C grounds as well as the best interest of the child.

requires consideration of the best interest of the child. Nevertheless, some scholars remain critical of this jurisprudential trend by illustrating that even in H&C applications, the best interest of the child often fails to tilt the balance in favour of family reunification. This finding highlights the need to reconsider the current state of Canadian immigration law, and the various inconsistencies present in the law that may lend to potential harms. For example, this inconsistency may lead to disregarding valid parent-child relationships, which would otherwise be accepted under family law, and possibly infringe the rights of children, therefore derogating from Canada's responsibilities under the *CRC*.

Evidence remains to justify IRCC's restricted definition of "dependent child" over a more realistic and humane definition, in light of its cited priorities. ¹⁹⁰ As of yet, there is no evidence that a broader definition will compromise such goals. Where significant doubt is cast on the ingenuity of a relationship, DNA testing remains a viable tool to verify biological relatedness. However, it should only be used as a last resort, and instances of a negative test result should not entail the automatic rejection of the application where the sponsor can prove filiation (biological, social, or psychological) through other means and acts in good faith. ¹⁹¹

V. FUTURE PERSPECTIVES

Despite the aforementioned pitfalls of the current use of DNA testing in family reunification, IRCC has made progress in developing a proper governance framework for DNA testing. The introduction of a unified DNA testing web module on the subject has gone some way toward addressing issues concerning communication with the public, and provides a template to further develop such tools. The elimination of blood-based testing is another welcomed decision that can help reduce the financial burden DNA testing imposes on sponsors and applicants, and can alleviate the invasiveness of the procedure. However, as highlighted throughout this manuscript, there are still challenges demanding attention in the domain of DNA testing for family reunification. Furthermore, the trend toward a more liberal application of genetic technologies in immigration procedures will require stakeholders to monitor such uses.

De Guzman, supra note 187; see also Sultana v. Canada (Minister of Citizenship & Immigration), 2009 FC 533, 2009 CarswellNat 4024, 2009 CarswellNat 1418 (F.C.) at para. 25; Nguyen v. Canada (Minister of Citizenship & Immigration), 2010 FC 133, 2010 CarswellNat 2884, 2010 CarswellNat 251 (F.C.) at paras. 51 ff.

Liew et al., "Troubling Trends in Canada's Immigration System Via the Excluded Family Member Regulation: A Survey of Jurisprudence and Lawyers" (2017) 26 J.L. & Soc. Pol'y. 112 at 131-133.

¹⁹⁰ See title II, section B, subsection 1 of this paper for the advantages of DNA testing.

¹⁹¹ See, e.g., Taitz et al., Supra note 7 at 27 (the authors gave the example of the Netherlands, Australia, and Finland as having more flexible frameworks, and suggested in 2002 that IRPA could have been interpreted similarly).

In this section, we propose avenues for improving the current framework of DNA testing in the family reunification procedure following four themes: (A) harmonizing the definition of dependent child in *IRPR* with the interpretation provided in national and international legal instruments; (B) further consolidating the DNA testing web module; (C) increasing transparency and; (D) ensuring proper privacy mechanisms for genetic data.

A. Revising the definition of "dependent child" in immigration legislation

According to the United Nations High Commissioner for Refugees, the definition of family, for the purposes of resettlement, encompasses a larger network than the nuclear family. It is understood that those who are economically, emotionally, or socially dependent on the family unit may be considered members of a given family, even if they are not genetically related. 192 This definition considers the reality of immigrant and refugee families, especially given that refugee family units are often in a state of perpetual flux as members enter and leave the unit. 193 Indeed, the refugee situation epitomizes the decentralized family structure. 194 However, even outside the refugee context, many cultures consider family to include extended networks of relatives and clan members. 195 This is common in African countries, such as Somalia, the country of origin of M.A.O. 196 Ethnographic studies underscore that due to unstable social circumstances, immigrant and refugee families may unknowingly commit fraud. 197 Importantly, Somalia was also a test region for the aforementioned 2008 P3 DNA test project, where high rates of "fraud" were signaled. As such, the reality of the organization of family units in such regions must be taken into account in immigration in general, and in the family reunification process, specifically.

Additionally, an important consideration regarding DNA testing in family reunification is that negative results have the potential to irreparably disrupt a family unit. ¹⁹⁹ Where a child learns that he may not be the biological child of his

OCASI Ontario Council of Agencies Serving Immigrants, "Somali Refugee Resettlement in Canada," (Paper presented at the 18th National Metropolis Conference in Toronto on Migration, Opportunities and Good Governance, March 2016), online UN High Commissioner for Refugees, "Annual Tripartite Consultations on Resettlement" (Discussion Paper presented in Geneva, 30 June 2008) at 2-3, online: < www.unhcr.org/4fbcf9619.pdf > .

¹⁹³ Dove, *supra* note 9 at 483.

¹⁹⁴ Ibid; Laila Tingvold et al., "Parents and Children Only? Acculturation and the Influence of Extended Family Members Among Vietnamese Refugees" (2012) 36 Int'l. J. Intercultural Rel. 260.

¹⁹⁵ Dove, *supra* note 9 at 484.

¹⁹⁶ *Ibid*.

¹⁹⁷ Taitz et al., *supra* note 7 at 26.

¹⁹⁸ Quotation marks are placed as the conclusions drawn from the pilot study are questionable.

parents, he may suffer devastating consequences, as well as the family as whole. Indeed, scholars interpret article 8 of the *CRC* as protecting a child against this very harm.²⁰⁰

In light of the possible negative impacts of the current definition of a dependent child in the family reunification context, such a narrow interpretation of family does not seem justified to pursue IRCC's stated objectives. This can be evidenced by other jurisdictions, such as Australia, the Netherlands, and Finland, where the family reunification procedures are similar to Canada's, yet a larger idea of family is accepted. When measured against their total population²⁰¹ and considering that they operate their immigration systems following core values and objectives mirroring those listed in *IRPA*, these countries illustrate that including more flexible conceptions of family²⁰² is possible in the immigration context. Furthermore, there is no evidence that these countries face a crisis in fraudulent family reunification applications, or have become safe havens for human traffickers due to the use of a broader definition of what constitute a family.²⁰³ Canada could follow this example by, for example, keeping the concept of biological filiation in legislation, but phrasing it as only one of several acceptable ways to prove kinship.²⁰⁴

B. Administrative framework revision

The administrative framework for DNA testing in immigration seems to lack clarity, as it has been applied inconsistently by a number of IRCC officers and some IAD panels. Based on our analysis, we suggest that revision of the current DNA testing web module developed by IRCC could significantly improve the family reunification process and the consistency in the application of the last resort policy.

Though a significant step in the right direction, the DNA testing web module lacks useful information that was provided in the former operational manuals as

¹⁹⁹ Taitz et al., *supra* note 7 at 27.

²⁰⁰ *Ibid*.

European Migration Network, *Marriages of Convenience and False Declarations of Parenthood* (Luxembourg: Publications Office of the European Union, 2012) at 48, online: <ec.europa.eu/home-affairs/sites/homeaffairs/files/what-we-do/networks/european_migration_network/reports/docs/emn-studies/family-reunification/0a_emn_misuse_family_reunification_study_publication_bf_en.pdf> [European Migration Network]; Australian Bureau of Statistics, "Migration, Australia, 2017-18: Net Overseas Migration" (3 April 2019), online: <www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/3412.0Main%20Features42017-18?opendocument&tabname = Summary&prodno = 3412.0&issue = 2017-18&num = &view = >; IRPA, supra note 18.

Such as accepting legal custody or guardianship: Taitz, et al., *supra* note 7 at 27; *Aliens Act, supra* note 140 at s. 37(1); *Migration Act 1958* (Cth.), s. 5CA (Aust.).

²⁰³ See for example European Migration Network, *supra* note 201 at 47-48.

For example, Australia uses the following formulation: "Without limiting who is a child of a person for the purposes of this Act, each of the following is the *child* of a person...": *Migration Act 1958, supra* note 202, s. 5, CA.

well as supplementary information that could alleviate multiple concerns with DNA testing identified in this paper. We therefore suggest that the following elements be incorporated in the web module:

- 1. A clear set of guidelines defining what using DNA testing as a last resort means. These guidelines will delineate, for example, when it is warranted for a visa officer to conclude that there are still doubts as to the authenticity of a parent-child relationship after reviewing the submitted evidence, thus warranting a request for DNA testing;
- A requirement that officers request further documentary submissions from the sponsor/applicant before considering recourse to DNA testing, in compliance with the duty of procedural fairness as construed in jurisprudence;²⁰⁵
- 3. Clear instructions for visa officers indicating that the failure to undergo a DNA test does not necessarily result in the refusal of the application;
- 4. A sample request letter for DNA testing (as previously provided in the OP1 manual) with the following specifications:
 - (a) Detailed reasons why the evidence presented is insufficient or unsatisfactory (based on the aforementioned set of guidelines mentioned in point 1);
 - (b) The reasons why alternative evidence (photos, affidavits, testimonies, etc.) cannot palliate to the unsatisfactory nature of the documentation presented, or lack thereof, making DNA testing relevant; and
 - (c) A pamphlet with information about DNA testing itself (i.e. a brief scientific explanation), ²⁰⁶ and a phone number where applicants can further inquire about DNA testing (which can be exceedingly useful in the case of illiterate applicants), a disclosure of known psychosocial and privacy risks associated with genetic testing, ²⁰⁷ delays and the potential need to seek professional counseling;
 - (d) Estimated costs and time frames related to the procedure.

²⁰⁵ Specifically, M.A.O. 2003, supra note 72 and Martinez-Brito F.C., supra note 40.

Government of Canada, "Terms and definitions related to citizenship" (25 July 2018), online: < www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/operational-bulletins-manuals/permanent-residence/terms-definitions-related-permanent-residence.html#d>; Government of Canada, "Terms and definitions related to permanent residence" (21 June 2017), online: < www.canada.ca/en/immigration-refugees-citizenship/corporate/publications-manuals/operational-bulletins-manuals/canadian-citizenship/terms-definitions-related.html#d>.

Especially considering recent missteps by IRCC: Andrew Russell, "Appalling privacy breach as Canadian officials share sensitive info of Brazil woman with man in Ontario" Global News (23 October 2017), online: < globalnews.ca/news/3820150/immigration-canada-privacy-breach/>; Andrew Russell and Tom Hayes, "N.B. woman furious after Canadian immigration officials disclose her banking info" Global News (24 October 2017), online: < globalnews.ca/news/3822595/immigration-canada-privacy-breach-new-brunswick-woman-outraged/>.

Additionally, ensuring that such information is provided at the beginning of the family reunification process can be helpful for applicants and sponsors in terms of offering them the chance to make an informed decision (i.e. whether the benefits of DNA testing outweigh the risks of discovering no genetic relation, or the financial cost). Importantly, because some applicants may not be literate, or have internet access, providing a telephone number where applicants can inquire about DNA testing could provide a useful tool for applicants.²⁰⁸

C. Increasing transparency

An important hurdle in the assessment of the consistency of the manner in which current policies are applied has been the lack of empirical data on IRCC's use of DNA testing. We propose that this data is not only important to assess the efficiency of using DNA testing in family reunification procedures, but it is essential in identifying the reasons for requesting DNA testing, and any possible justified or discriminatory applications of the DNA policy.

Throughout our research, the lack of data on IRCC practices rendered any assessment as to potential unjustified uses of DNA testing impossible. As such, a more transparent framework may encourage greater accountability, and will permit statistical and additional research, validation, and assessments to be undertaken that are useful for research and policy purposes. Further, IRCC should systematically collect data on all family reunification cases where officers have suggested or requested DNA testing, and periodically publish related statistics on their website, as is currently done for other immigration procedures. Importantly, this data should be anonymized and include: (1) the number of cases where DNA testing was suggested or requested, (2) the number of cases where DNA testing was conducted, with the test results (positive or negative), (3) the outcome of the application, (4) the country of origin of the individuals involved, and (5) cases where DNA test results were provided without suggestion by IRCC.

D. Privacy protection

As IRCC highlighted in a comprehensive privacy framework that is now archived, the agency's objectives include limiting the collection, use, disclosure, and retention of data in line with what is required by privacy legislation.²⁰⁹ It would be advisable that reference documents highlighting how IRCC complies with these objectives in relation to DNA test results be released. If none are in force, we suggest that IRCC draft such a document and make it publicly available. As highlighted in title III, section A, subsection 3, considering the

²⁰⁸ Barata et al., *supra* note 45 at 17.

²⁰⁹ IRCC, "A framework to enable and promote best practices for privacy and the handling of personal information at Immigration, Refugees and Citizenship Canada" (2016), online: < publications.gc.ca/collections/collection_2017/ircc/Ci4-148-2016-eng.pdf > at 12-15.

unique position of individuals invited to provide DNA testing for family reunification purposes, IRCC could further contribute to the protection of privacy rights. This could be done by asking SCC accredited private laboratories to have an up-to-date, publicly available privacy policy as well as, prohibiting secondary uses of samples and information collected for immigration purposes, and mandating the destruction of samples and data after a specified time.

Furthermore, applicants and sponsors may compromise their own privacy by revealing misattributed parentage among family and community members, thus unwittingly opening the door for potential harms. Therefore, it is also important that IRCC personnel or information documents inform applicants and sponsors of the potential risks associated with disclosing DNA results with others, and of the measures they can take to ensure their privacy.²¹⁰

E. Internal training and communication

It is essential that visa officers are educated and remain up to date, through training and internal communications of the particular concerns surrounding genetic information. Through recurrent and periodically revised training programs, officers should be able to voice their concerns, share their experiences, and exchange best practices. As recognized previously, a DNA testing policy reliably followed by visa officers can yield beneficial results for both IRCC and the families involved.

V. CONCLUSION

Analysis of DNA testing in family reunification reveals profound legal, social, and ethical questions. The very essence of how we define family, and the potential harms of disregarding significant and non-biological bonds in the name of "scientific certainty" emerge as concerns of a more philosophical nature. Indeed, such questions are difficult to answer from a purely legal perspective, as we may turn to psychology, sociology, anthropology, and even insight from Engels for clarification. Nevertheless, the law stands to approach such towering questions from a practical point of view, and has the tools to ensure that whatever definition of family relationships is put forward by legislation, treatment of individuals remains ethical and relevant rights, obligations, and concerns are balanced.

Our paper distinguishes three distinct phases characterizing IRCC's approach to DNA testing. In the first period, before 2003, we could not retrieve an official policy on DNA testing, while few court cases addressed the issue. 211 Then the Federal Court ruling in M.A.O. cleared any ambiguity, as

²¹⁰ Barata, *supra* note 45 at 20.

²¹¹ See e.g. Gosal v. Canada (Minister of Citizenship & Immigration), 2000 CarswellNat 5264, 2000 CarswellNat 433 (Fed. T.D.) at paras. 27, 33 (where the Federal Court rules that in the absence of sufficient documentation, it is reasonable for a visa officer to require a DNA test).

Justice Heneghan laid out what would become IRCC's last resort policy on DNA testing, and recognized that DNA evidence is characteristically different from other forms of evidence. This period features few cases where DNA testing was extensively discussed despite the important number of cases where it was used in potentially questionable ways. Finally, from the second Federal Court ruling in *Martinez-Brito* until today, we observed: 1) a greater number of cases discussing the use of DNA testing in depth and, 2) significant changes in IRCC's policy framework for DNA testing. The archiving of controversial manuals and the introduction of a single go-to web module on the topic of DNA testing seems to highlight the willingness of IRCC to devise a framework that would harness the technology's benefits while mitigating its risks.

We are hopeful that the future of family reunification in Canada will give due consideration to the many forms and structures of this profound bond we term 'family'. Cross-cultural psychology studies identify numerous variations of what constitutes a family among various societies. For example, families can be two or three generational, monogamous or polygamous, and can be 'stem'215, 'joint'216, or 'fully extended'217 as well as include kinship relations. However, the unifying element in all conceptions of family is the psychological and emotional attachment among various members of a family unit that are essential to relationships with other members, and not genetic relatedness. Perhaps we should therefore offer greater deference to ideas of family held by the *CRC* and applicants who are undergoing the family reunification process. Appreciation for this reality and acknowledgement of the authenticity of family relations that may not be biologically based in immigration is a welcomed move. Indeed, the institution of family reunification has the goal of *reunifying families*, which as discussed, is a term requiring nuance and cultural sensitivity.

²¹² See Georgas, *supra* note 5.

²¹³ Two generational families consist of parents and their children, whereas three general families also include more extended members, such as grandparents, aunts and uncles, cousins, nieces and nephews, or other kin.

Polygamous families are mainly accepted in Islamic countries such as the United Arab Emirates, Saudi Arabia, Kuwait, and Oman, to name a few. Nevertheless, most families in these countries are, in fact, monogamous: Georgas, *supra* note 5 at 5.

²¹⁵ A stem family consists of grandparents and the eldest married son and his wife and children. Historically, this was characteristic of central European countries.

²¹⁶ Joint families are similar to stem families, yet the sons share the inheritance (rather than the eldest son receiving it).

²¹⁷ A fully extended family includes cousins and other kin, thus allowing for very large (sometimes over 50) members. This was characteristic of the Balkan countries.

²¹⁸ Georgas, *supra* note 5 at 9.

²¹⁹ Barata et al., *supra* note 45 at 15.

Annex 1

Table 1: In chronological order, cases where the IAD or the Federal Court offered a critical review of the use of DNA testing by visa officers

Case citation	Result of the appeal or judicial review and summary of the decision*	Was DNA evidence judged to have been obtained appropriately?
M.A.O. v. Canada (Minister of Citizenship and Immigration), [2002] I.A.D.D. No. 89	Appeal dismissed M.A.O., a Canadian citizen of Somali origin, applies to sponsor his 3 children. He is required to undergo a DNA test to prove his biological relationship to the applicants. Test reveals that 2 children are biologically related, but one is not. M.A.O. pleaded that, in Somali customs and Islamic law, a child born during marriage is considered the husband's child even when biologically unrelated to him, but the IAD ruled that the <i>Immigration Act</i> requires a biological link between the sponsor and his child if no adoption was undertaken. Relying on the result of the DNA test, the appeal is dismissed for lack of a biological link.	Yes, s. 9(3) of the <i>Immigration Act</i> (now s. 16(1) of <i>IRPA</i>) gives visa officers the power to require the parties to a family reunification to undergo DNA testing.
O. (M.A.) v. Canada (Minister of Citizenship & Immigration), 2003 FC 1406, 2003 Carswell- Nat 4420, 2003 Carswell-Nat 3840 (F.C.)	Judicial review allowed On judicial review, the Federal Court confirmed the finding that the <i>Immigration Act</i> requires a biological or adoptive link between the sponsor and his child. However, it rejected the DNA evidence finding that it was improperly requested by the visa officer. The judge adds that DNA test results are a special kind of evidence that must be selectively used. Then the Court returned the case to the IAD for determination on the merit.	No, the Federal Court excluded the DNA evidence on the basis that the letter requiring a DNA test offered M.A.O. no alternative to prove he was the biological father of the last child.

Case citation	Result of the appeal or judicial review and summary of the decision*	Was DNA evidence judged to have been obtained appropriately?
M.A.O. v. Canada (Minister of Citizenship and Immigration), [2005] I.A.D.D. No. 18	Application dismissed Upon return to the IAD, the panel rejects the application for lack of evidence supporting the biological paternity of <i>M.A.O.</i>	Not discussed.
Tagore v. Canada (Minister of Citizenship and Immigration), [2007] I.A.D.D. No. 2514	Appeal allowed Application to sponsor putative mother. Mother lists 3 children as accompanying family members. Doubting the existence of a biological link with accompanying children, the visa officer offers the applicant to undergo DNA testing on two occasions, duly mentioning its voluntary nature. However, he then renders a negative decision on the basis of non-compliance to the request.	No, on appeal the IAD reaffirmed the voluntary nature of DNA procedures and ruled that the decision was unfair. Case was returned to a new visa officer for redetermination.
Mohamad-Jabir v. Canada (Minister of Citizens h i p & Immigration), 2008 Carswell-Nat 2366, 2008 Carswell-Nat 2367, [2008] I.A.D.D. No. 44 (Imm. & Ref. Bd. (App. Div.))	Appeal allowed The sponsor applies to have his 8 children join him in Canada. Immigration officer requires a DNA test for each of the children, which was not performed due to financial hardship. On appeal, it is mentioned that even though jurisprudence recognizes immigration officers' power to require DNA testing, it must be used with caution.	No, on appeal the IAD rules that requiring DNA tests of a man unable to pay for them was unreasonable.
Tesfaye v. Canada (Minister of Citizenship and Immigration), [2008] I.A.D.D. No. 2311	Appeal dismissed Application to sponsor daughter. DNA test is required by immigration officer and reveals no biological link. On appeal, the panel recognizes that the request for the DNA test was very similar to the one in <i>M.A.O.</i> , but distinguishes the two cases based on the fact that the sponsor had not declared his daughter on his permanent residency applica-	genetic test was within the bound- aries of the officer's powers as recognized by jurisprudence in

Case citation	Result of the appeal or judicial review and summary of the decision*	Was DNA evidence judged to have been obtained appropriately?
	tion, making the requirement of a DNA test reasonable.	
Lin v. Canada (Minister of Ci- tizenship and Immigration), [2010] I.A.D.D. No. 3567	Appeal dismissed Application to sponsor wife who lists 2 accompanying and 3 non-accompanying dependent children. Doubts arose concerning the relationship between the applicant and her children. Visa officer requested a DNA test that was not undergone. The visa officer refused the application citing s. 16(1) of <i>IRPA</i> and referred to s. 30(1) of <i>IRPA</i> suggesting that DNA testing falls under the scope of "medical examination." The appeal is dismissed by the IAD considering the importance that DNA testing had in this case for the determination by the visa officer.	Yes, the IAD says the following: "DNA collection is minimally intrusive and results are determinative. The applicant is quite aware of the request and her refusal, even for the reason she gave, is not an acceptable response."
Sewaah v. Canada (Minister of Citizenship and Immigration), [2010] I.A.D.D. No. 3481	Appeal dismissed Application to sponsor daughter. In her initial permanent residency application, the sponsor failed to declare the applicant as a dependent. Thus, the visa officer refused the application on the basis on s. 117(9)d) of <i>IRPR</i> . On appeal, the sponsor argues that it was wrong for the visa officer to ask for DNA testing as the officer had already made up his mind on rejecting the application. She contends that not only did she incur unnecessary expenses, but in doing so, the officer created legitimate expectations that her application would not be rejected.	Yes, the visa officer always has the option to suggest DNA testing as an option to help in the assessment of an application.
Badji v. Canada (Minister of Ci- tizenship and Immigration), [2011] I.A.D.D. No. 2179	Appeal dismissed Application to sponsor daughter. Immigration officer requires a DNA test based on the insufficiency of evidence and on the non-disclosure of the child in the sponsor's permanent	Yes, officers have the authority to require a DNA test as long as the decision is transparent and not arbitrary.

Case citation	Result of the appeal or judicial review and summary of the decision*	Was DNA evidence judged to have been obtained appropriately?
(I.A.D.).	residency application. Test result is negative and application is rejected. On appeal, the IAD maintains the decision rejecting allegations of breach of procedural fairness.	
Martinez-Brito v. Canada (Minister of Citizenship and Immigration), [2011] I.A.D.D. No. 629 (I.A.D.)	Appeal allowed Application to sponsor 2 children. DNA test are required by the immigration officer. One test returns a positive result and the other a negative one, prompting the refusal of the second application. On appeal, the IAD rules that procedural fairness was violated by the wording of the letter requiring the test. Citing <i>M.A.O.</i> (F.C.), it finds that the sponsor was given no choice, but to comply. It then excludes the DNA test results and proceeds on the merit. On the merit, the panel finds that, based on the testimonial and documentary evidence, the appeal should be allowed.	No, the officer did not examine the evidence presented to him before requiring a test, thus violating the last resort policy. Also, the coercive language used in the letter violated procedural fairness.
Canada (Minister of Public Safety & Emergency Preparedness) v. Martinez-Brito, 2012 FC 438, 2012 Carswell-Nat 1060, 2012 CarswellNat 1730 (F.C.)	Judicial review dismissed The Federal Court was petitioned by the Minister of Public Safety and Emergency Preparedness contesting the jurisdiction of the IAD and its decision on DNA testing. The Court upholds the IAD's exclusion of DNA evidence, but certifies the question on the IAD's jurisdiction.	No, for the reasons laid out in the IAD's decision

Case citation	Result of the appeal or judicial review and summary of the decision*	Was DNA evidence judged to have been obtained appropriately?
Sandhu v. Canada (Minister of Citizenship & Immigration), 2012 FC 217, 2012 Carswell-Nat 564, 2012 Carswell-Nat 7935 (F.C.)	Judicial review allowed on the finding of misrepresentation Application to sponsor mother. The applicant lists a daughter as an accompanying dependent. Visa officer requests a DNA test (see full text for request letter). In response, the mother informs the visa officer that she is not biologically related to her daughter. The visa officer refuses the application on the basis of misrepresentation. On judicial review, the judge reverses the finding of misrepresentation.	Yes, the letter of request complied with the last resort policy and <i>M.A.O.</i>
Meer v. Canada (Minister of Ci- tizenship and Immigration), [2014] I.A.D.D. No. 449 (I.A.D.)	Appeal allowed Application to sponsor spouse. Spouse listed 3 non-accompanying children and one accompanying child in her application. Immigration officer requests DNA test for every children. Sponsor does not comply, because he acknowledges there is no biological link between the applicant and his children. Despite recognizing the voluntary nature of testing, the officer bases his refusal on the non-compliance to testing. On appeal, the request for DNA tests is deemed unreasonable.	No, even though the officer acknowledged the voluntary nature of DNA testing, he was insistent and based his refusal on noncompliance by the sponsor.
Niaz-Muham- mad v. Canada (Minister of Ci- tizenship and Immigration), [2014] I.A.D.D. No. 96 (I.A.D.)	Appeal allowed Application to sponsor spouse. Suspicious that they were already married when the sponsor landed as a permanent resident, immigration officer requires a DNA test to show the applicant's paternity of the sponsor's children, thus providing evidence to support his suspicion. Applicant refused to comply and the officer rejected the application on that basis. On appeal, the IAD deemed the decision unreasonable.	No, the officer completely disregarded the last resort policy and based his request of a DNA test on hearsay, thus breaching principles of natural justice.

Case citation	Result of the appeal or judicial review and summary of the decision*	Was DNA evidence judged to have been obtained appropriately?
Miller v. Canada (Minister of Ci- tizenship and Immigration), [2015] I.A.D.D. No. 1277 (I.A.D.)	Appeal dismissed Application to sponsor son. Immigration officer is suspicious of the late inclusion of the sponsor's name on the birth certificate and requests a DNA test. The result is negative, justifying rejection of the application. On appeal, the IAD maintains the decision.	Yes, although the letter sent to the applicant was not available, the letter of request sent to another applicant in the same case duly mentioned the voluntary nature of DNA testing and was sent after due consideration of submitted evidence. The IAD infers that the letter in the present case was similar.
Liu v. Canada (Minister of Ci- tizenship and Immigration), [2015] I.A.D.D. No. 363 (I.A.D.)	Appeal dismissed Application to sponsor child. Faced with a lack of evidence to support the fatherchild relationship, the visa officer requests a DNA test. The DNA test shows 0% chance of paternity. The applicant was born through a surrogacy arrangement, but the sponsor was convinced that he was the biological father. In disbelief he argues that DNA tests are not 100% accurate and the genes that would confirm paternity could have mutated. The IAD agrees and mentions that the test only tests a millionth of an individual's genetic makeup, but in the absence of strong alternative evidence it dismisses the appeal.	Yes, in case of doubt, DNA testing is the most effective way to evaluate biological relatedness.
Schlesinger v. Canada (Minister of Citizenship and Immigration), [2015] I.A.D.D. No. 1110 (I.A.D.)	Appeal allowed on H&C considerations Application to sponsor spouse and two dependent children. Visa officer asked for DNA tests because the sponsor is a Canadian citizen, thus, if the children are his biological offspring, they are legally Canadian citizens negating the need to examine their application. However, the sponsor refused to undergo the DNA test and the visa officer rejected the application on the basis of s. 16(1) of <i>IRPA</i> . On appeal, the IAD	

Case citation	Result of the appeal or judicial review and summary of the decision*	Was DNA evidence judged to have been obtained appropriately?
	allowed the appeal under s. 67(1)c) of <i>IRPA</i> , but in an <i>obiter</i> affirmed that the refusal under s. 16(1) was valid in law.	
Ahluwalia v. Canada (Minister of Citizenship and Immigration), [2016] I.A.D.D. No. 1850 (I.A.D.)	Appeal dismissed Application to sponsor child. Visa officer requests DNA test. The sponsor failed to respond, so the visa officer refused the application for lack of evidence. On appeal, after testifying that he had not received the previous request, the IAD provides the appellant with an opportunity to undergo the test to which he agrees. However, ultimately, he failed to do so and provided no explanation. Thus, the IAD draws a negative inference from the fact that he knew that submitting to the test would resolve the uncertainties surrounding the case and dismisses the appeal.	Yes, referring to the Federal Court rulings on the subject, the IAD says that visa officers may advise applicants that DNA testing can substitute documentation.
Gill v. Canada (Minister of Ci- tizenship and Immigration), [2017] I.A.D.D. No. 919 (I.A.D.)	Appeal dismissed Application to sponsor parents. Immigration officer was not convinced by the evidence submitted. He suggested the applicants underwent a DNA test or submitted supplementary documents. They refused to submit to a DNA test. Application was rejected on the basis of documents submitted. Maintained on appeal	Yes, officer gave the applicants a choice to undergo DNA test or not. He based his decision on documents provided.
Yao v. Canada (Minister of Public Safety and Emergency Preparedness), [2018] I.A.D.D. No. 80 (I.A.D.)		No, the officer based its decision on the refusal to undergo a genetic test

Case citation	Result of the appeal or judicial review and summary of the decision* Was DNA evidence been obtain appropriate	
	Hence, the officer's request for DNA testing was unwarranted.	
da (Citizenship and Immigra-	the application because he does not believe that the applicant is the sponsor's child. On appeal, the son argues that he should have been	DNA test was not submitted

* Both the IAD and the Federal Court hear cases as first reviewers of an immigration officer's decision. In accordance with s. 72(1) of *IRPA* it is impossible to file for judicial review before having exhausted every right of appeal provided in the act, hence judicial review will only be the first recourse when no right of appeal is afforded (e.g. when s. 64 of *IRPA* is applicable or when the officer fails to render a decision). As explained in title IV, section A, subsection 2 of this paper, the IAD reexamines the case completely, while the Federal Court always acts in judicial review with the implications discussed in the aforementioned section. In this table, when the IAD or the Federal Court are first and only reviewers, only their decision is presented with a short summary of the visa officer's findings. When a decision by the IAD is reviewed by the Federal Court and it maintains the decision, only the Federal Court's decision is presented with a short summary of the IAD's findings. If the Federal Court quashes the decision and returns the case to a different panel, the Federal Court's decision is presented with a short summary of the first IAD panel's findings and a mention of the second panel's conclusion (for example *M.A.O.*) when available.

Table 2: Rejected constitutional challenges of the DNA testing policy or s. 2(1) of IRPR

Case citation	What was challenged?	Summary of the reasons for rejecting the challenge
O. (M.A.) v. Canada (Minister of Citizen- ship & Immigration), 2002 CarswellNat 1212, 21 Imm. L.R. (3d) 28, [2002] I.A.D.D. No. 89 (Imm. & Ref. Bd. (App. Div.))	The definition of the word "issue" found in the former <i>Regulations</i> on the basis of a violation of ss. 7 and 15 of the <i>Charter</i>	Canadian law would allow <i>M.A.O.</i> to adopt his child and thus comply with the requirements of <i>IRPA</i> . "It is not a limitation placed on him by Canadian law. All the possible solutions under Canadian law are open to the appellant. It is his personal choice, based on his religious beliefs, and the custom of his country of origin which forecloses some of these to him"
Nyamekye v. Canada (Minister of Citizen- ship and Immigra- tion), [2010] I.A.D.D. No. 1563 (I.A.D.)	The current definition of "dependent child" in <i>IRPR</i> on the basis of s. 12 of the <i>Charter</i>	"[T]he analysis advanced by the appellant in this regard depended on an over broad interpretation of the Charter, extending cruel and unusual treatment provisions to the definition of members of the family class and implying that Charter provisions apply to Ghanaian law. It is not necessary for me to rule on these arguments in order to resolve this matter."
Tian v. Canada (Minister of Citizenship & Immigration), 2011 CarswellNat 5 9 0 1, [2 0 1 1] I.A.D.D. No. 1065 (Imm. & Ref. Bd. (App. Div.))	The current definition of "dependent child" in <i>IRPR</i> on the basis of a violation of s. 15 of the <i>Charter</i>	The law does not make a distinction between different types of non-biological parents. Whether their child was born through a surrogacy arrangement without a biological connection to their mother, like the appellant, or whether they are the step children of the sponsor, all non-biological face the same requirement of adoption. The Canadian government has strong policy reasons for requiring legal adoption including "avoiding complex and expensive jurisdictional conflicts over paternity should a child be admitted to Canada without finally resolving paternity"

Case citation	What was challenged?	Summary of the reasons for rejecting the challenge
Badji v. Canada (Minister of Citizen- ship and Immigra- tion), [2011] I.A.D.D. No. 2179 (I.A.D.).	The current definition of "dependent child" in <i>IRPR</i> on the basis of a violation of s. 15 of the <i>Charter</i>	The appellant argues that <i>IRPR</i> treat illegitimate children in a discriminatory way. However, "Section 2 and paragraph 117(1)(b) impose a different treatment for biological and adopted children on one hand, and children who are considered as such by their parents or even recognized as such by local authorities but who have no biological or adoptive connection, on the other hand. However, as noted previously, this difference in the manner in which they are treated is not based on the parents' marital status."
Miller v. Canada (Minister of Citizenship and Immigration), [2015] I.A.D.D. No. 1277 (I.A.D.)	Both the actual request for DNA testing and the current definition of "dependent child" in <i>IRPR</i> on the basis of a violation of s. 15 of the <i>Charter</i>	The appellant alleges that the request for DNA testing was at least in part based on racial discrimination. However, the IAD notes that DNA testing was presented as purely voluntary. Hence, there is no evidence of discrimination. The appellant also alleges that s. 2 of the regulations creates an illegal distinction between parents and their biological child, and parents and their non-biological child, but "there [was] not sufficient argument meted out that would support [this] position"

Table 3: Types of genetic tests that could be considered useful for immigration purposes in the near future

Type of test	Purpose	Used in Canada	Reliability
DNA tests to establish filiation	Establish a genetic relationship between a sponsor and a re- lative	, ,	High
Predictive and diagnostic Genetic Tests	Determine if some- one is affected, or more likely to devel- op specific diseases in the future	,	Variable (High for few specific mono- genic diseases)
DNA ancestry tests ²²⁰	of an immigrant or migrant, by trying to	Canadian Border Service Agency (CBSA) for some de-	on the quality of the database, the degree
Epigenetics (DNA m e t h y l a t i o n clock) ²²¹	Determine age of immigrants	Not currently used in Canada	Uncertain

²²⁰ Tamara Khandaker, "Canada is using ancestry DNA websites to help it deport people" *Vice News* (26 July 2018), online: <news.vice.com/amp/en_ca/article/wjkxmy/canada-is-using-ancestry-dna-websites-to-help-it-deport-people?__twitter_impression = true >; see also "Canada using DNA, ancestry websites to investigate migrants" *The Globe and Mail* (27 July 2018), online: <www.theglobeandmail.com/canada/article-canada-using-dna-ancestry-websites-to-investigate-migrants/>.

Alison Abbott, "Can Epigenetics Help Verify the Age Claims of Refugees?" (2018) 561 Nature 15.