Does the end justify the means?
A comparative study of the use of DNA testing in the context of family reunification

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ABSTRACT

Family reunification is one of the main forms of immigration in many countries. To regulate this process, countries implement measures to prevent cases of fraud, to improve procedural efficiency, and to facilitate integration. One of these measures is the use of DNA testing to confirm a biological link between the sponsor and the applicants. The use of DNA testing has been considered a valuable option due to its accuracy, but it has also raised social, legal, and ethical concerns. Whether the use of DNA testing could be justified is contingent on the way the test itself is implemented.

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This article reviews and compares the ways in which the use of DNA testing is justified and implemented, as well as the issues it raises in family reunification processes in Austria, Canada, Finland, France, Germany, the UK, and the USA. We critically examine these justifications and concerns, and identify key challenges that will need to be addressed in future immigration policies and practices on this topic.

**KEYWORDS:** biological child, DNA testing, family reunification, family sponsorship, immigration

**INTRODUCTION**

Family Reunification has become one of the main forms of immigration in many countries.\(^1\) One reason for this growing popularity is the idea that family can provide an immigrant with the optimal foundation for physical and emotional support as they integrate into the host country. Furthermore, the family is deemed in many cases, the most adequate source of proper care for children who will be reunited with their families.\(^2\)

Given the high volume of family reunification cases, an increasing number of countries have implemented measures to prevent cases of fraud and abuse, to improve procedural efficiency, and to facilitate integration.\(^3\) One of these measures is the use of DNA testing to confirm a biological link between the sponsor and the applicants.\(^4\) Today, there are at least 21 countries that include DNA testing as a way to prove the kinship required for the granting of rights for family reunification.\(^5\) This measure has been considered a valuable and advantageous option due to its accuracy,\(^6\) but it has also raised a number of social, legal, and ethical concerns.\(^7\) Whether the use of DNA testing could be justified is contingent on the way the test itself is regulated or the way its use is implemented. This article reviews and compares the ways in which the use of DNA testing

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4. Id. at 9.


is implemented in family reunification processes in seven countries (Austria, Canada, Finland, France, Germany, the United Kingdom, and the USA) as well as the justifications behind this requirement and associated concerns. Most of the authors we reviewed in our literature study recognize the usefulness of DNA testing in family reunification processes. However, they also agreed that immigration policies and practices have to consider the potential harm to adults’ and children’s well-being that the use of DNA testing could create if it translates into the dissolution of families. The benefits and concerns discussed in the literature may stem from a set of values that reflect the importance of family and that therefore could be useful in shaping the policies and practices of family reunification.

In the first part of this article, we briefly explain the importance that having a family has on a person’s well-being, as well as the legal concept of family reunification. We also compare the circumstances under which immigration agencies of the selected seven countries suggest DNA testing in family reunification processes. In the second part, we critically examine and compare the justifications behind DNA testing in family reunification and the associated concerns most frequently mentioned in the literature originating from the countries we reviewed. We also identify the values that we consider to be underpinning the laws and policies adopted and their justifications and concerns, some of which could be worth upholding in any current and further use of DNA testing for family reunification purposes. Finally, we highlight key challenges that will need to be addressed in future immigration policies and practices on this topic.

METHODOLOGY
We carried out a comprehensive comparative analysis of the use of DNA in the context of family reunification. The databases we searched were Westlaw, Quicklaw, Lexis-Nexis, Hein-Online, and Google Scholar. The keywords or terms we used included the following combinations: (i) ‘family reunification’ AND ‘DNA test’ AND ‘immigration’, (ii) ‘DNA test’ AND ‘citizenship’, (iii) ‘DNA test’ AND ‘immigration’, (iv) ‘DNA test’ AND ‘family reunification’, and (v) ‘DNA test’ AND ‘family sponsorship’.

The inclusion criteria used were the following: the articles, books, and book chapters (jointly referred to as ‘the literature’) reviewed were from 1990, which is when DNA testing started being used in family reunification procedures, until July of 2015. Our search was limited to literature that discussed the use of DNA testing in family reunification/family sponsorship procedures for parents trying to reunite with their children (‘parental relationship’). Our final inclusion criterion was that the literature be in English.

The keyword searches as described above resulted in: 32 articles from Westlaw, 13 articles from Quicklaw, 611 articles from Lexis-Nexis, 954 articles from Hein-Online, and 624 articles from Google Scholar. The exclusion criteria enabled us to set aside the literature that focused on cases where family reunification concerned spouses or siblings or only tangentially mentioned the use of DNA testing for family reunification in parental relationships. The total number of articles/book chapters/books included in this study was 66, representing seven countries, namely Austria, Canada, Finland, France, Germany, the United Kingdom, and the USA. These countries became the focus of our study.

The 66 articles were organized by year and analysed identifying their geographical scope, the authors’ approach to the use of DNA testing for family reunification in parental relationships, policy justifications, concerns raised in this context, and any other insightful information associated with the subject that would not fall within the predetermined categories.

Finally, a review of the immigration regulation (ie legislation, policies, and websites) in each of the seven countries was conducted to supplement the literature. The data were summarized and organized in tabular format for convenient reference.

One of the challenges we faced was finding official English or French sources on the actual practices followed in some of the countries that provide the use of DNA testing in cases of family reunification. References to the actual practices of immigration authorities and to the inconsistencies between such practices and principles contained in the treaties, legislation, and guidelines were found in the literature we reviewed. Another challenge we faced was finding recent and accurate statistics referring to the number of cases in which DNA testing is required and the specifics surrounding those cases, including their outcomes.

In addition to legal and social literature, we also consulted a selection of scientific peer-reviewed articles that describe the technical specifications of DNA tests used in immigration procedures. We also considered key articles focusing on the economic effects of immigration.

FAMILY REUNIFICATION

Background

Traditionally speaking, family is a primary social group integrated on the basis of consanguinity or affinity comprising a couple and their children. What or who constitutes a family can change based on culture, country, religion, personal preferences (eg decision to adopt, to use assisted reproductive technology, etc.), sexual orientation, and even unforeseen circumstances (eg death of a known or beloved person with outliving dependents). The meaning of family may also change over time with the evolution of societal values. There is no universal or static definition of family. Furthermore,

12 Spina, supra note 1, at 64; Catherine Kenny, Positive, Humane and Expeditious - An Analysis of Ireland’s Implementation of Its Obligations in Relation to Family Reunification under the CRC, 62 NORTH. IREL. LEG. Q. 183–98, 190 (2011); Holland, supra note 9, at 1632.
family ties have in most cases a positive impact on the lives of individuals, but they can occasionally generate more negative or sometimes even harmful consequences.  

Regardless of its constitution or definition, in most cases an indelible characteristic of a family is that its members are likely to search and find physical and psychological integrity, empowerment, and emotional well-being in it. This could explain the drive for family unity and the reason why family members seek to live together in the same geographical location. It could also explain why the drive for family unity is entirely human and a constituent of human dignity.

Family reunification (also known as family sponsorship) can be achieved in a number of ways, including through derivative citizenship, permanent residency, visa, permit or via other recognized statuses based on humanitarian claims. Regardless of the way in which it is obtained, family reunification is defined as a right to reunite with family members. For some, it is a right of citizens or holders of a long-term residence status (permanent residents or refugees) to have their family members living abroad reunited with them. For others, it is a right held by family members of those legally residing in a given foreign country to be granted permission to reunite with them in that country.

Whether viewed as a right held by a citizen/resident or by a family member living abroad, family reunification remains one of the most important and frequently used avenues for immigration. The main reason is that this process is derived from the importance or value attributed to ‘the family’ from several perspectives.

From a legal standpoint, several international legal instruments recognize a right to a family or a family life, including the Universal Declaration of Human Rights (UDHR), the International Covenant on Economic, Social, and Cultural Rights (ICESCR), the Convention of the Rights of the Child (CRC), the International

13 Negative effects that families may have on individuals include physical, emotional or sexual abuse, neglect, and exposure to hazardous or detrimental activities or practices. For more information on this subject, see Cristina M. Rodriguez, Parent–Child Aggression: Association With Child Abuse Poten...: Ingenta Connect, 25 VIOLENCE VICT. 728–41 (2010); Jeffrey A. Kelly, Treating Child-Abusive Families: Intervention Based on SKILLS-TRAINING PRINCIPLES (2013); Todd I. Herrenkohl et al., Tests of the Mitigating Effects of Caring and Supportive Relationships in the Study of Abusive Disciplining Over Two Generations, S3 J. ADOLESC. HEALTH S18–S24 (2013).


16 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) 15 EUR. J. MIGR. L. 183 (2013).


18 Spina, supra note 1, at 40; Heinemann & Lemke, supra note 1, at 810.


21 UNITED NATIONS ORGANIZATION, supra note 14, art. 8 and preamble.
Convention on the Protection of the Rights of all Migrants and Members of their Families (ICPRM), and the Convention Relating to the Status of Refugees along with the Final Act of the United Nations Conference of Plenipotentiaries on the Status of Refugees and Stateless Persons (RC). The last three emphasize the importance of family reunification in cases involving refugees, migrant workers, and children, in addition to recognizing a right to a family. The RC recommends that governments ensure that the unity of the refugee’s family is maintained. The ICPRM provides that the State Parties shall take the necessary measures to facilitate the reunification of migrant workers with their family members in the terms recognized by applicable law. The CRC requires that processes of family reunification involving children be dealt with in a positive, humane, and expeditious manner. There are also some European instruments that recognize a right to family and to family life: European Convention on Human Rights (ECHR), the Charter of Fundamental Rights of the European Union (CFREU), and the Council Directive 2003/86/EC (EU Directive).

From a sociological point of view, family is considered the fundamental group unit of society, expected to provide the optimal conditions for fulfilling a person’s physical and emotional needs and the best environment for children to receive proper care and education. In the case of immigrants, family reunification fulfills their physical and emotional needs, thereby facilitating a more rapid assimilation into the host country. Furthermore, from an economic perspective, family reunification would, for example, enable a foreign worker to be more productive, which is likely to have a positive effect on the host country’s economy.

As a result of increased requests for family reunification, many countries have developed additional tools to deal with this process. Some of these tools include

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24 United Nations General Assembly, supra note 22, art. 44.
30 Villiers, supra note 2, at 258; Honohan, supra note 2, at 773; Spina, supra note 1, at 40; Holland, supra note 9, at 1681; Judith K. Bernhard, Patricia Landolt & Luin Goldring, Transnationalizing Families: Canadian Immigration Policy and the Spatial Fragmentation of Care-giving among Latin American NewcomersI, 47 Int. Migr. 3–31, 6 (2009); Murdock, supra note 9, at 1531.
integration prerequisites and the use of DNA testing as part of the necessary documentation in their family reunification processes. Some of the integration requirements are language and cultural/national values exams, which will not be the focus of this article. The stated purpose of these requirements is to ensure that every immigrant adopts the host country’s values, culture, and society.

DNA testing is suggested as an option (or even required) as a means of proving kinship between the sponsor and the applicant(s). It is usually done using blood samples or buccal swabs collected from the sponsor and each of the applicants. The subjects’ genetic profiles are compared, determining the similarities between the alleged parents’ and the child’s genetic short tandem repeat loci (STR) (highly repetitive segments present throughout the genome). The strength of similarities found in the STR loci between the genetic profiles determines the probability of biological relationship. Thirteen STR loci are commonly used in the test. The first time DNA was used in an immigration case was in the UK in 1985. After that, throughout the 1990s, many countries started implementing the use of DNA testing in family reunification as part of their regulations, policies, and practices. Today, there are at least 21 countries that use DNA testing for family reunification processes. These countries are Australia, Austria, Belgium, Canada, Denmark, Estonia, Finland, France, Germany, Hungary, Italy, Lithuania, Luxembourg, Malta, the Netherlands, New Zealand, Norway, Switzerland,
Sweden, the United Kingdom, and the USA. In addition to these countries, Spain and South Korea use DNA testing for family reunification cases as a common practice, despite not expressly including them in their immigration legislation or policies.

The justification in all the above-mentioned countries has been that, even though the right to a family is provided in the UDHR, the CRC, the ICESCR, the ICPRM, the RC, the ECHR, the CFREU, and the EU Directive, each country has the sovereign right to regulate the flow of immigration per se and/or to implement measures that could prevent fraud and human trafficking. To better understand the process through which DNA testing is used for family reunification, we reviewed the ways in which seven countries (Austria, Canada, Finland, France, Germany, United Kingdom, and USA) include its use in family reunification processes as a method of regulating their immigration.

Current regulation and policies on family reunification and the use of DNA testing

Most of the seven countries we reviewed provide similar terms and conditions on the use of DNA testing in the context of family reunification; however, it is possible to identify some differences. The specific conditions for the use of DNA testing in family reunification in the selected countries are included in Table 1 and are also summarized below.

With respect to the family reunification process, the surveyed countries allow their citizens and permanent residents to bring and sponsor their immediate family—partners and children—to the country in which they reside. In some specific cases, they are also allowed to bring their parents, grandparents, grandchildren, and siblings. The differences lie with whether, in order to sponsor the family member, the partnership has to be registered or formalized (eg marriage, civil union, registered common law/civil

40 Heinemann & Lemke, supra note 1, at 811.
42 Nessel, supra note 32, at 1277; Weiss, supra note 10, at 1.
Table 1. Summary of current regulation and policies on the use of DNA testing on family reunification by country.

<table>
<thead>
<tr>
<th>Country</th>
<th>Austria</th>
<th>Canada</th>
<th>Finland</th>
<th>France</th>
<th>Germany</th>
<th>U.K.</th>
<th>U.S.</th>
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</thead>
<tbody>
<tr>
<td>Specific terms used in the law/policy</td>
<td>&quot;If an alien is unable to furnish proof, by reliable documents or other appropriate and equivalent evidence [...] the Federal Office [Asylum Agency] or Federal Administrative Court shall, at his request, make it possible for him to have a DNA analysis undertaken at his own expense. [...] The absence of a request for a DNA analysis by the alien shall not be construed as a refusal on his part to cooperate in the clarification of the facts.&quot;</td>
<td>&quot;Since the documentary evidence you have provided does not enable us to establish parentage between you and the child, and you are unable to obtain other documentary evidence, in place of documentary evidence we will accept the results of a DNA analysis carried out by a laboratory accredited by the Standards Council of Canada (for DNA testing).&quot; Used as a last resort and presented as an &quot;option.&quot;</td>
<td>The Finnish Immigration Service may provide an applicant or sponsor with an opportunity to prove their biological kinship with DNA analysis [...] if no other adequate evidence [...] is available [...] &quot;The Finnish Immigration Service may offer the applicant and the sponsor the opportunity to take part in a DNA test if there are no other means of sufficiently establishing family ties based on biological relationships.&quot; It may NOT be demanded.</td>
<td>In case the applicant does not have a birth certificate or when the diplomatic or consular authority expresses serious doubts on the authenticity of such a birth certificate, the applicant may request the use of DNA testing to prove the relationship with his/her mother. (Our translation from French). See footnote for original text) countries included in the list of countries considered to have a deficient or inconsistent civil state In an opinion of the applicant to provide information and adequate evidence (such as birth certificates, any other documents, [...], and voluntary DNA test to show kinship [...]. Used as a last resort and offered when no legal documents or any other evidence relevant to the issue are found. (Our translation from German). Also in the case of the applicant of a child from one of the countries included in the list of countries whose documents are not acknowledged.</td>
<td></td>
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<tr>
<td>Countries specifically targeted for DNA testing</td>
<td>None</td>
<td>African countries (Algeria, Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Côte d’Ivoire, Congo (both Democratic Republic and Republic of C), Djibouti, Egypt, Equatorial Guinea, None</td>
<td>The Conseil d’Etat, with the advice of the Comité consultatif national d’éthique, determines the list of countries whose applicants may undergo a DNA test because the civil registry there is either flawed or German Federal Office’s has a list of 45 countries (Afghanistan, Armenia, Azerbaijan, Benin, Burkina Faso, Cambodia, Cameroon, Central African Republic, Chad, Congo (both Democratic Republic and Republic of C), Djibouti, None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
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Table 1. (Continued).

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<thead>
<tr>
<th>Genetic testing information and counseling provided to applicant</th>
<th>Data Sharing</th>
<th>Destruction of samples</th>
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<tr>
<td>Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Swaziland, Tanzania, Togo, Tunisia, Uganda, Union of the Comoros, Zambia, Zimbabwe</td>
<td>Gene testing information and counseling provided to applicant</td>
<td>Laboratories follow general regulations, such as Medical Professions Act and Criminal Procedure Code, on data storage for medical diagnosis.</td>
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<tr>
<td>No counseling is mentioned in governmental websites or regulations. Refugees may seek assistance from NGOs.</td>
<td>Data Sharing Yes, as part of the obligations stated in the Prüm Convention to counteract terrorism, cross-border crime, and illegal migration. Also, as part of the Central Register of Aliens, DNA results may be transmitted to other national authorities as required for the discharge of the duties assigned to them. Some of these authorities are public prosecution, civil and criminal courts, penal institutions, office of UNHCR of Austria, tax and fiscal offense authorities, foreign authorities responsible for the implementation of the Geneva Convention on Refugees, etc.</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>The applicant or sponsor shall be informed the applicant about the process (voluntary costs, consent process, list of labs, etc.)</td>
<td>Data Sharing Yes, France is a member of the Prüm Convention.</td>
<td>Samples are destroyed after the family reunification process has concluded. The Finnish Immigration Service offers post-test counseling.</td>
</tr>
<tr>
<td>No counseling is mentioned.</td>
<td>Data Sharing Yes, Germany is a member of the Prüm Convention.</td>
<td>Samples have to be destroyed after being used for the purposes mentioned in the informed consent.</td>
</tr>
<tr>
<td>Visa offices are required to inform the applicant about the process.</td>
<td>Data Sharing Yes, the United Kingdom is a member of the Prüm Convention.</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>The immigration website states that the data shall only be used to establish family ties. However, Finland is a member of the Prüm Convention.</td>
<td>Data Sharing Not specified</td>
<td>Not mentioned</td>
</tr>
<tr>
<td>No counseling is mentioned.</td>
<td>Data Sharing Not specified</td>
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### Table 1. (Continued)

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8. Id. at 4.
15. Immigration, Refugees and Citizenship Canada, supra note 2 at 14 & 56; Standards Council of Canada, LIST ACCREDITED LABS, [https://www.scc.ca/en/search/palcan/dna?f%5b0%5d=field](https://www.scc.ca/en/search/palcan/dna?f%5b0%5d=field) (last visited Apr 21, 2016); Immigration, Refugees and Citizenship Canada, supra note 2 at 16.
16. Finnish Immigration Service, supra note 5 at 1; Finnish Aliens Act, supra note 3 sect. 66.
partnership, after a certain amount of cohabitation time); the age that the sponsored partner has to be, the age of the children permitted to be sponsored or whether the children have to be unmarried when the application for family reunification is filed; the age of the sponsor (over or under 18), the type of migratory status for which the sponsored family member can apply (e.g., derivative citizenship, permanent visa or residence permit, temporary residence visa, etc.); and the minimum amount of funds that the sponsor must have.

Regarding the use of DNA testing, almost all countries that provide the possibility of using DNA tests in cases of family reunification in their regulation (laws, policies, official practices) consider that its use is not mandatory and therefore require the

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45 Austria requires spouses to be at least 21 years old in order to qualify for family reunification. Germany and France state the minimum age to be 18. The justification is to try to prevent cases of human trafficking. Austrian Federal Government’s Immigration Website, supra note 43; Ministere de l’Intérieur Français, supra note 43; LEGISLATURE FRANCAIS, supra note 43, art. L411-1; German Residence Act, supra note 43 sect. 30.

46 The majority of the countries reviewed state that the children that can be sponsored are those under 18. In the USA the age is 21. U.S. Citizenship and Immigration Services, supra note 44.
applicant’s consent. In all cases, the test is ‘suggested’ by the migratory agent in cases in which documentation, such as birth or baptismal certificates and hospital or school records, usually requested to confirm the identity and the kinship between applicants and their sponsors, is either not available or its veracity is being questioned. In other words, at least formally, DNA testing is used on a ‘last resort’ basis. Additionally, policies and guidelines of Germany and France provide that immigration agents could ‘suggest’ that applicants from a specific list of countries provide a DNA test. The countries included in these lists are countries whose registries are considered unreliable, given that they are seen as lacking systematic and sound procedures. Most of these countries are located in Africa, Asia, or Latin America. Canada mentions the possibility of undergoing DNA testing in only one of the 13 applicant information guides available in the Immigration, Refugees, and Citizenship Canada website: the guide for applicants from African countries.

DNA samples are collected in the region where the applicant resides, but the tests are only conducted in accredited laboratories in order to comply with specific quality standards. The costs associated with DNA testing (namely travel to the immigration

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47 Estonia is the only country that states that if throughout the proceedings of temporary stay, residence, and employment in Estonia, an alien [a person who is not an Estonian citizen] refuses to enable taking DNA samples, coercion may be applied. The same paragraph states that DNA samples may be taken upon conducting the proceedings regulated in the Aliens Act, unless it is possible to identify a person otherwise. It also states that before the coercion in the form of physical force or braces is applied, the alien shall be notified about said coercion and it can only be applied in the extent necessary to take the DNA samples. ALIENS ACT – RIIGITEATAJA (ESTONIA), (2010), https://www.riigiteataja.ee/en/eli/518112013013/consolide (accessed Oct. 14, 2015), § 1, 3, 275.

48 The term suggested is in quotations here because whether the use of DNA testing is an actual suggestion, as opposed to a requirement, is questionable, as we will discuss in more detail in a section below.

49 We say formally, because as we will explain later on, this policy of ‘last resort’ is not necessarily followed in practice.


51 Hajbandeh, supra note 31, at 336, 43; Heinemann & Lemke, supra note 1, at 814; Heinemann, Naue, & Tapaninen, supra note 9; CODE DE L’ENTRÉE ET DU SÉJOUR DES ÉTRANGERS ET DU DROIT D’ASILE - ARTICLE L111-6, L111-6 CODE DE L’ENTRÉE ET DU SÉJOUR DES ÉTRANGERS ET DU DROIT D’ASILE.

52 Heinemann, Naue, & Tapaninen, supra note 9, at 190; Heinemann & Lemke, supra note 1, at 814; Hajbandeh, supra note 31, para. 352, 343; Heinemann & Lemke, supra note 7, at 17.

53 Heinemann & Lemke, supra note 1, at 814; Hajbandeh, supra note 31, 336, 343.


55 For example, in Canada the four admissible laboratories are accredited by Standards Council of Canada. In Austria, they are accredited by the National Association of Testing Authorities. In Finland, the designated laboratories are the National Public Health Institute and the Department of Forensic at the University of Helsinki. In Germany, the laboratories are certified by the International Standards Organization.
office, actual costs of the tests, etc.) are usually borne by the applicant, although there are cases where the government will directly cover the costs of the test, or it will reimburse the applicants for them provided that the results are positive. Of the countries studied, only Finland provides the applicants and public at large with basic information regarding the use of DNA testing in lay terms (e.g., a pamphlet explaining in simple terms the cases in which it can be requested, who performs the test, and who pays for it, along with potential results and implications). Finally, there are certain jurisdictions, such as Germany, Austria, United Kingdom, France, and Finland where, after the migratory process is over, the information collected is stored in a database that is shared with the signatory members of the Prüm Convention as part of their efforts to combat terrorism, cross-border crime, and illegal migration. This sharing is ordered by law and does not require the applicant’s consent.


58 The Austrian, US, and British governments reimburse the costs of DNA testing in cases involving claims of asylum under certain conditions or when the applicant does not have the means to afford it. UK Immigration Directorate’s Instructions. Annex Contents. Chapter 8. Section 5A. DNA Testing of Children, supra note 56 sect. 1.3; Hall and Naue, supra note 56, at 66; Edward Dove, Back to Blood: The Sociopolitics and Law of Compulsory DNA Testing of Refugees, 8 UNIV. MASS. L. REV., 480 (2013).


61 Heinemann & Lemke, supra note 1, at 816; Heinemann, Lemke, & Prainsack, supra note 8, at 249; Prainsack & Toom, supra note 60, at 1121–3.
In addition to the differences in the regulation of DNA testing in family reunification, there are also dissimilarities among the different countries we surveyed with regard to the evidentiary weight given to the results of the DNA test in the final decision regarding family reunification. For instance, in Finland, the DNA test is considered a piece of evidence that is used to verify, confirm or complement other types of evidence, such as documents and statements in interviews. Therefore, a negative result may not cause an automatic rejection of the family reunification application, since other types of evidence, including declarations during interviews, money transfers, communications, non-official documentation, and other evidence that would confirm the existence of a family life, would also be considered. In Germany and Austria, on the other hand, the test is given a very high level of credibility and weight. A negative result in these countries would very likely result in rejection of the application.

The European Council Directive 2003/86/EC, ratified in 2003 by all Member States except Denmark, Ireland and the UK, is an attempt to integrate the regulation of family reunification in Europe. This document provides a framework on family reunification and the rights of the applicant, who would be a non-EU citizen residing lawfully in the EU territory. The Directive states that it aims to protect the family unit and to facilitate integration. Nonetheless, in order to respect the sovereignty of its member states to regulate who enters their territories, the Directive leaves considerable room for each of these states to implement the regulatory measures that they consider necessary, including the use of DNA testing.

**COMPARATIVE LITERATURE REVIEW**

**Overview of benefits and concerns regarding the use of DNA testing in family reunification**

The articles we reviewed focus on regulation, policies, and practices from Austria, Finland, the UK, France, Germany, Canada, and the USA. We also reviewed articles whose focus was either international or regional. The articles mainly address the use of DNA testing in family reunification from three different angles: family reunification through resident permits or visa, family reunification through derivative citizenship, and family reunification in the case of refugees. Although some articles are either neutral or supportive on the matter, the majority takes a critical stance on the use of DNA testing for family reunification. Those criticisms include legal, social, and ethical concerns about issues of discrimination, privacy, dignity, human rights, the best interests of the child, definitions of family, and economic considerations.

**Benefits**

The benefits associated with the use of DNA testing in family reunification identified in the literature can be classified into three categories based on the objectives the

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62 Tapaninen & Helen, supra note 50, at 52.
63 Heinemann, Nauje, & Tapaninen, supra note 9, at 199–200; Heinemann et al., supra note 28, at 6.
64 Council of the European Union, supra note 28, at the Preamble.
65 Heinemann et al., supra note 28, at 3–4.
66 Since this article focuses on the legal, social, and ethical aspects of the use of DNA testing in family reunification in view of certain values, the differences among resident permits or visas, derivative citizenship or refugee are not relevant for purposes of our discussion.
policies are expected to promote. The three categories, without any particular order, are (i) being useful or empowering to immigrants, (ii) preventing misuse of the family reunification process, and (iii) improving the efficiency of the process.

We identified five benefits mentioned in the literature that would fall under the category of ‘useful to immigrants’. The first benefit in this category mentioned in most of the literature is that the use of DNA testing can be helpful in cases where the usual type of evidence, such as birth or baptismal certificates, is unavailable, non-existent or unreliable according to the immigration officer.67 Despite being beneficial to any type of immigrant, this is particularly useful for refugees for the following reasons. Two common reasons for which refugees leave their countries of origin are personal persecution or the precarious and chaotic conditions existing in their countries of origin due to political unrest or natural disasters. Given the conditions of urgency under which refugees usually leave their countries of origin, it is possible that they lack the required documentation to prove kinship with their family members. Furthermore, these conditions are likely to make host countries suspicious of the reliability of the registries of the countries of origin.68 Being able to provide other forms of evidence to attest to their familial relationship allows the sponsor and the applicant to overcome a situation that seems otherwise insurmountable.69 The use of DNA testing has also been viewed as adding neutrality to the final decision, in the sense that the outcome would depend on an objective biological link and not on the subjective perception of the immigration agent.70 In both cases, the option of agreeing to DNA testing has been considered empowering for immigrants.71 This is true, however, only when it is the applicant’s and the sponsor’s decision to undergo the DNA testing.

DNA testing has also been said to benefit immigrants by making the family reunification process faster and cheaper. During a family reunification process, the supporting documents presented need to be reviewed and may be questioned and even rejected. Some other documents may be unavailable. In these two cases, the assistance of a lawyer may be needed. Legal fees and time to argue a case like this are likely to be higher and longer than taking a DNA test.72 Furthermore, the review and assessment of the supporting documentation in itself would be faster if DNA testing results were attached, given the accuracy and reliability on the existence of a biological link that a positive result could provide to the claim.73 However, whether processes of family sponsorship actually become faster and cheaper changes on a case-by-case basis. For instance, in Canada and in the USA, there have been cases where applicants have experienced

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67 Taitz, Weekers, & Mosca, supra note 17, at 29; Cindy L. Baldassi, DNA, Discrimination and the Definition of Family Class: M.A.O. v. Canada (Minister of Citizenship and Immigration), 21 J. LAW SOC. POL’Y 5 (2007); Jennifer Clay, Genetic Proof of Familial Relationships in Immigration Cases - Summary of IS 1.26 and IS 453, 15 IMM LR (1992); Dove, supra note S8 at S14; Heinemann & Lemke, supra note 1, at 819–20; Murdock, supra note 9, at 517; Heinemann, Naue, & Tapaninen, supra note 9, at 202.


69 Villiers, supra note 2, at 244; Holland, supra note 9, at 1637; Heinemann, Lemke, & Prainsack, supra note 8, at 253; Barata, supra note 8, at 82; Heinemann & Lemke, supra note 1, at 814; Heinemann, Naue, & Tapaninen, supra note 9.

70 Villiers, supra note 2, at 244, 450; Weiss, supra note 10, at 15.

71 Weiss, supra note 10, at 15.

72 Clay, supra note 67; Sibli, supra note 1, at 97; Weiss, supra note 10, at 15; Kim, supra note 41, at 772.

73 Davis, supra note 6, at 129, 133, 146.
longer delays because of sample collection difficulties, or technical or administrative errors.74

Another benefit that we identified as part of this category in the literature we reviewed asserts that evidence based on DNA is timeless; it does not change over time. Considering this, if DNA testing is deemed constitutive of kinship, and therefore of a right to family reunification, there should not be any reason to state an age limit for parents to bring their children with them. This could help to question and maybe even remove the age limit stated in family reunification processes involving children. This could benefit all those families with children above the age of majority,75 if they are still unmarried in jurisdictions where this is required,76 or in jurisdictions where the marital status does not matter when applying for family reunification.77

The last potential benefit for immigrants resulting from the use of DNA testing mentioned in the literature is that, for some young children, undergoing a DNA test could be less stressful than other types of admitted evidence, such as interviews. Young children who are subject to interviews during a family reunification process to determine whether there is a link with the sponsor may experience enormous stress and psychological pressure, given that the fate of the family could depend on the child’s answers. However, in a DNA test, such stress does not exist, because regardless of the outcome, the final decision would not depend on something that the child said or did.78

The second category of benefits of DNA testing involves avoiding the misuse of the family reunification process. DNA testing can be used to identify and discourage fraud in two ways. Setting aside the potential for human errors or genetic mutations, DNA results can be considered accurate, reliable, and scientifically valid as a way of confirming a biological link, thereby providing clear and unequivocal results as to the kinship between the applicant and the sponsor.79 Therefore, negative DNA test results may expose some cases of fraud.80 Furthermore, knowing that DNA testing is being used in family reunification processes to confirm kinship may dissuade individuals from abusing the family reunification process. For the same reasons, some authors suggest that the use of DNA testing may detect and help to prevent most cases of human trafficking.81

The third benefit is that the use of DNA testing may help to make the family reunification process more efficient and cost-effective for the government, by decreasing

74 Ngueng Feze, Lacey, & Joly, supra note 7, at 19; Barata et al., supra note 37, at 615–6.
76 Austria, Canada, Germany, Finland, the United Kingdom, and the USA for residents’ children. Government of Canada, supra note 32; Austrian Federal Government’s Immigration Website, supra note 40; German Residence Act, supra note 40 sect. 28; GOV.UK, supra note 41; Finnish Immigration Service, supra note 40; US Citizenship and Immigration Services, supra note 41.
79 SAHLI, supra note 1, at 97; Heinemann, Lemke, & Prainsack, supra note 8, at 253; Barata, supra note 8, at 82.
80 Davis, supra note 6, at 129, 133, 146; Villiers, supra note 2, at 250; EBENSHADE, supra note 68, at 14; Holland, supra note 9, at 1637; Heinemann, Naue, & Tapaninen, supra note 9, at 185.
81 SAHLI, supra note 1, at 14–16; Heinemann, Lemke, & Prainsack, supra note 8, at 253; Barata, supra note 8, at 82.
the immigration agents’ workload in two ways. First, the use of DNA could discour- 
age fraudulent claims. Second, it could encourage accurate and unequivocal evidence 
that would not demand the extensive, complicated, and subjective analysis required 
for certain documents and interviews. As a result, the resources that the government 
would have to devote to the salaries of the immigration agents assigned to the family 
reunification program could be more efficiently allocated. Finally, preventing any mis-
use of the family reunification process could also reduce the economic burden on 
the government of the host country by allowing a better allocation of welfare programs ap-
proved for family members.82

While there may be a number of advantages to the use of DNA testing in the context of 
family reunification, some challenges have also been raised. The following section 
addresses those that were identified in our literature review.

**Concerns**

The use of DNA testing in processes of family reunification raises a number of serious 
concerns from legal, ethical, and social perspectives. The main problems identified in 
the literature include the test’s implementation terms (e.g., the words used to suggest 
the use of the test, the conditions under which it is to be carried out, etc.), the arbi-
trary and unequal biologization of the concept of family, and the disregard for the re-
ality of the lives of immigrants. This reality includes, for instance, social, cultural, and 
religious differences that could influence the creation and development of their fami-
lies, as well as limitations regarding their family reunification applications (e.g., budget, 
geographical location, time) that could make the use of DNA testing inappropriate.83

These problems have generated concerns over possible discriminatory uses of the test, 
inadequate ethical and privacy protection, harms to immigrants’ family life and emo-
tional well-being, disrespect for immigrants’ human dignity, negative impacts on the 
host country’s economy, and inadequacies in the family reunification process.

**Instances of Discrimination**

The circumstances in which DNA testing is implemented in family reunification pro-
cesses can potentially lead to discriminatory practices. We identified seven instances of 
potential discrimination. The first possible form of discrimination would be against the 
nationals of specific countries. Certain countries automatically request that immigrants 
of specific countries—usually from Africa, Asia or Latin America—provide DNA tests 
as part of their family reunification applications. Germany and the USA84 are exam-
pies of countries that implement these practices. In Germany, the German Federal For-

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82 Sahl i, supra note 1 at 2; Kim, supra note 41, at 772; Weiss, supra note 10, at 15.
83 Holland, supra note 9 at 1637, 1652; Aubry Holland, The Modern Family Unit: Toward a More Inclusive Vision 
84 In Canada, only the information guides addressed to applicants from African countries issued by Immigra-
tion, Refugees and Citizenship Canada mention the possibility to undergo DNA testing as part of the family 
reunification processes. Joly et al., supra note 50 at 4; Immigration, Refugees and Citizenship Canada, supra 
note 54.
the grounds that they lack systematic and sound procedures. In the USA, according to some authors, these practices have been justified on the assumption that if the registries in these regions are unreliable and corrupt, it is likely that nationals from those countries will obtain fraudulent documents in order to abuse the family reunification process in the host countries. In both countries, a DNA test is therefore considered instrumental as a way of verifying the veracity and accuracy of the official documents issued in those countries. However, according to a study done by the European Commission for its Green Paper on the right to family reunification, focusing on European countries, there does not seem to be any empirical evidence that DNA testing has in fact proved helpful in detecting fraud. Discrimination lies in the fact that DNA testing is not ‘suggested’ in every case needed, regardless of the country of origin of the applicant, but that it is ‘suggested’ mostly to applicants from specific predetermined countries without any reasonably supported individual (ie case-specific) justification, thus creating de facto profiling based on their country of origin.

The second type of possible discrimination stemming from current policies is against certain models of families that differ from the traditional two-parent biological model. In some cultures, the concept of family is more inclusive and of a different nature; families in some of these cultures are not only comprised of a mother, father, and children, but also of their extended family members. Furthermore, there are cases where families take in orphans as if they were their own, because they belong to the same community and they are in need of a family. In these cases, these newly added family members are considered as much a part of the family as biological members. Moreover, this narrow concept of family (ie limited to those who share a biological link) could leave out cases of surrogacy, assisted reproduction, and same-sex families, which are family types nevertheless recognized for citizens of the host country. Assigning a prioritized role to DNA results in the final decision on family reunification procedures neglects other genuine forms of family and ignores the prevailing social reality of family structures and immigrants’ cultures.
Following from this, the third type of possible discrimination stems from the fact that the concept of family narrowly based on a biological link only applies to immigrants and not to the nationals of the host country. Most of the countries we reviewed for this article have family laws recognizing a broader social concept of family for their own nationals. These laws recognize that the constitutive elements of family go beyond a mere biological link, and that in reality families can be created through social, emotional, and even economic links, such as the way the child is provided and cared for by the mother and father. However, this broader definition of family is confined to nationals of the host country; immigrants’ families are limited to biological bonds for family reunification purposes. This distinction denies immigrants the benefits of the very same customs and values of the society into which they are expected to integrate.

Another concern raised is that the use of DNA testing may have a discriminatory effect against applicants of certain socio-economic classes. Since the costs of DNA tests vary between USD $230 and USD $1250 per test, and many families have more than one member who will apply to reunite with their families, many of the less fortunate families cannot afford to submit DNA tests for all their family members. This is particularly relevant when we consider that these costs are in addition to the regular fees associated with the family reunification process. Moreover, given that the sample collection for the DNA tests has to be performed by accredited laboratories, the applicants have to travel to those embassies, consulates, and laboratories, all of which adds to the application costs. The use of DNA testing may have thus the effect of excluding immigrants of lower socio-economic classes from family reunification processes.

There are two final concerns regarding the discriminatory effects of the use of DNA testing. First, followers of certain religions (eg Jehovah’s witnesses) may interpret the blood and surgical restrictions stated in their religion as preventing them from

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96 Edward Opoku-Dapaah & Michael Lanphier, Family Class Immigration: Implications for Post-Multiculturalism, 15 REFUGE CAN. J. REFUG. (1997); Baldassi, supra note 67; Murdock, supra note 9; Staver, supra note 89, at 8; Villiers, supra note 2, at 248; Miriam Ticktin, How Biology Travels: A Humanitarian Trip, 17 BODY SOC. 139–58, 139–40 (2011); Weiss, supra note 10, at 1, 8, 9, 16; Heinemann, Lemke, & Prainsack, supra note 8, at 253; Heinemann & Lemke, supra note 1, at 817, 820; Weiss, supra note 7, at 79; Hajbandeh, supra note 31, at 343; Dowd, supra note 6, at 1632; Madsen, supra note 95.
97 Hajbandeh, supra note 31, at 346; Dowd, supra note 6, at 1312.
98 Heinemann, Nae, & Tapaninen, supra note 9, at 199; Madsen, supra note 95.
100 Spina, supra note 1, at 52.
101 Holland, supra note 9, at 1664; Barata, supra note 8; JANET M. IHENACHO, THE EFFECT OF THE INTRODUCTION OF DNA TESTING ON IMMIGRATION CONTROL PROCEDURES: CASE STUDIES OF BANGLADESHI FAMILIES (1991); ESBENSHADE, supra note 68 at 14; Ngueng Fexe, Lacey, and Joly, supra note 7, at 33–4.
102 This concern is not applicable to countries where the government offers to either pay for the DNA test directly or to reimburse the applicant in case the results are positive. See note 38 to see the specific countries whose governments offer to cover the costs associated with DNA testing.
providing DNA samples. Providing DNA samples. Under the policies and practices described above, those individuals would not be likely to succeed in reunifying with their families in the host country even if immigration officers ‘suggest’ that they undergo DNA testing, as they would likely refuse to submit to the test. Given that the refusal in this case would be based on the immigrants’ religious beliefs, this is another example in which the disregard of the immigrants’ reality and cultural differences may have a discriminatory effect.

The last concern focuses on the discrimination that current practices regarding the use of DNA testing may cause toward unwed parents. In the USA, in order for a US father to transfer his US citizenship (derivative citizenship) to his children born out of wedlock outside US territory, DNA paternity testing is required. This is not usually the case for the kinship of wed parents with their children. Negative DNA test results in a derivative citizenship process may also complicate and compromise any other family reunification option (e.g., permanent residence or green card) in the USA. An immigration officer reviewing a permanent residence application after a failed derivative citizenship claim due to negative DNA test results may be influenced by the lack of kinship and therefore not consider other evidence to prove the family relationship sufficient. Children born to married parents may have an easier family reunification process, as their kinship is not frequently questioned, even if they are not biologically related. Additionally, the use of DNA testing is perceived as an attempt to regulate sexual relationships and classify them as good/acceptable or bad/questionable. Whereas family relationships created in wedlock are not questioned and are therefore protected, those created out of wedlock are considered suspicious. This process has also been observed to create instances of gender discrimination, as fathers may not be

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103 According to the Jehova’s witnesses’ interpretation of the Bible, any kind of ingestion of blood is prohibited, as the soul of every sort of flesh is in its blood and God considers blood sacred to him. Blood transfusions are considered a type of blood consumption and are therefore prohibited. Individuals however have the possibility to decide the way in which their blood fractions, surgical procedures, medical tests (blood and DNA tests), and current therapies are handled. Blood Fractions and Surgical Procedures — God’s Love, JW.ORG, https://www.jw.org/en/publications/books/gods-love/blood-fractions-surgical-procedures/ (accessed Feb. 17, 2016); Melese v. Canada (Minister of Citizenship and Immigration), (2007); Uyanze v. Canada (Minister of Citizenship and Canada) (2000).

104 Taitz, Weekers, & Mosca, supra note 17, at 28; Holland, supra note 9, at 1673–4; Dove, supra note 58, at 510. Taitz, Weekers, & Mosca, supra note 17, at 28; Dove, supra note 58, at 510; Holland, supra note 9, at 1673–4.


107 In order to be able to transfer the American citizenship to their children, unwed fathers have to prove their kinship to their children by clear and convincing evidence and they also have to legitimize and agree in writing they will financially support their children before they are 18 years old. Id. sect. 309.

108 U.S. CITIZENSHIP AND IMMIGRATION SERVICES, supra note 56; U.S. IMMIGRATION AND NATIONALITY ACT, supra note 107 sect. 309.

109 Weinrib, supra note 106, at 250.
able to reunite with their out of wedlock children and mothers would be left to care for them alone.111

**Inadequate ethical and privacy protection**

The inequitable treatment between nationals and foreigners is also observed in ethics and privacy regulations that would be otherwise applicable to DNA collection.112 One of the most common ethics regulations involves the need to seek informed consent whenever there is personal data or human sample collection.113 Informed consent requires that those who provide data and samples do it voluntarily.114 In order to achieve this, besides having the possibility to refuse, the subject needs to be thoroughly informed about the conditions and risks associated with the collection and storage of their data and samples as well as any possible current or future use of their data and samples.115 It also requires that donors be provided the right to withdraw and to oppose at any time any secondary use of their data.116

Whereas these ethical rights or standards are recognized and enforced for all nationals of the host country, they are denied to sponsors and applicants when the immigration authority ‘suggests’ that they undergo a DNA test as part of the family reunification process.117 Firstly, the vulnerability of the applicant and sponsor and the potential negative consequences of refusing to submit to a DNA test make the ‘voluntariness’ of the procedure highly questionable, even if it is formally presented as a ‘suggestion’ or as an ‘option’.118 Secondly, in most cases, sponsors and applicants are not provided with all the necessary information to make an informed decision. For instance, since most of the time they do not have access to proper genetic counseling, they are not fully informed of the different results they may receive from the test, the meaning of each of them, or the risks of receiving negative results (i.e., no biological link between the parent and the child).119 Consequently, they are likely to be incapable of considering the advantages and disadvantages of deciding to submit to the DNA test.120 The right not to know their test results, a right that sponsors and applicants would have if they were regular citizens in another context, for instance in medical practice, is not respected in family reunification processes. In this case, for instance, the sponsor and the applicant may not want to know that they are not biologically related. Not disclosing this information is not

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112 Hajbandeh, supra note 31, at 346; Dove, supra note 58, at 497, 504–5; Weiss, supra note 7, at 84–5.
114 Bartha Maria Knoppers, Ma’n H. Zawati & Emily S. Kirby, Sampling Populations of Humans Across the World: ELSI issues, 13 A NNU. REV. GENOMICS HUM. GENET. 395–413, 399 (2012); Granados Moreno & Joly, supra note 113, at 7; Weiss, supra note 7, at 85–6.
115 Granados Moreno & Joly, supra note 113, at 8; Dove, supra note 58, at 504–5.
117 Weiss, supra note 7, at 86; Dove, supra note 58, at 504–5; Heinemann & Lemke, supra note 1, at 816.
118 Spina, supra note 1, at 60; Barata, supra note 8, at 87; Heinemann & Lemke, supra note 1, at 815–6; Heinemann, Nause, & Tapaninen, supra note 9, at 193; Heinemann & Lemke, supra note 5, at 501; Dove, supra note 58, at 504–6.
119 Dove, supra note 58, at 479, 505; ESbenshade, supra note 68, at 16.
120 Dove, supra note 58, at 523–24; Weiss, supra note 10, at 7–8.
Does the end justify the means?

an option when using DNA testing to prove the kinship between the sponsor and the applicant.\textsuperscript{121} The issue of consent is even more fraught when focusing on minors involved in family reunification processes. In these cases, legal parents are the ones who have the power to consent to any sample collection involving their children. However, in this case, they grant their consent, only to find out that, for purposes of family reunification, they are not the parents.\textsuperscript{122}

Furthermore, in certain jurisdictions, such as Germany, there is a concern regarding secondary uses of these DNA profiles without the immigrants’ proper consent.\textsuperscript{123} As mentioned before, in accordance with the Prüm Convention, signatory countries like Germany are obligated to render their DNA national databases searchable and share them with other EU member states for forensic purposes.\textsuperscript{124} The concern stems from the fact that sponsors and applicants submitting to DNA testing in Germany for the purposes of family reunification are unable to refuse such secondary uses of their data and samples.\textsuperscript{125} Given that these databases are commonly used to identify criminals, some of the articles we reviewed worried that immigrants were being indirectly criminalized.\textsuperscript{126} Other countries do not expressly provide for secondary uses of this kind with respect to DNA profiles obtained in the course of family reunification processes, but they do not prohibit them either, which leaves the possibility intact.\textsuperscript{127}

There are also discriminatory concerns raised in matters of privacy. In general terms, everyone has a right to be respected in their private family life.\textsuperscript{128} Countries provide protection for their citizens’ privacy in different ways. However, a number of authors are concerned that the terms of this protection ensured for citizens of the host countries differ in the case of immigrants undergoing DNA testing for family reunification purposes. The questionable ‘voluntariness’ of submitting DNA tests and the potential secondary uses raise these concerns.\textsuperscript{129}

\begin{itemize}
\item \textsuperscript{121} Weiss, supra note 7, at 79, 86; Weiss, supra note 10, at 7–8.
\item \textsuperscript{122} Weiss, supra note 10, at 8–9.
\item \textsuperscript{123} Heinemann and Lemke, supra note 1, at 817.
\item \textsuperscript{124} Other countries that have the same obligation as Germany to render their DNA national databases searchable are Austria, Finland, France, Bulgaria, Luxemburg, Romania, Spain, Slovenia, the United Kingdom, and the Netherlands. PRUM CONVENTION, supra note 60 arts. 2–5; Stepping up cross-border cooperation (Prum Decision). Council Decision 2008/615/JHA, EUR-L EX (2008), http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:j0005 (accessed Feb. 16, 2016); Prainsack and Toom, supra note 60, at 1123.
\item \textsuperscript{125} Heinemann, Lemke, & Prainsack, supra note 8, at 249; Heinemann & Lemke, supra note 1, at 816; Heinemann, Naue, & Tapaninen, supra note 9; Heinemann and Lemke, supra note 5, at 501–2.
\item \textsuperscript{126} Heinemann, Lemke, & Prainsack, supra note 8, at 253.
\item \textsuperscript{127} Villiers, supra note 2, at 265–6.
\item \textsuperscript{129} Weiss, supra note 7, at 82–6; Baldassi, supra note 67, at 11; Hajbandeh, supra note 31 para. 345; ESBNESHADE, supra note 68, at 15; Achraf Farraj, Refugees and the Biometric Future: The Impact of Biometrics on Refugees and Asylum Seekers, 42 COLUMBIA HUM. RIGHTS L. REV. 891, 919–35 (2010); Spina, supra note 1, at 53; Villiers, supra note 2, at 265–6; Holland, supra note 9, at 1672–6.
\end{itemize}
Harms to family life and emotional well-being

Family can be considered ‘a natural and fundamental group unit of society’. The definition and foundation of a family depend on a number of dynamics and complexities that include biology as one of many considerations. Parenthood does not solely have biological origins; it is based on the type of relationship and the physical, psychological, intellectual, and spiritual care developed between parents and children. As such, a psychological parent, who is sociologically and legally recognized, is ‘an adult who on a continuing day-to-day basis through interaction, companionship, interplay, and mutuality fulfills the child’s psychological needs’. The biologization or geneticization of the concepts of family and parenthood neglects the reality of families, and by doing so affects the regular dynamics of such a group of people creating a prejudicial effect against the well-being of the members of that group, the best interests of the child, their right to a family life, and human dignity.

Families usually provide the optimal conditions for people to fulfill their physical and emotional needs. They also shape people’s identity, values, and ways of socialization. Therefore, any disruption in people’s families, family structures or family dynamics can substantially impact those people’s personality, identity, social and affective skills, and even their work/school performance. Impeding a socially created family from being together because they lack a biological/genetic link constitutes one of these disruptions.

The use of DNA testing as a determining factor in family reunification may harm the emotional well-being of adult immigrants. In case a family reunification process is denied due to the impossibility of undergoing/refusal to undergo a DNA test or due to negative test results, sponsors may be forced to decide between their then country of residence and their non-biological family members. This decision is particularly difficult in the case of refugees, because if refugees choose to reunite with their family members to protect and care for them, they may have to go back to their countries of origin and endanger their lives. If immigrants choose the country of residence (i.e. the

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130 General Assembly of the United Nations Organization, supra note 128, art. 16(3); Bingham, supra note 15, at 5.
132 Meyer, supra note 131, at 133–4; Curtis, supra note 29, at 149; Mary Patricia Treuthart, Adopting a More Realistic Definition of Family, 26 Gonzaga L. Rev. 91–124, 97–9 (1990).
134 By biologization or geneticization of the concept of family, we refer to situations where the law and/or legal practices or policies define family and/or parenthood based solely on a biological link disregarding any other physical, psychological, social, intellectual or spiritual factor or element that is present in a relationship between two family members. For more details on this term, see Weiss, supra note 10, at 9–12; Heinemann & Lemke, supra note 1, at 817–8.
135 We explain this concern of human dignity separately below. Heinemann & Lemke, supra note 1; Weiss, supra note 10.
136 Villiers, supra note 2, at 258; Honohan, supra note 2, at 771.
138 Bernhard, Landolt, & Goldring, supra note 30, at 6; Dove, supra note 58.
country where they hold a refugee status or where they have permanent residence, but not their country of origin) and their families cannot join them, it is unlikely that they will be able to properly integrate to the host country’s society and culture. Being separated from their families could make immigrants feel isolated and depressed. Their social and affectionate relationships, their physical and mental well-being, as well as their work performance would consequently be affected.  

Minors’ emotional well-being may also suffer if their family reunification processes are rejected because of DNA testing. In these cases, minors would be deprived of their family, considered by many the optimal environment to be physically and emotionally cared for and educated. They are also likely to experience the feelings and reality of abandonment and even become orphans. The consequences of this could include changes in their identities, growing up with stigma and shame, and developing short- and long-term feelings of depression and anger, all leading to dysfunctional relationships and deficient school performance. In the minors’ case, the DNA results could reveal an untold adoption, potentially causing children confusion, distrust, anger, and depression. Negative DNA results could also uncover an infidelity or even a rape. Any of these discoveries could cause the family to break apart and generate stigmas and feelings of anger, distrust, resentment, guilt, and shame among its members.

Most of the authors we reviewed recognize the use of DNA testing in family reunification processes as a useful tool to prevent issues of national security, human trafficking, and fraud in certain cases. However, considering the potential harm to adults and children involved in a family reunification process, authors focusing on family reunification cases in Europe, Canada, and the USA assert that, if the use of DNA testing translates into breaking up a family for lack of biological link or the proof thereof, the use of the DNA test could in fact violate the immigrants’ right to family life and risk the immigrants’ well-being and the best interest of their children.

Disrespect for sponsors’ and applicants’ human dignity

Some authors have specifically expressed concern about violations to the sponsors’ and applicants’ human dignity resulting from certain practices of DNA testing in family reunification processes. Human dignity can be defined as an individual’s sense of self-respect, self-worth, and physical and psychological integrity and empowerment. Respecting people’s consent and ability to exert control over their decisions without being undermined by another person safeguards those people’s dignity.

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139 Villiers, supra note 2 at 249; Barata, supra note 8 at 84–86.
140 Bernhard, Landolt, & Goldring, supra note 30, at 20, 23; Holland, supra note 9, at 1646; Barata, supra note 8, at 84–6.
141 Holland, supra note 83, at 1646; Barata, supra note 8, at 84–86; Ngueng Feze, Lacey, & Joly, supra note 7, at 46.
142 Holland, supra note 9, at 1646.
143 Barata, supra note 8, at 82; Sahlia, supra note 1, at 97; Heinemann, Lemke, & Prainsack, supra note 8, at 253.
144 Heinemann, Naue, & Tapaninen, supra note 9; Spina, supra note 1, at 53; Holland, supra note 9, at 1664; Murdock, supra note 9, at 1517–1519; Bernhard, Landolt, and Goldring, supra note 30.
145 Spina, supra note 1, at 53.
146 Granados Moreno & Joly, supra note 113, at 12.
testing may violate immigrants’ human dignity: by disregarding immigrants’ rights to self-determination as well as their rights to family and family life.\textsuperscript{148}

On the one hand, an individuals’ dignity is respected when they can exercise self-determination, meaning that those individuals can determine their own fate and course of action. As part of the exercise of self-determination, consent and privacy need to be respected and protected. However, the way in which the use of DNA testing has been implemented could lead to a lack of respect for the immigrants’ self-determination, consent or privacy. Immigrants’ self-determination and consent are highly questionable, because it is not clear that when they agree to undergo the DNA testing suggested throughout the course of the family reunification process, they actually have the option to refuse. The reason is that the consequences of them refusing to undergo the DNA test suggested by the immigration authority could have major negative consequences for their family lives. Immigrants’ privacy is also questioned, because in countries like Germany, the applicant cannot refuse to have their DNA and associated information shared with other countries for non-migratory purposes.\textsuperscript{149}

On the other hand, human dignity can also be associated with the right to a family and to a family life. The reason is not only that these rights have been formally recognized in human rights conventions and treaties, but also that the drive for family unity is profoundly human. Human beings are likely to find in their families the emotional support that they need to have healthy affectionate relationships and proper work and school performances.\textsuperscript{150} This explains why human beings pursue family units and family life and why the drive for a family life is part of human nature.\textsuperscript{151} The immigrants’ right to a family life could be compromised when governments implement the use of DNA testing in family reunification processes in terms where the biological link takes priority over other social and emotional components of family.

\textbf{Economic impact}

Immigration may have a measurable impact on a country’s economic life.\textsuperscript{152} The economic impact is measured in three areas: labor market, public purse, and economic growth.\textsuperscript{153} With respect to labor market, during the past decade, immigrants accounted

\begin{table}
\begin{tabular}{|c|c|}
\hline
\textbf{Year} & \textbf{Percentage of Immigrants} \\
\hline
2010 & 10.5 \\
2011 & 10.6 \\
2012 & 10.7 \\
2013 & 10.8 \\
2014 & 10.9 \\
\hline
\end{tabular}
\end{table}
for 47% of the increased workforce in the USA and 70% in Europe.\textsuperscript{154} New skilled immigrants represented 15% of new hires in healthcare and science and technology in Europe and 22% in the USA.\textsuperscript{155} In areas like machine operating and assembly, new immigrants accounted for about 28% of new hires.\textsuperscript{156} The main concern regarding immigrants is that they may occupy job positions otherwise available for residents or that they may have a negative effect on the countries’ wages bringing the minimum wage down, as immigrants may increase the supply of job candidates.\textsuperscript{157} The counter-argument is that the negative effect that immigration has on wages could be considered small on low-skilled workers and even smaller on highly educated workers, and even then, this effect generally decreases over time. Furthermore, immigration, particularly of highly educated workers, can bring about positive externalities, demand effects, and growth effects.\textsuperscript{158}

Regarding the impact of immigrants on the public purse, the main concern is that immigrants may become an economic burden, as they may file for welfare, unemployment benefits, public healthcare, or any other type of governmental social and financial support.\textsuperscript{159} However, except in countries with old immigrants, working immigrants can contribute, based on their skills, age, field, and salary, to the public purse and consequently, to the public infrastructure of the host countries.\textsuperscript{160} In most countries, they either contribute more in taxes than what they receive in social benefits (eg welfare) or have a neutral effect on public money.\textsuperscript{161}

With respect to economic growth, the concern is that immigrants could hinder the host country’s economic growth by being an economic burden. In practice, when engaging in the labor market, immigrants do so with the skills and abilities they have. These skills and abilities contribute to the development of the host countries’ human capital and technological progress at different levels and proportions.\textsuperscript{162} For instance, studies have suggested that skilled workers in the USA have contributed to boosting research and innovation as well as technical progress.\textsuperscript{163} Moreover, even if low-skilled immigrants contribute less to the economic growth than the highly educated, their


\textsuperscript{155} OECD, supra note 155, at 1.

\textsuperscript{156} Id. at 2.


\textsuperscript{158} Bodvarsson & Van den Berg, supra note 153, at 419; Kerr & Kerr, supra note 158, at 21, 24; Dustmann, Glitz, & Frattini, supra note 158, at 483.

\textsuperscript{159} JAMES HOLLIFIELD, PHILIP L. MARTIN & PIA M. ORRENIUS, CONTROLLING IMMIGRATION: A GLOBAL PERSPECTIVE 17 (3rd ed. 2014).


\textsuperscript{161} OECD, supra note 154, at 2; OECD, supra note 155, at 1; Rowthorn, supra note 161, at 568; Kerr and Kerr, supra note 158, at 24, 25.


continued consumption of goods and services contribute to some extent to keeping the host country’s economy moving.\textsuperscript{164}

According to a recent OECD report, most immigrants that migrate with their families or with the intention of bringing their families do so to improve their lives and those of their families, so they are most likely working immigrants.\textsuperscript{165} Immigrants that have their families with them tend to perform better at work and to integrate faster into their new societies.\textsuperscript{166} If immigrants are then likely to perform better when accompanied by their families, family reunification could be beneficial not only for the members of the family being reunited, but also for the society of the host country.\textsuperscript{167} If the practices associated with the use of DNA testing are obstructing family reunification, then they are also affecting the economy of the host country and the integration of its population. Since most immigrants migrate to improve their lives and those of their families, it would make sense to make efforts to better integrate them in order for them to be an investment.\textsuperscript{168}

Changes in the family reunification procedure

From a procedural perspective, the first concern refers to the frequency in which DNA testing is ‘suggested’. In the countries we reviewed, DNA testing is regulated or presented as an option in cases where other types of evidence to prove family relationships are unavailable or insufficient. The implementation of the DNA testing by immigration agents, however, has diverged from the way it is provided for in legislation and guidelines. The use of DNA testing has been ‘suggested’ more frequently by the corresponding authorities than what a ‘last resort’ approach would seem to imply.\textsuperscript{169} The way in which the test is ‘suggested’ by immigration authorities is perceived more as a ‘request’ and even a ‘requirement’ than as a ‘suggestion’.

Moreover, the role given to DNA testing has also undermined the admissibility of previously accepted documents.\textsuperscript{170} For instance, in the USA and Germany, birth and baptismal certificates, family pictures, sworn declarations by applicants and people who knew them personally, email and letters exchanges, and proof of actual financial support, all otherwise admissible documentation, have become insufficient for an increasing number of immigration officers in embassies and immigration departments.\textsuperscript{171} This shift in admissable documents observed in Germany and the USA has created a concern over the impact on the immigrants’ financial situation, given that the admissible supporting evidence, such as DNA testing, will be more costly than the usually accepted documents.\textsuperscript{172} Authors focusing on the USA and Canada are also concerned that the use of DNA testing can also result in delays in the family reunification process due to

\begin{itemize}
  \item[\textsuperscript{164}] Bodvarsson & Van den Berg, supra note 153, at 420.
  \item[\textsuperscript{165}] OECD, supra note 154, at 3; Kerr & Kerr, supra note 158, at 4.
  \item[\textsuperscript{166}] Spina, supra note 1, at 40; Honohan, supra note 2, at 773; Villiers, supra note 2, at 249.
  \item[\textsuperscript{167}] Hajbandeh, supra note 31, at 360.
  \item[\textsuperscript{168}] OECD, supra note 154, at 3; Bodvarsson & Van den Berg, supra note 153, at 417–20.
  \item[\textsuperscript{169}] Joly et al., supra note 50, at 4.
  \item[\textsuperscript{170}] Holland, supra note 9, at 1646; Heinemann et al., supra note 28, at 16.
  \item[\textsuperscript{171}] Holland, supra note 9, at 1646; Heinemann et al., supra note 28, at 16; Taitz, Weekers, & Mosca, supra note 17.
  \item[\textsuperscript{172}] ESBENSHADE, supra note 68, at 14.
\end{itemize}
the collection, transportation, and analysis of the samples, as well as the interpretation of the results.

Another procedural concern is that the scientific limitations of the test seem to be disregarded. A DNA test is incapable of properly identifying and interpreting all genetic mutations, which would result in misattributing parentage by excluding parents who are in fact biologically related to their children. Moreover, the integrity and accuracy of several phases of the procedure (collection, transportation, and analyses of the samples) cannot be guaranteed, as there is always a possibility for human error at each of these phases.

Finally, the last concern identified regarding the procedure in which the DNA test is involved refers to the fact that in certain jurisdictions a negative result in DNA testing usually leads to the assumption that the claims for family reunification were fraudulent, leading in turn to the rejection of the application. This is the case of Germany, Austria, and the USA. In these jurisdictions, immigration officers do not seem to try to verify the real family life, but the documented relationships that the applicants claim. DNA testing is used as evidence to prove the veracity of such documented relationships. Consequently, a negative result may lead immigration officers to question the credibility of the people involved in the family reunification claim, leading thus to the assumption that they were trying to defraud the immigration system. However, in fact, the little empirical evidence that exists points to the fact that only very few countries can empirically support this assumption.

CONCLUSIONS

The seven countries we reviewed (Austria, Canada, Finland, France, Germany, United Kingdom, and the USA) showed a relatively similar approach to the use of DNA testing in family reunification. In these countries, DNA testing is offered as an option to prove family relations in cases where other types of evidence (documents and/or interviews) are either not available or fail to unequivocally confirm that relation. Even though all these countries offer this option to any applicants in the aforesaid situations regardless of their country of origin, Germany and France have a list of countries whose nationals are more frequently encouraged to undergo the test. The decision to undergo the DNA test in all these cases is stated as ‘voluntary’. The immigration offices of the host countries accredit or appoint the labs where the samples are collected and analysed. In most

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173 Id. at 14; Bernhard, Landolt, & Goldring, supra note 30, at 5, 24; Ngueng Feze, Lacey, & Joly, supra note 7.
174 Barata, supra note 8, at 50–1; Heinemann, Naue, & Tapaninen, supra note 9, at 185; Barata et al., supra note 37, at 631–2; Heinemann & Lemke, supra note 1, at 820; Murdock, supra note 9, at 1522–3; Karlsson et al., supra note 37; Mansuet-Lupo et al., supra note 37.
175 Barata et al., supra note 37, at 631–2; Murdock, supra note 9, at 1522; Holland, supra note 83, at 1664–7; Heinemann, Naue, & Tapaninen, supra note 9, at 185.
176 Heinemann, Naue, & Tapaninen, supra note 9, at 200; Villiers, supra note 2, at 268–71; Holland, supra note 9, at 1655.
177 Heinemann, Naue, & Tapaninen, supra note 9, at 200.
178 Klaassen & Sondergaard, supra note 3, at 8, 15.
179 We use the term ‘voluntary’ in quotations because as we mentioned before, the voluntariness of undergoing DNA testing in family reunification is questioned.
of the countries reviewed, the applicants bear all the economic costs associated with the test.\footnote{The exceptions are Finland, whose government covers the actual costs of the test; Austria, whose government reimburses the applicant if the results are positive, and the USA, whose government reimburses the applicant if the results are positive in the case of refugees in the Priority 3 Program.}

The first of the only two considerable differences we found in our review was the secondary use of the test data, which is stated in the countries that are members of the Prüm Convention (Austria, Finland, France, Germany, and the United Kingdom). By rendering their DNA databases searchable for other Prüm Convention members, these countries allow secondary uses of the DNA samples and the associated information. The rest of the countries do not clearly endorse or rule out the possibility of sharing data with other parties. The lack of clear normative limitations on data sharing with third parties for its use outside of the immigration process is very disturbing. Given, that applicants have little choice about agreeing to this type of data sharing, it can be interpreted as an affront to their human rights to autonomy, dignity, and privacy. The second difference was that apart from Finland, where a negative test result may not cause an automatic rejection of the family reunification process, test results in the other countries carry a lot of weight in the final decision of family reunification claims.

The literature is also very consistent as to the associated benefits and concerns of DNA testing in family reunification. The majority of the articles concur that the option of undergoing a DNA test to prove a family relation can be beneficial to immigrants in situations where other evidence is unavailable or insufficient. Another benefit mentioned was that DNA testing might make family reunification processes cheaper or faster for immigrants and more efficient and helpful for governments to prevent misuse or abuse of the process. However, in this respect, there were also concerns about lengthy delays in certain jurisdictions and specific cases caused by the use of DNA testing. Other less frequently mentioned benefits included the alleged neutrality provided by the DNA test, the reduced stress or responsibility on minors undergoing DNA testing, and the possibility and justification to remove the age limit in family reunification processes involving children if DNA testing is used to prove a family relation.

The concerns raised by the use of DNA testing in family reunification processes were also very consistently described by the different authors. The studies and articles reviewed mentioned instances of discrimination as one of their main concerns. The most common concern regarding discrimination focused on immigrants being treated differently from citizens and permanent residents of the host countries with respect to the way in which the legitimacy of their families is recognized. Another common concern referred to the fact that the way in which DNA testing is used could disrespect immigrants’ privacy and consent when they ‘agree’ to undergo a DNA test in a process of family reunification. The concern about immigrants’ privacy was much more serious when the authors were referring to Germany, as this country renders its DNA database searchable for Prüm Convention members without giving the immigrant the right to refuse. In this case, the concern was raised at two levels: the deficient protection of the immigrants’ privacy and consent per se and the fact that the host countries’ citizens’ privacy and consent were usually better protected.\footnote{Even though out of the countries we surveyed, Austria, Finland, France, and the United Kingdom are also obligated to render their DNA databases searchable for Prüm Convention members without giving the}
mentioned, another concern was the potential discrimination against those immigrants who would not undergo DNA testing either because they lack the economic funds to afford it or because their religious beliefs prohibit them. Likewise, authors were also concerned with the serious harms to immigrants’ family lives (emotional stress, depression, distrust, anger, resentment, sense of abandonment or guilt, unsatisfactory or deficient work/school performance, etc.) caused by negative DNA test results and/or by having their family reunification claim rejected. The last type of concerns addressed in the majority of the literature we reviewed focused on procedural matters. The main one referred to the frequency with which DNA testing is suggested and the effect this practice has on otherwise admissible evidence, all of which goes against a ‘last resort’ approach. The last general concern was that prioritizing DNA results disregards the scientific limitations and the potential human errors associated with the test.

The consistency in the benefits and concerns shows that authors concur on the importance of protecting the family unit. It also shows, however, that they recognize that families are formed and shaped by many factors, complexities, and dynamics that DNA is incapable of fully capturing, and that therefore the importance of protecting the family unit should transcend borders, cultures, age, and legal status.

Countries have a sovereign right to control their immigration regulations and policies, and DNA testing can be useful in achieving this goal. However, there needs to be a balance between every human being’s right to a family/family life and a country’s right to control the influx of immigrants. In order to achieve and maintain this balance, the regulation and practices involving both rights have to be reasonable, justifiable, and proportional to the values being protected. Considering that some of those values include equality, inclusiveness, efficiency, human dignity, and respect for more pluralistic concepts of family, it is imperative that the use of DNA testing for family reunification purposes be truly voluntary and on a last-resort basis for cases in which other documents (eg birth or baptismal certificates, school records, etc.) are unavailable, insufficient, or questionable. Additionally, it has to be considered one of many types of admissible evidence, and in no situation should the test results be the determining factor in deciding a family’s fate.

Research is still needed with respect to the necessary parameters for achieving the balance required between the rights of the individual to have a family and the right of countries to control immigration. However, keeping these important values in mind should be a useful stepping-stone. Finally, given that genetics remains a relatively new tool in the immigration process, its use and impact on immigration applications should be closely monitored and documented in a transparent manner by immigration authorities.

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183 Klaassen & Søndergaard, supra note 3, at 7; Spina, supra note 1, at 53, 61.

184 Heinemann & Lemke, supra note 5, at 495; Heinemann & Lemke, supra note 1; Dove, supra note 69; European Migration Network, Misuse of the Right to Family Reunification: Marriages of Convenience and False Declarations of Parenthood - EU Synthesis (EMN) — EMN (2012).
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