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**NEW TECHNOLOGIES AND THE INVESTIGATION
OF LATE PATERNITY: LEGAL CHALLENGES
AND IMPLICATIONS FOR CHILDREN'S
MENTAL HEALTH ¹**

Ariane dos Santos Barreto da Silva ²

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New technologies and the investigation of late paternity: legal challenges and implications for children's mental healthDOI: <https://doi.org/10.5281/zenodo.17029550>**Abstract**

This study analyzes the challenges and legal and emotional repercussions of late paternity investigation, in light of technological advances, such as DNA testing and artificial intelligence. These advances have transformed the process of recognizing paternity, bringing greater accuracy and speed to investigations, but also raising questions about privacy and accessibility. The objective of this work is to explore the impact of these new technologies in the legal field, discuss the ethical and legal challenges, and evaluate the emotional consequences of late paternity on children's mental health, in addition to proposing regulatory improvements. Methodology used was based on a detailed literature review, analysis of relevant case law and comparative study of legal norms. The research also involved the psychological effects of late paternity disclosure and the analysis of guidelines on the use of genetic data. Data collection included analysis of court documents, academic and scientific articles on the emotional impact of late paternity disclosure. Results indicate that DNA testing is widely accepted in courts, but affordability remains an obstacle for low-income families. In addition, late disclosure of paternity can have negative impacts on children's mental health, such as anxiety, identity confusion, and rejection. The research highlights the importance of psychotherapeutic support and points to the need for strict regulation of the use of genetic data and artificial intelligence in paternity investigations. In conclusion, the study suggests that while technologies advance, legislation needs to evolve to ensure equitable accessibility and protect children's rights. Psychosocial support is crucial to minimize emotional harm, and judicial decisions should consider not only biological evidence, but also the psychological well-being of minors.

Keywords: Children's mental health, paternity investigation, DNA testing, Psychological impact, artificial intelligence.

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1. Introduction³

The question of paternity has always been intrinsically linked to biological aspects⁴, emotional and legal. However, with the advancement of new technologies, especially in the field of genetics, paternity investigation has become significantly more accurate and accessible. This evolution, in turn, has generated profound transformations in Family Law, particularly in cases of late paternity, when legal recognition of the paternal bond occurs years after the child or adolescent's life.

The incorporation of DNA testing and, more recently, the use of artificial intelligence (AI) and data science in the field of genetics have facilitated the process of identifying biological kinship. However, this technological advance also brings ethical, legal and emotional challenges. On the legal level, there is a growing demand for regulation regarding the use of genetic data and the protection of the privacy rights of the parties involved. On the emotional level, the late disclosure of paternity can significantly affect the psychological well-being of the child, who often finds himself faced with a new family reality, altering

³ The original version of this article was published in Portuguese at the CIDS - International Congress of Health Law, 2024.

⁴ According to Diniz (2011), filiation is a very personal and imprescriptible right, fundamental for the dignity and integral development of the child.

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pre-existing dynamics and potentially generating emotional conflicts.

Even though technological evolution⁵ has enabled greater democratization in access to these tests, allowing families from different social classes to seek paternal recognition, the cost of such technologies is still a limiting factor. In addition, the use of algorithms to cross-reference large genetic databases in order to identify kinships raises questions about privacy and the ethical use of this information.

Therefore, this research seeks to analyze the legal repercussions of late paternity investigation in light of these new technologies, with a special focus on the implications for children's mental health. Interface between Law and health, in this context, cannot be neglected, since the judicial decision that recognizes paternity can both promote the emotional integrity of the child and potentially generate new psychological challenges. Thus, in addition to considering technological advances, it is necessary to pay close attention to the social and emotional aspects involved.

⁵ According to Gonçalves (2013), technological advances, such as the use of DNA testing, have brought greater precision to paternity recognition, but also raise ethical challenges.

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2. Objectives

The main objective of this article is to analyze, in depth, the legal and psychological repercussions resulting from late paternity investigations, especially in light of the technological advances that have revolutionized this field. In particular, it seeks to examine how new technologies, such as DNA testing, artificial intelligence (AI) and data science, have transformed the paternity recognition process, providing greater precision and speed to investigations. In this context, it intends to discuss the legal implications arising from the use of these technologies in late paternity processes, considering the regulatory challenges, the need to protect genetic data, as well as the ethical issues related to their use.

The principle of human dignity is supported by the Federal Constitution, in its article 1, section III, which states that it is the duty of the family, society and the state to safeguard the minimum rights so that human beings have their value and dignity preserved in the face of what is provided by public authorities.

The Supreme Federal Court states:

(...) the postulate of human dignity, which represents - considering the centrality of this essential principle (CF, art. 1, III) - a significant interpretative vector, a true source value that shapes and inspires the entire constitutional order

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in force in our country and which expressively translates one of the foundations on which the republican and democratic order enshrined by the positive constitutional law system is based among us (...).⁶(HC 95464, Rapporteur: Min. CELSO DE MELLO, Second Chamber, tried on 02/03/2009, DJe-048 DISCLOSED 03-12-2009 PUBLISHED 03-13-2009 EMENT VOL-02352-03 PP-00466)

Therefore, human dignity is a fundamental right of constitutional order for the individual who may at any time be exposed to social vulnerability, and this is no different in the aforementioned issue of filiation. The state guarantees everyone the right to a name and surname in order to guarantee this right as well as to protect those who do not have their paternity registered in their birth certificate the right to seek this institute through the appropriate action.

Another fundamental aspect addressed in this study is the analysis of the emotional impacts that late paternity disclosure can have on the children and adolescents involved, considering the emotional vulnerability that permeates these processes. The article aims to explore how this disclosure, facilitated by the use of advanced technologies, can interfere in family dynamics

⁶ HC 95464, Rapporteur: Min. CELSO DE MELLO, Second Chamber, decided on 02/03/2009, DJe-048 DISCLOSED 03-12-2009 PUBLISHED 03-13-2009 EMENT VOL-02352-03 PP-00466 disponible in: <http://www.stf.jus.br/portal/jurisprudencia/visualizarEmenta.asp?s1=000083730&base=baseMonocraticas>

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and affect the psychological development of minors, making it essential to reflect on the need for psychotherapeutic support in such cases.

"The right to recognition of paternity is linked to the preservation of the child's identity, and it is essential to guarantee accessibility to these resources" (CAHALI; HIRONAKA, 2014)

In addition, there will be a discussion on accessibility and price regulation of genetic tests, taking into account that, although technological advances have popularized these tests, there are still economic barriers that hinder access for low-income families. The research therefore seeks to propose regulatory measures that ensure both the ethical and safe use of these technologies and the democratization of access to them, in order to guarantee that all individuals, regardless of their financial status, can enjoy the benefits provided by scientific advances. In this way, the aim is to contribute to the debate on the modernization of Health Law and Family Law, expanding the understanding of the role of new technologies in the legal field and in children's mental health.

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3. Methodology

The methodology adopted for the development of this study was based on an interdisciplinary approach, combining bibliographic review and documentary analysis. (DIDIER JR; ZANETI JR., 2014) In order to provide a broad and integrated view of the impacts of new technologies in the legal field and their implications for children's mental health. The first step consisted of conducting a literature review, involving the collection and analysis of scientific articles and specialized books that discuss the use of advanced technologies, such as DNA testing, artificial intelligence and data science, in paternity recognition processes. This bibliographic survey aimed to structure technological advances in the field of genetics and their applications in Family Law, in addition to identifying the ethical and legal discussions associated with the use of these technologies.

To verify the status of filiation, it must be analyzed through technical evidence, where a DNA test will be used, which can be carried out judicially, or extrajudicially if the parties so prefer, and which will have the same value in the scope of evidence. With this understanding, Fredie Didier Jr, Rafael Alexandria de Oliveira and Paula Sarno Braga, discuss:

“Although there is no legal provision, it is still possible to consider the so-called extrajudicial or

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amicable expert assessments, which would be those that the parties promote outside the proceedings to clarify doubts and questions that have arisen or may arise about facts that interest them. They would always be carried out consensually, by agreement of both parties. Produced in an extrajudicial adversarial process, with the consent of both parties to the material legal relationship, this expert assessment will produce a report that may be used as evidence in court, with a status very similar to that of pre-constituted evidence.”⁷

In parallel, an analysis of relevant case law was carried out, involving the use of genetic testing to investigate late paternity. These cases were selected based on their representativeness in relation to the topics addressed, especially with regard to the legal and emotional consequences of recognizing paternity after childhood. The analysis of the cases was instrumental in identifying how the courts have dealt with the use of these new technologies and how judicial decisions have considered the emotional aspects of the children involved, in order to guarantee the best interests of the child.

In addition, a normative and regulatory research was carried out, focused on the analysis of current legislation, technical guidelines and ethical protocols that regulate the use

⁷ Civil Procedural Law Course, vol. II, 2015, 10th edition. Fredie Didier Jr, Rafael Alexandria de Oliveira and Paula Sarno Braga, p. 263

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of genetic technologies and the processing of sensitive data in the context of paternity investigation. This effort included the review of national standards, such as the Statute of Children and Adolescents (ECA), and international standards, with a view to comparing different legal approaches on the subject and identifying gaps in the regulation of these technologies, especially with regard to refers to the protection of privacy and equal access to it.

"The literature review is essential to map the state of the art on the use of genetic technologies in paternity recognition processes." (GONÇALVES, 2006)

Finally, theoretical reflections were made on the challenges of accessibility and issues related to the regulation of DNA testing prices, in order to include a critical analysis of the democratization of access to new technologies. The combination of these different sources of information allowed a comprehensive and critical analysis of the legal and psychological repercussions of late paternity investigation, offering support for the formulation of more robust and inclusive regulatory proposals in the areas of Health Law and Family Law.

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4. Results

The results obtained from this research reveal a series of complex legal and emotional implications that arise with the advancement of new technologies in the field of late paternity investigation. (MADALENO, 2009), bringing to light several challenges and opportunities for Health Law and Family Law. First, the detailed analysis of the case law and the reviewed literature demonstrates that the use of DNA tests, now widely accepted as irrefutable evidence in legal proceedings, has transformed the recognition of paternity, especially in situations where this recognition occurs late, years after the birth of the child. What could previously be a difficult dispute to resolve in the legal sphere can now be resolved with scientific precision, thanks to genetic advances. However, this widespread acceptance of DNA tests also highlights the urgent need for more robust and detailed regulation, especially with regard to the collection, storage and use of genetic data.

Another relevant point that emerged from this research was the finding that, although DNA tests are widely accessible in many contexts, financial accessibility remains a significant barrier for a portion of the population. The high cost of many of these tests still prevents low-income families from using this technology to resolve paternity disputes, even in late

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processes. This inequality in access highlights the need for public policies that promote the democratization of new technologies, ensuring that the right to paternal recognition is guaranteed in an equitable manner, regardless of the socioeconomic status of those involved. In this sense, the results indicate that one of the biggest gaps is in the regulation of genetic test prices and the lack of government subsidies for families in vulnerable situations, pointing to the urgency of a legal reform that ensures universal access to these technological innovations.

From an emotional perspective, the research results highlight the significant impacts on the mental health of children and adolescents involved in late paternity proceedings. Disclosure of paternity, often facilitated by technological advances, can generate a series of adverse emotional reactions, including feelings of rejection, identity confusion, and even the destabilization of previously established family dynamics. This emotional aspect, although already recognized by some courts, still needs to be addressed in greater depth in judicial decisions. The research points to the need for greater involvement of mental health professionals in judicial proceedings, with the inclusion of psychological opinions that can help judges make decisions that consider not only the legal

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aspects, but also the best emotional interests of the child. Psychotherapeutic monitoring is, therefore, essential to mitigate the negative effects that late disclosure of paternity can have on the psychological development of the child.

On the other hand, the results also highlight the ethical and privacy challenges that accompany the use of new technologies, especially with the advancement of artificial intelligence (AI) and data science in the field of genetics. The use of large genetic databases to cross-reference information and the application of AI to identify kinships present considerable risks in terms of privacy. Individuals are often not fully aware of how their genetic data will be used or stored, which can lead to violations of fundamental rights. Thus, the results suggest that the use of these technologies must be accompanied by strict regulations that protect individuals' sensitive data, ensuring that scientific advances do not override privacy rights and human dignity.

Furthermore, the research highlighted the relevance of the ethical issues involved in investigating late paternity. Although technology has offered new avenues for resolving disputes, the disclosure of paternity can destabilize families and challenge pre-existing social and emotional relationships. The use of advanced technologies must therefore be balanced with an

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empathetic understanding of the human and emotional implications. Judicial decisions, in this sense, must be guided not only by the biological certainty offered by DNA testing, but also by the social and emotional considerations of each case.

In summary, the results of this research highlight the profound transformation that new technologies are bringing about in the field of late paternity recognition, while also highlighting the need for an interdisciplinary approach that combines scientific advances, legal protection and emotional support. Although technological innovations have facilitated and accelerated paternity investigation processes, it is essential that the legal system and society are prepared to deal with the emotional, ethical and social impacts that arise as a direct consequence of these innovations. The future of Family Law and Health Law, therefore, depends on the harmonization between the benefits of new technologies and the protection of the rights and well-being of the children involved.

5. Discussion

Late paternity investigation involves a series of legal and emotional challenges, both for children and for parents and their families. The right to recognition of paternity, as established in the Statute of Children and Adolescents (ECA) and the Civil

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Code, is a highly personal, imprescriptible and unavailable right. This means that, regardless of the time that has passed, the child or adult who seeks recognition of his or her filiation can do so without temporal restrictions, which highlights the importance of this right in the Brazilian legal system (DINIZ, 2011).

However, the issue of late paternity goes beyond legal rights. It touches on fundamental aspects of human dignity and the need for children and adults to know their true biological origin. The recognition of paternity is not just a question of property or food rights; it is also about the construction of the individual's personal and psychological identity. As highlighted by Dias (2011), "filiation constitutes a fundamental right of personality, linked to the recognition of human dignity", and, therefore, must be absolutely protected by the State.

The introduction of new technologies, such as DNA testing, has revolutionized the way these processes are conducted. With the introduction of Law No. 12,004/2009, which regulates paternity investigations and authorizes the presumption of paternity when the alleged father refuses to take a DNA test, the right to biological truth has gained more judicial support. However, the question that arises is whether the mere refusal to take the test can be sufficient to determine paternity, or

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whether a set of evidence is necessary to corroborate this conclusion (GONÇALVES, 2013).

Brazilian case law, when interpreting Summary 301 of the STJ, has consolidated the understanding that refusal to undergo a DNA test may generate a presumption *juris tantum* of paternity. However, this presumption is relative and can be disproved by other evidence in the records, guaranteeing the right to adversarial proceedings and full defense of the person under investigation (MADALENO, 2009). In this sense, the balance between the search for biological truth and the protection of the procedural rights of the person under investigation becomes a delicate balance. It is imperative that, when dealing with these cases, the Judiciary be attentive to both the rights of the child and the procedural guarantees of the parties involved.

In the emotional field, the late disclosure of paternity can generate a series of psychological impacts. For many children and adults, the process of recognizing paternity is not only about obtaining legal rights, such as inheritance or alimony, but also about filling a gap in their identities. Lôbo (apud DINIZ, 2011) argues that “the state of filiation that results from the stability of emotional bonds constitutes an essential basis for the attribution of paternity”. The absence of a recognized father

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can generate feelings of rejection and low self-esteem, directly impacting the individual's psychological development.

Furthermore, advances in genetic technologies, especially DNA testing, have brought new ethical issues to the debate. On the one hand, these tests allow for an almost absolute determination of paternity, but on the other hand, they raise questions of privacy and the appropriate use of genetic data. With the advent of the General Data Protection Law (LGPD), the collection and use of genetic data need to be regulated to protect the privacy of those involved. The use of large genetic databases for the identification of kinships, as pointed out by Didier Jr. (2015), raises concerns about the security and confidentiality of these data, especially when they can be used for purposes other than strictly related to the recognition of paternity.

From a legal perspective, legislative developments have been significant in ensuring that paternity is recognized fairly. The Civil Code and Law No. 8,560/1992 clearly regulate the rights of children and parents, establishing that paternity can be recognized either voluntarily or through legal proceedings. However, there are still practical challenges, especially for low-income families who face difficulties in paying for DNA tests and other expert procedures. The lack of accessibility to these tests

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is an issue that needs to be addressed with public policies that democratize access to biological truth.

The analysis of the case law on paternity investigation also reveals that, in many cases, the late discovery of paternity is linked to patrimonial issues, such as the right to inheritance. The cumulation of the paternity investigation with the inheritance petition is a common practice in Brazil, and STF Summary 149 establishes that, although the paternity investigation action is imprescriptible, the inheritance petition action is subject to a 20-year statute of limitations. This distinction shows that the right to filiation must be considered independently, even when it involves patrimonial aspects (STF, Summary 149).

Therefore, the Brazilian Institute of Family Law – IBDFAM, published a publication on the subject:

By outlining a historical and social profile of the evolution of the family as a whole and of the Brazilian family specifically, until the evolution resulting from the 1988 Constitution, it is demonstrated that filiation is a right of the personality, as it is part of its identity and psychological integrity, and must be ensured by the State. It is linked to paternity, given its relevance in the physical, moral and psychological formation of each natural person. And, based on the national legal system and the aforementioned foreign legislation, it determines three ways of establishing the status of paternal filiation: presumed paternity by law, biological paternity, and socio-affective

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paternity. According to the theory of the best interests of the child, all children have the right to a father who meets their desires, their services, their life, their dreams, their loves and everything else that favors them. Given so many possibilities, it is concluded that only one of these types is not capable of ensuring the establishment of the status of paternal filiation in a way that is adequate and satisfactory to their interests.

A new filiation is born where it will be necessary to combine two or more types of paternity, in order to guarantee the subject the right to "true" paternity. (MAIA, 2011)

Finally, it is necessary to discuss the implications of res judicata in paternity investigation actions. When DNA testing was not performed in old cases, the recognition of paternity may be reviewed in light of new evidence, as provided for in recent case law. This demonstrates the importance of making res judicata more flexible in matters of marital status, ensuring that biological truth can prevail over a decision based on insufficient evidence.

After defining the filiation bond, the legal subject must seek to recognize the legal bond of paternity, through the paternity investigation action which aims to verify the alleged allegations, on this, the lesson of Paulo Lôbo:

“The status of filiation, which arises from the stability of the emotional bonds built in the daily life of father and son, constitutes an essential basis for the attribution of paternity or maternity. It has nothing to do with the right of each person to recognition of

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their genetic origin. These are two distinct situations, the first having the nature of a personality right. The governing rules and the legal effects are not confused or interpenetrated.

To guarantee the protection of the right to personality, there is no need to investigate paternity. The purpose of protecting the right to knowledge of genetic origin is to ensure the right to personality, in the form of the right to life, since current scientific data indicate the need to attribute paternity to someone in order to have the right to paternity to know, for example, the biological paternal ancestors of someone who was generated by an anonymous sperm donor, or of someone who was adopted, or of someone who was conceived by heterologous artificial insemination.

(...)

Every person has a fundamental right, in the form of personality rights, to claim his or her biological origin so that, by identifying his or her genetic ancestors, he or she can adopt preventive measures to preserve his or her health and, a fortiori, his or her life. This right is individual and highly personal, and does not depend on being part of a family relationship in order to be protected or supervised. It is one thing to claim genetic origin, and another to investigate paternity. Paternity derives from the state of filiation, regardless of origin (biological or otherwise).”

Given all these points, it is clear that paternity investigation involves issues that go beyond the legal right to recognition of filiation. It involves the right to identity, dignity and privacy, as well as the need for emotional support for those involved, especially when paternity is discovered late. It is essential that the Judiciary and legislators continue to advance to ensure that

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these rights are protected and that the use of new technologies occurs in an ethical and accessible manner.

6. Conclusion

This research has unequivocally revealed that technological advances in the field of genetics, especially with the use of DNA testing, artificial intelligence and data science, have had a significant impact on the process of recognizing late paternity, transforming the legal scenario and introducing new dimensions to be considered in both Health Law and Family Law. New technologies (DINIZ, 2011) have brought undeniable benefits, especially with regard to scientific precision and the speed in obtaining evidence to establish the paternal bond. However, these same advances raise crucial questions that go beyond the merely biological aspect and touch on sensitive points of the legal system, ethics and children's mental health.

The study demonstrated that, despite the popularization of DNA testing and its widespread acceptance as evidence in court, accessibility to these resources is still unequal, creating economic barriers for many families. In this sense, the lack of public policies that ensure equitable access to new technologies becomes an obstacle to the full exercise of the right to recognition of paternity, especially in cases of late

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paternity, when the child or adolescent has already gone through critical stages of development without the presence or recognition of a biological father. It is imperative that the State and legislators intervene to regulate the price of genetic testing, subsidizing it when necessary, in order to ensure that all families, regardless of their financial situation, have the possibility of using these resources in the context of legal proceedings.

In addition to the financial challenges, the results of this research point to the urgency of more robust and specific regulation regarding the use of genetic data and the protection of individuals' privacy. With the increasing use of artificial intelligence and large genetic databases, considerable ethical concerns arise, especially regarding the storage, use and sharing of sensitive data. The absence of clear regulation may open the way for the violation of fundamental rights, such as privacy and informational self-determination. Therefore, it is essential that legislation keeps pace with technological advances, imposing ethical and legal limits that ensure the protection of genetic data and the dignity of those involved in paternity investigation processes.

Another critical aspect identified in this research was the emotional impact that late paternity investigations can have on

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children and adolescents. Although DNA tests offer a quick and accurate solution for biological identification, late disclosure of a father can destabilize family dynamics, generating feelings of rejection, identity confusion and, in some cases, triggering serious psychological problems. This emotional factor, often overlooked in legal proceedings, needs to be considered more carefully, especially since the primary objective of Family Law is to protect the best interests of the child. Therefore, it is essential that, in cases of late paternity, judicial decisions are supported not only by biological evidence, but also by psychological opinions that take into account the emotional and social impacts on the child.

The research also highlighted the importance of psychotherapeutic support as a crucial tool to help children and adolescents deal with the emotional consequences of late discovery of paternity. Monitoring by mental health professionals should be considered both in the family and judicial spheres, to ensure that minors receive the necessary support throughout the process of adapting to the new family reality.

In conclusion, although new technologies have revolutionized the field of paternity investigation, facilitating access to biological truth, it is essential that society and the

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legal system are prepared to deal with the social, emotional and ethical repercussions that emerge from this transformation. The future of paternity recognition, especially in the context of late paternity, will depend on the ability of legal professionals, legislators and health professionals to harmonize technological advances with the fundamental principles of protecting the rights of children and adolescents. Only through an interdisciplinary approach, which integrates legal, ethical and psychological aspects, will it be possible to ensure that the benefits of these new technologies are widely enjoyed, while protecting the dignity and well-being of the families involved.

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