

The State of Artificial Reproductive Technology Today

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The best way to predict the future is to create it. –

Abraham Lincoln.

April 23-29, 2023, is National Infertility Awareness Week® (NIAW).

NIAW is a movement founded in 1989 by The National Infertility Association. Its mission is to empower us all, change the conversation around infertility, raise awareness about fertility issues and promote better access to fertility care for people who need it. For most individuals and/or couples trying to have a baby, when the conversation of conceiving through natural means ends, a new dialogue begins that which focuses on having a baby with the help of artificial reproductive technology.

Introduction

The field of artificial reproductive technology, "ART," has made significant advancements since its inception in the mid-20th century.

With the ability to manipulate and control the human reproductive system, ART has revolutionized the way we approach infertility and has also presented new ethical and legal challenges. This article will provide an overview of ART, its past, present, and future, and the myriad of legal and ethical issues it faces.

Clinical Definitions, Historical Discrimination, Familial Reality and Legal Concerns

Clinically/historically/ discriminatorily, infertility is a reproductive disorder defined as the failure to achieve a clinical pregnancy following at least 12 months of unprotected heterosexual intercourse¹. It can be related to female factors, male factors, both, or remain unexplained. In women, it is commonly caused by ovulatory dysfunction, tubal obstructions, and/or endometriosis. In men, it is often a result of abnormalities in sperm production and function or sperm duct blockages.

In helping people to have the children they desire, ART challenged and altered forever conventional clinical and societal definitions of "family." It threw open the doors for those wanting to be single parents (with no need for a partner) and has broken down the barriers for members of the LGBTQIA+ community to create their own families.

The nuclear family is still often considered as an entity defined only by biological ties, even though living arrangements with children (families) have become increasingly diverse in recent decades, with unmarried families, adoptive and stepfamilies, and families with same-sex parents becoming increasingly common. ART adds to this growing complexity by providing

treatments to single people and gay and lesbian couples, as well as to heterosexual couples to whom the conventional definition of infertility applies.² These former groups have also been described as facing "social infertility."³

The use of ART worldwide has led to the conception and birth of over nine (9) million babies since being implemented in the United Kingdom in 1978⁴. ART, as it is commonly known, refers to any technique used to assist in the conception of a child without sexual intercourse. The most common methods of artificial reproduction include in vitro fertilization (IVF), intracytoplasmic sperm injection (ICSI), and gamete intrafallopian transfer (GIFT).

There are various legal considerations when it comes to artificial reproduction. There are various laws and regulations governing these practices, including requirements for informed consent, screening and testing of donors and surrogates, and restrictions on the use of certain types of genetic material. One of the key issues is related to parental rights and responsibilities. In many cases, the child conceived through artificial reproduction will have genetic material from one or both parents who are not legally recognized as the child's parents. This can create complex legal situations, particularly if the parents separate or divorce.

Another legal issue that arises in the context of artificial reproduction is the question of who has control over the genetic material used in the process. This includes issues such as sperm and egg donation, surrogacy, and embryo adoption. There are various laws and regulations governing these practices, including requirements for informed consent, screening and testing of donors and surrogates, and restrictions on the use of certain types of genetic material.

Additionally, there are ethical considerations to be taken into account. Some people may have moral objections to certain methods of artificial reproduction, such as using donor eggs or sperm or creating embryos for the purpose of research.

Overall, the legal landscape around artificial reproduction can be complex and is constantly evolving. It is important for individuals considering these techniques to consult with legal and medical professionals to ensure they fully understand their rights and responsibilities.

¹ <https://www.cdc.gov/reproductivehealth/infertility/index.htm>

² Zegers-Hochschild F., Adamson G.D., Dyer S., Racowsky C., de Mouzon J., Sokol R., Rienzi L., Sunde A., Schmidt L., Cooke I.D., Simpson J.L., van der Poel S. The International Glossary on Infertility and Fertility Care, 2017. Hum. Reprod. (Oxford, England) 2017.

³ Daar J. Yale University Press; 2017. The New Eugenics: Selective Breeding in an Era of Reproductive Technologies. [Google Scholar] [Ref list]

⁴ <https://www.ncbi.nlm.nih.gov/pmc/articles>

The Past

The first successful in vitro fertilization (IVF) was achieved in 1978 by Dr.

Robert Edwards and Dr. Patrick Steptoe in the United Kingdom. This groundbreaking event paved the way for numerous developments in ART, including intracytoplasmic sperm injection (ICSI), pre-implantation genetic diagnosis (PGD), and cryopreservation of eggs, sperm, and embryos.

Legal regulation of ART began in the 1980s, with the United Kingdom being the first country to pass laws governing ART procedures. The U.S. followed suit with the passage of the Fertility Clinic Success Rate and Certification Act of 1992 and the creation of the American Society for Reproductive Medicine (ASRM) in 1944. This author's home state of New York did not

"get with the program" until the Child-Parent Security Act of 2021.

Present

ART has become more widely available and accessible over the years, with clinics offering a variety of treatments and services to individuals struggling with infertility. In addition to IVF and ICSI, ART now includes egg and sperm donation, surrogacy, and gestational carrier arrangements.

The legal landscape of ART is complex and varies from state to state and country to country. In the U.S., there is no federal regulation of ART, with each state having its own laws and regulations. This has led to a patchwork of laws that can be confusing for patients and providers alike.

One of the most significant legal challenges facing ART today is the issue of parental rights. With surrogacy and gestational carrier arrangements, the question of who has legal rights to the child can be complicated. Additionally, the use of donor gametes raises questions about the rights of the donor and any resulting offspring.

Future

Advancements in ART technology are rapidly evolving, with researchers exploring new techniques to improve success rates and decrease risks. One area of focus is the use of artificial intelligence (AI) to analyze large datasets of patient information to identify factors that contribute to successful outcomes.

Another promising development is the use of gene editing technology to address genetic diseases and disorders. While still in the early stages of research, this technology has the potential to revolutionize the field of ART by allowing parents to screen for and eliminate genetic diseases before implantation.

Back to the Future: Legal Concerns

With all the good news about ART, there are some serious issues, namely, the regulation of fertility clinics and other providers of fertility services. In many countries, including the United States, fertility clinics are subject to strict regulations that govern everything from the storage and use of genetic material to the types of services they can offer. These regulations are designed to protect patients and ensure that fertility treatments are safe and effective.

Another legal consideration is the use of donor material in assisted reproduction. When donor eggs or sperm are used to fertilize an egg, there may be legal issues related to parental rights and responsibilities. Additionally, there may be questions around the ethical implications of using donor material, particularly when it comes to issues related to identity and family relationships. Another recent development that has significant legal and ethical implications is the use of donor eggs and sperm, which can allow people who are unable to conceive naturally to have children. However, this technology also raises questions about the rights of donors and the potential for unintended consequences, such as the possibility of unwitting incest between donor-conceived siblings.

Another important aspect of infertility and the law is the legal rights and responsibilities of parents who conceive through these technologies. For example, in cases of surrogacy, legal agreements must be put in place to establish custody and visitation rights for the intended parents as well as the surrogate mother. Similarly, in cases of egg or sperm donation, legal agreements must be put in place to establish parental rights and responsibilities.

Other legal concerns related to infertility may include issues around adoption, paternity and genetic testing, and the use of reproductive materials after death. It is important for anyone dealing with infertility to consult with an experienced attorney who can help navigate the legal landscape and protect their legal rights and interests through the process.

It is also important to consider the role of insurance and other financial considerations in fertility care. In many cases, infertility treatments can be expensive, and insurance coverage may be limited or nonexistent. This can create significant barriers to access for individuals and families who need fertility care.

Overall, there are many legal and ethical considerations to think about when it comes to assisted reproductive technologies. As we continue to explore the potential benefits and drawbacks of these technologies, it is important to strike a careful balance between innovation and regulation and to prioritize the needs and interests of patients above all else.

Back to the Future: Ethical Concerns

There have been several recent technological advancements in fertility treatments that have significant implications for the legal and ethical considerations surrounding assisted reproductive technologies. Some people argue that these technologies blur the line between natural conception and artificial intervention and that they represent a potential threat to human dignity and autonomy. Others argue that these technologies have the potential to improve the lives of millions of people around the world who struggle with infertility and other reproductive issues.

One of the most important developments in this area is the use of in vitro fertilization (IVF) with pre-implantation genetic testing (PGT). This technology allows doctors to screen embryos for genetic abnormalities before they are implanted in the uterus, potentially reducing the risk of certain genetic disorders and increasing the chances of a successful pregnancy. However, PGT also raises serious ethical concerns, as it allows parents to select embryos based on their genetic characteristics, such as gender and physical characteristics, potentially leading to a future in which only certain traits are valued, and others are deemed undesirable or even unacceptable; which could lead to discrimination or perpetuate harmful societal norms.

To balance these competing concerns, it is important for society to engage in open and transparent discussion about the use of PGT and to ensure that regulations are in place to prevent abuse of this technology. This could include limiting the types of conditions that can be screened for, as well as creating oversight committees to review and approve PGT applications.

Additionally, it is important for individuals and families to have access to accurate and unbiased information about PGT, so they can make informed decisions about whether or not to use this technology in their own fertility treatment. By considering both the potential benefits and ethical concerns of PGT, we can work towards a more equitable and responsible approach to healthcare.

Finally, there has been growing interest in the use of artificial intelligence (AI) and machine learning to improve the accuracy of fertility diagnosis and prediction. While these technologies have the potential to revolutionize fertility care, they also raise concerns about data privacy and the potential for biased algorithms to perpetuate existing inequalities in healthcare.

Overall, the recent technological advancements in fertility treatments have significant legal and ethical implications, and it is crucial that we carefully consider these issues as we continue to develop and implement new and innovative technologies in this field.

Conclusion

Infertility and the law is a complex, multi-faceted issue that encompasses a range of legal and ethical considerations. Laws governing these practices vary state by state and country by country and may include regulations around consent, screening, and financial compensation.

ART has come a long way since its inception in the late 1970s, and its future is promising. However, as technology advances, legal and ethical challenges will continue to arise. It is crucial for lawmakers and healthcare providers to work together to create clear and comprehensive regulations that protect the rights of patients and any resulting offspring.