Gene Therapies – Bioethics Challenges and Solutions
Hosted by GE2P2 Global Foundation, The New York Academy of Sciences and Sangamo Therapeutics
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Selected Bibliography on Trials Transparency and Data Sharing

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Abstract
Context – The following bibliography was compiled as indicative of the current published literature on trials transparency and data sharing for gene therapies. The bibliography is intended to support participants in the NYAS Bioethics of Gene Therapies Workshop on 10 October 2019.
Assessment – There is a growing need for principled guidance to aid researchers in responsibly navigating ethical issues surrounding trials transparency and data sharing across all phases of the gene therapy development lifecycle. Understanding and reconciling key stakeholder views, including those of trial participants, patient communities, clinicians, researchers, and regulators, will be instrumental in informing an optimum framework for maximizing trial transparency and data sharing while mitigating associated risks.
Structure – This specific review surveys the current landscape of the debate to date surrounding these emerging challenges. The content herein is organized using subject categories to help readers navigate this evolving conceptual and ethical cartography.
Search Sources/Methodology – The selection of articles was conducted using PubMed and EBSCO Academic Search Premier databases between January 2016 and September 2019. The search terms were "gene therapy," "trials transparency," "data sharing," "disclosure," "germline editing," "right to know," and "genomic data sharing." The criteria of analysis were the category of articles and the presence of 7 items: 1) issues regarding genomic privacy; 2) advancing gene therapy research; 3) models of genomic data sharing; 4) transparency; 5) participant views; 6) modeling, managing and sharing trial risks; and 7) germline edited subjects' right to know.
Recommendation – Key pre-read articles include (1) the Report of the First Meeting of the World Health Organization Advisory Committee on Developing Global Standards for Governance and Oversight of Human Genome Editing (March 2019), and (2) the Hastings Center Report article entitled 'Heritable Genome Editing in a Global Context National and International Policy Challenges' (July 2019).

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6 September 2019

GENOMIC PRIVACY

Designing Ethical Trials of Germline Gene Editing

Bryan Cwik, Ph.D.

New England Journal of Medicine, November 2017; 377(20) pp 1911-1913

Key Excerpts:

"…There is little precedent in current clinical research ethics to guide us in the ethical conduct of intergenerational monitoring. The only analogue is the recent experience with mitochondrial replacement therapy, but even though the same problems exist in that field, they remain unresolved. Long-term follow-up of participants is standard in research on new assisted reproductive technologies, but that follow-up involves monitoring of children involved in the initial experiment, first with their parents' consent and then, when they are adults, with their own. Monitoring for effects of gene editing will require consent and participation from multiple generations of descendants of the original participants. Studies will therefore require researchers to have access to key medical data for entire families over several decades. In their report on mitochondrial replacement therapy, the Nuffield Council on Bioethics (United Kingdom) recommended the creation of a centralized register of trials "accessible to researchers for decades." Substantial safeguards would have to be in place to secure the privacy of these data. Furthermore, participation in intergenerational studies will have to be voluntary, and though it is certainly possible that some families will participate willingly and that many descendants will be socialized into participation, some will not. Various decisions will have to be made about what to do with information about descendants who do not wish to participate. For example, we will have to consider whether they should be traceable by researchers so that they can be notified about any serious health problems that manifest in subsequent generations. In order to contact them, researchers would have to possess identifiable genetic information of descendants for decades, regardless of whether they consent to monitoring or to having this information stored…"

A community effort to protect genomic data sharing, collaboration and outsourcing

Shuang Wang, Xiaoqian Jiang, Haixu Tang, Xiaofeng Wang, Diyue Bu, Knox Carey, Stephanie OM Dyke, Dov Fox, Chao Jiang, Kristin Lauter, Bradley Malin, Heidi Sofia, Amalio Telenti, Lei Wang, Wenhao Wang & Lucila Ohno-Machado

NPJ Genomic Medicine, October 2017; 21(1) p 33

Abstract

"The human genome can reveal sensitive information and is potentially re-identifiable, which raises privacy and security concerns about sharing such data on wide scales. In 2016, we organized the third Critical Assessment of Data Privacy and Protection competition as a community effort to bring together biomedical informaticists, computer privacy and security researchers, and scholars in ethical, legal, and social implications (ELSI) to assess the latest advances on privacy-preserving techniques for protecting human genomic data. Teams were asked to develop novel protection methods for emerging genome privacy challenges in three scenarios: Track (1) data sharing through the Beacon service of the Global Alliance for Genomics and Health. Track (2) collaborative discovery of similar genomes between two institutions; and Track (3) data outsourcing to public cloud services. The latter two tracks represent continuing themes from our 2015 competition, while the former was new and a response to a recently established vulnerability. The winning strategy for Track 1 mitigated the privacy risk by hiding approximately 11% of the variation in the database while permitting around 160,000 queries, a significant improvement over the baseline. The winning strategies in Tracks 2 and 3 showed significant progress over the previous competition by achieving multiple orders of magnitude performance improvement in terms of computational runtime and memory requirements. The outcomes suggest that applying highly optimized privacy-preserving and secure computation techniques to safeguard genomic data sharing and analysis is useful.

However, the results also indicate that further efforts are needed to refine these techniques into practical solutions."

ADVANCING RESEARCH

Data Sharing Statements for Clinical Trials: A Requirement of the International Committee of Medical Journal Editors

Darren B. Taichman, MD, PhD; Peush Sahni, MB, BS, MS, PhD; Anja Pinborg, MD, et al.

JAMA, **June 2017; 317(24) pp 2491-2492**

Key Excerpts

"The International Committee of Medical Journal Editors (ICMJE) believes there is an ethical obligation to responsibly share data generated by interventional clinical trials because trial participants have put themselves at risk. In January 2016 we published a proposal aimed at helping to create an environment in which the sharing of deidentified individual participant data becomes the norm. In response to our request for feedback we received many comments from individuals and groups.1 Some applauded the proposal while others expressed disappointment it did not more quickly create a commitment to data sharing. Many raised valid concerns regarding the feasibility of the proposed requirements, the necessary resources, the real or perceived risks to trial participants, and the need to protect the interests of patients and researchers. It is encouraging that data sharing is already occurring in some settings. Over the past year, however, we have learned that the challenges are substantial and the requisite mechanisms are not in place to mandate universal data sharing at this time. Although many issues must be addressed for data sharing to become the norm, we remain committed to this goal. Therefore, ICMJE will require the following as conditions of consideration for publication of a clinical trial report in our member journals: As of July 1, 2018, manuscripts submitted to ICMJE journals that report the results of clinical trials must contain a data sharing statement as described below. Clinical trials that begin enrolling participants on or after January 1, 2019, must include a data sharing plan in the trial's registration. The ICMJE's policy regarding trial registration is explained at http://www.icmje.org/recommendations/browse/publishing-and-editorial-issues/clinical-trial-registration.html. If the data sharing plan changes after registration this should be reflected in the statement submitted and published with the manuscript and updated in the registry record. Data sharing statements must indicate the following: whether individual deidentified participant data (including data dictionaries) will be shared; what data in particular will be shared; whether additional, related documents will be available (eg, study protocol, statistical analysis plan); when the data will become available and for how long; and by what access criteria data will be shared (including with whom, for what types of analyses, and by what mechanism)."

Laboratory and clinical genomic data sharing is crucial to improving genetic health care: a position statement of the American College of Medical Genetics and Genomics

ACMG Board of Directors

Genetics in Medicine, January 2017; 19(7) pp 721-725

Key Excerpts

"To ensure that our patients receive the most informed care possible, the American College of Medical Genetics and Genomics advocates for extensive sharing of laboratory and clinical data from individuals who have undergone genomic testing. Information that underpins health-care service delivery should be treated neither as intellectual property nor as a trade secret when other patients may benefit from the knowledge being widely available. It is similarly important for understanding the risks associated with genetic test results that place asymptomatic/presymptomatic individuals at high risk of developing a genetic disease. Sharing data in this precompetitive space will provide both a resource for clinical laboratories interpreting test results and clinical validity data that can benefit device manufacturers developing new tests and testing platforms. Contributing to public clinical databases in the precompetitive space recognizes that information about genetic diseases is dense and accumulating rapidly, and that information science is empowering the use of "big data." Further, the shift

to public databases being populated by de-identified case-level information from electronic health records will speed the time to "publication" of what are essentially case reports in real time. This process can also reduce the time period during which one might be able to protect trade secrets. Recognizing the importance of data sharing for both research and clinical care, the National Institutes of Health has established a genomic data-sharing policy for its funded investigators… Due to the vast amount of data now being generated by genomic testing, genetic diseases will offer the opportunity to develop the framework for a national learning health-care system because the shared experiences of those caring for these patients continually contribute to improvements in delivering services to this population. A learning health-care system that facilitates access to diagnostic, treatment, and outcomes data to inform the care of today's patients requires a paradigm shift in how we share data to be used in research and clinical practice. Academic medical centers have already begun to address how providers within their systems can use information about their patients to benefit other patients. This approach could be made national in scope to the benefit of patients everywhere. The National Institutes of Health has already made such data sharing a priority in the research that it funds. However, to accomplish these goals, and to ensure that the tremendous amounts of information now being generated are not wasted, our community must both demonstrate the will to share data broadly and develop the mechanisms to do so easily. These efforts will require support and participation from clinical laboratories, clinicians, regulatory agencies, researchers, and patients to ensure success in improving patient care through genomic medicine."

MODELS OF GENOMIC DATA SHARING

NIH Genomic Data Sharing Policy

August 27, 2014

"NIH Genomic Data Sharing Policy Genomic research advances our understanding of factors that influence health and disease, and sharing genomic data provides opportunities to accelerate that research through the power of combining large and information-rich datasets. To promote robust sharing of human and non-human data from a wide range of genomic research and to provide appropriate protections for research involving human data, the National Institutes of Health (NIH) issued the NIH Genomic Data Sharing Policy (GDS Policy) on August 27, 2014 in the NIH Guide Grants and Contracts (available at http://grants.nih.gov/grants/guide/notice-files/NOT-OD-14-124.html), and in the Federal Register (available at https://federalregister.gov/a/2014-20385) on August 28, 2014. The GDS Policy applies to all NIH-funded research that generates large-scale human or nonhuman genomic data as well as the use of these data for subsequent research. Large-scale data include genome-wide association studies (GWAS),8 single nucleotide polymorphisms (SNP) arrays, and genome sequence,1 transcriptomic, metagenomic, epigenomic, and gene expression data, irrespective of funding level and funding mechanism (e.g., grant, contract, cooperative agreement, or intramural support)."

Genomic Data-Sharing Practices

Angela G. Villanueva, Robert Cook-Deegan, Jill O. Robinson, Amy L. McGuire, Mary A. Majumder

Journal of Law, Medicine and Ethics, April 17, 2019; 47(1) pp 31-40

Abstract

"Making data broadly accessible is essential to creating a medical information commons (MIC). Transparency about data-sharing practices can cultivate trust among prospective and existing MIC participants. We present an analysis of 34 initiatives sharing DNA-derived data based on public information. We describe data-sharing practices captured, including practices related to consent, privacy and security, data access, oversight, and participant engagement. Our results reveal that data-sharing initiatives have some distance to go in achieving transparency. Making human data in research and clinical datasets broadly accessible is essential to advancing biomedical research, precision medicine, and public health. Research data are often shared in compliance with policies, such as those set forth by funding agencies (e.g., the National Institutes of Health (NIH) Genomic Data Sharing Policy) and by academic journals (e.g., in compliance with the International Committee of Medical Journals Editors). Advocates and supporters of open science are also encouraging sharing of datasets and other

valuable resources that enable data integration and analysis. Not only are data being shared, but institutional arrangements are being developed to support the distribution of data, creating a medical information commons (MIC). An MIC is a networked environment in which diverse health, medical, and genomic data on large populations become widely shared resources..”

TRANSPARENCY

Human Genome Editing: Science, Ethics, and Governance

National Academies of Sciences, Engineering, and Medicine, National Academy of Medicine, National Academy of Sciences, Committee on Human Gene Editing: Scientific, Medical, and Ethical Considerations, 2017

Excerpts from Chapter 5: Summary of Principles and Recommendations

“Genome editing offers great potential to advance both fundamental science and therapeutic applications. Basic laboratory research applying genome-editing methods to human cells, tissues, germline cells, and embryos holds promise for improving understanding of normal human biology, including furthering knowledge of human fertility, reproduction, and development, as well as providing deeper understanding of disease and establishing new approaches to treatment. Such research is proceeding rapidly within existing oversight systems. Genome editing is already entering clinical testing for somatic treatment of certain genetic diseases, subject to regulatory systems designed to oversee human somatic cell gene therapy research. Furthermore, recently developed methods offer the future possibility of editing germline cells to prevent heritable transmission of genetic disease, within the limits of domestic and transnational law. At the same time, genome-editing technologies challenge regulators and the public to evaluate existing governance systems to determine whether there are some genetic alterations that are insufficiently justified, too risky, or too socially disruptive to be pursued at this time. This chapter summarizes the conclusions of the committee relating the overarching principles and conclusions to recommendations for the conduct and oversight of this burgeoning area of research and application…. Transparency: The principle of transparency requires openness and sharing of information in ways that are accessible and understandable to stakeholders. Responsibilities that flow from adherence to this principle include (1) a commitment to disclosure of information to the fullest extent possible and in a timely manner, and (2) meaningful public input into the policy-making process related to human genome editing, as well as other novel and disruptive technologies…. The principle of *Transparency* supports sharing information to the fullest extent possible consistent with applicable law. Respect for diversity among nations in domestic policy on research using human embryos should not be an obstacle to *Transnational Cooperation*, including data sharing, collaboration by regulatory authorities, and, where possible, harmonization of standards. Clinical trials using heritable genome editing should be permitted only within a robust and effective regulatory framework that encompasses the absence of reasonable alternatives; restriction to preventing a serious disease or condition; restriction to editing genes that have been convincingly demonstrated to cause or to strongly predispose to that disease or condition; restriction to converting such genes to versions that are prevalent in the population and are known to be associated with ordinary health with little or no evidence of adverse effects; the availability of credible preclinical and/or clinical data on risks and potential health benefits of the procedures; ongoing, rigorous oversight during clinical trials of the effects of the procedure on the health and safety of the research participants; comprehensive plans for long-term, multigenerational followup that still respect personal autonomy; maximum transparency consistent with patient privacy; continued reassessment of both health and societal benefits and risks, with broad ongoing participation and input by the public; and reliable oversight mechanisms to prevent extension to uses other than preventing a serious disease or condition.”

CRISPR ethics: moral considerations for applications of a powerful tool

Carolyn Brokowski, Mazhar Adli

Journal of Molecular Biology, **January 2019 431(1) pp 99-101.**

“With the emergence of CRISPR technology, targeted editing of a wide variety of genomes is no longer an abstract hypothetical, but occurs regularly. As application areas of CRISPR are exceeding beyond research and

biomedical therapies, new and existing ethical concerns abound throughout the global community about the appropriate scope of the systems' use. Here we review fundamental ethical issues including the following: 1) the extent to which CRISPR use should be permitted; 2) access to CRISPR applications; 3) whether a regulatory framework(s) for clinical research involving human subjects might accommodate all types of human genome editing, including editing of the germline; and 4) whether international regulations governing inappropriate CRISPR utilization should be crafted and publicized. We conclude that moral decision making should evolve as the science of genomic engineering advances and hold that it would be reasonable for national and supranational legislatures to consider evidence-based regulation of certain CRISPR applications for the betterment of human health and progress."

Human Germline Genome Editing

Ormond KE, Mortlock DP, Scholes DT, et al.

The American Journal of Human Genetics, March 2017; 101(2) pp167-177

Abstract

"With CRISPR/Cas9 and other genome-editing technologies, successful somatic and germline genome editing are becoming feasible. To respond, an American Society of Human Genetics (ASHG) workgroup developed this position statement, which was approved by the ASHG Board in March 2017. The workgroup included representatives from the UK Association of Genetic Nurses and Counsellors, Canadian Association of Genetic Counsellors, International Genetic Epidemiology Society, and US National Society of Genetic Counselors. These groups, as well as the American Society for Reproductive Medicine, Asia Pacific Society of Human Genetics, British Society for Genetic Medicine, Human Genetics Society of Australasia, Professional Society of Genetic Counselors in Asia, and Southern African Society for Human Genetics, endorsed the final statement. The statement includes the following positions. (1) At this time, given the nature and number of unanswered scientific, ethical, and policy questions, it is inappropriate to perform germline gene editing that culminates in human pregnancy. (2) Currently, there is no reason to prohibit in vitro germline genome editing on human embryos and gametes, with appropriate oversight and consent from donors, to facilitate research on the possible future clinical applications of gene editing. There should be no prohibition on making public funds available to support this research. (3) Future clinical application of human germline genome editing should not proceed unless, at a minimum, there is (a) a compelling medical rationale, (b) an evidence base that supports its clinical use, (c) an ethical justification, and (d) a transparent public process to solicit and incorporate stakeholder input."

PARTICIPANT VIEWS

Ethical concerns on sharing genomic data including patients' family members

Takashima, Kyoko, Yuichi Maru, Seiichi Mori, Hiroyuki Mano, Tetsuo Noda, and Kaori Muto.

BMC Medical Ethics, June 2018; 19(1) pp 61-69

Abstract

"Background: Platforms for sharing genomic and phenotype data have been developed to promote genomic research, while maximizing the utility of existing datasets and minimizing the burden on participants. The value of genomic analysis of trios or family members has increased, especially in rare diseases and cancers. This article aims to argue the necessity of protection when sharing data from both patients and family members. Main text: Sharing patients' and family members' data collectively raises an ethical tension between the value of datasets and the rights of participants, and increases the risk of re-identification. However, current data-sharing policies have no specific safeguards or provisions for familial data sharing. A quantitative survey conducted on 10,881 general adults in Japan indicated that they expected stronger protection mechanisms when their family members' clinical and/or genomic data were shared together, as compared to when only their data were shared. A framework that respects decision-making and the right of withdrawal of participants, including family members, along with ensuring usefulness and security of data is needed. To enable this, we propose

recommendations on ancillary safeguards for familial data sharing according to the stakeholders, namely, initial researchers, genomic researchers, data submitters, database operators, institutional review boards, and the public and participants. Conclusions: Families have played significant roles in genetic research, and its value is re-illuminated in the era of genomic medicine. It is important to make progress in data sharing while simultaneously protecting the privacy and interests of patients and families, and return its benefits to them."

To share or not to share: a randomized trial of consent for data sharing in genome research

Amy L McGuire, Jill M Oliver, Melody J Slashinski, Jennifer L Graves, Tao Wang, P et al.

Genetics in Medicine, July 2011 13(11) pp 948-958

Abstract

Purpose: Despite growing concerns toward maintaining participants' privacy, individual investigators collecting tissue and other biological specimens for genomic analysis are encouraged to obtain informed consent for broad data sharing. Our purpose was to assess the effect on research enrollment and data sharing decisions of three different consent types (traditional, binary, or tiered) with varying levels of control and choices regarding data sharing. Methods: A single-blinded, randomized controlled trial was conducted with 323 eligible adult participants being recruited into one of six genome studies at Baylor College of Medicine in Houston, Texas, between January 2008 and August 2009. Participants were randomly assigned to one of three experimental consent documents (traditional, n = 110; binary, n = 103; and tiered, n = 110). Debriefing in follow-up visits provided participants a detailed review of all consent types and the chance to change data sharing choices or decline genome study participation. Results: Before debriefing, 83.9% of participants chose public data release. After debriefing, 53.1% chose public data release, 33.1% chose restricted (controlled access database) release, and 13.7% opted out of data sharing. Only one participant declined genome study participation due to data sharing concerns. Conclusion: Our findings indicate that most participants are willing to publicly release their genomic data; however, a significant portion prefers restricted release. These results suggest discordance between existing data sharing policies and participants' judgments and desires.

MODELING, MANAGING AND SHARING TRIAL RISKS

Advisory Committee on Developing Global Standards for Governance and Oversight of Human Genome Editing: Report of the First Meeting

World Health Organization Advisory Committee on Developing Global Standards for Governance and Oversight of Human Genome Editing, March 2019

At its first meeting, the Committee produced three recommendations. 1. Having agreed on the need to provide a more structured mechanism for collecting and curating details of planned and ongoing research relevant to its work, and anchoring this need in the principle of transparency, the Committee requested WHO to immediately start work to develop a registry. The Committee called on anyone, regardless of whether they are in government, academia, industry, or community labs undertaking research and development relevant to its mandate to register this to receive a registration number, once the registry becomes available. The Committee considered that any failure to register relevant research must be considered a fundamental violation of responsible research. The Committee called on those funding research to require registration in the database and that journals publish the results of research only with a registration number. The registry needs to include provisions to capture products and clinical applications in future. The Committee will establish a working group to develop the architecture of the registry, whose task will include agreeing the types of research that must be included in this registry and the metadata that should be submitted to describe the research in appropriate detail. 2. The Committee agreed with the views previously expressed that "it would be irresponsible at this time for anyone to proceed with clinical applications of human germline genome editing." Consistent with the principle of responsible stewardship of science and noting that relevant work might already be underway, the Committee requested and urged all those conducting, or aware of research and development relevant to its mandate, in particular genome editing of human germline cells and embryos, to engage with the Committee immediately.

Interactions with these researchers is critical for the Committee's evidence- gathering work in order better to understand the technical environment, as well as the governance arrangements currently in place. The Committee noted the importance of understanding what has not been published to date, including negative or inconclusive findings, as well as successful efforts. 3. Having agreed on the importance of inclusivity, the Committee stressed its desire for input from the broadest possible range of stakeholders and is exploring opportunities for an open, online mechanism for seeking input. The Committee requested the Director General to enhance WHO's capacity to share information with, and collect information from, both technical and lay audiences. Two strategies were identified: an enhanced website; and targeted outreach to regional and country offices. Specifically, the Committee requested the Director General to engage WHO's regional and country offices and urge them to canvass societal views on human genome editing and to act as a vehicle for engagement, in particular leveraging WHO's ability to operate in multiple languages. The Committee also highlighted the importance of language-independent resources, such as cartoons and memes. This process will enhance the inclusivity of the Committee's work. Future work of the Committee Noting that no single mechanism or actor could effectively address all the issues connected to human genome editing, the Committee concluded that a comprehensive governance framework is needed. This framework must: (i) Identify relevant issues, a range of specific mechanisms to address them, and be developed in collaboration with the widest possible range of stakeholders. (ii) Be scalable, sustainable and appropriate for use at the international, regional, national and local levels. (iii) Work in parts of the world where there is traditionally weaker regulation of scientific and clinical research and practice, and where genome editing may not yet be pursued with great intensity (iv) Provide all those responsible for the oversight of genome editing with the tools and guidance they need. The Committee charted its future work programme, including a series of in-person meetings over the next 12-18 months interspaced with online consultations to provide for a broad and inclusive debate. The Committee will continue to work on standards and practices for the responsible stewardship of science, as well as attributes of effective governance frameworks. The Committee will meet identified milestones and produce specific deliverables. At its next meeting proposed to take place during the week beginning 26 August 2019, the Committee will begin to flesh out elements of a governance framework, mapping specific elements and how they might operate at different levels. Future work of the committee will complement, and not replicate, other efforts to ensure appropriate governance of genome editing technologies.

Heritable Genome Editing in a Global Context National and International Policy Challenges

Achim Rosemann, Adam Balen , Brigitte Nerlich, Christine Hauskeller, Margaret Sleeboom-Faulkner, Sarah Hartley, Xinqing Zhang, Nick Lee

Hastings Center Report, May 2019; 49(3) pp 30-42

Key Excerpts

"Commentators agree that heritable human genome editing poses a global governance challenge. A central problem is that governance is likely to differ around the world. What are the possible implications for patients and providers, and what are the possible policy responses? The findings of a multistakeholder study in the United Kingdom demonstrate the need for early and broad public deliberation… the World Health Organization responded to the news of the genetically modified babies in China by setting up a new advisory committee to develop global standards for the governance and oversight of human genome editing, aiming to work toward a strong international governance framework. In a first step, this panel suggested the creation of a global registry of all human gene editing research, which would allow oversight and transparent access to the details of current and future studies by interested parties… Parents, [have] the desire to seek the best for their future children. So we understand why, if the treatment was not permissible in the U.K., parents may wish to go overseas. However, we felt strongly that any such treatment needs to be part of a continuum of appropriate preclinical and then clinical studies, transparent and open with proper ethical review and follow-up. And, of course, we were concerned about … a child being born [and coming] back to the U.K., needing to be looked after and followed-up by the NHS [National Health Service], and the potential implications [of this]…… Potential adverse effects or problems, such as increased miscarriage rates, are likely to be kept secret and not to be shared with the scientific

community. The criteria on which institutional or ethics review boards have based their assessments and approvals of reproductive applications are also likely to remain unclear… As a set of minimum criteria, participants suggested the following benchmarks: treatment protocols are transparent, independent ethical review occurs, approval comes from a national-level government agency, clinical applications are based on sufficient preclinical evidence on safety and efficacy, such applications follow from a convincing medical rationale that justifies the interventions, and clinical interventions are conducted in the context of an international dialogue and under systematic, independent peer review.

GERMLINE EDITED SUBJECTS' RIGHT TO KNOW

Mitochondrial Donations and the Right to Know and Trace One's Genetic Origins: an Ethical and Legal Challenge

Thana C de Campos, Caterina Milo

International Journal of Law, Policy and the Family, August 2018; 32(2) pp 170-183

Abstract

In 2015, the UK was the first country to legalize the mitochondrial donation and replacement procedure, which allows three-parent in vitro fertilization, and results in three-parent embryos. In March 2017, the UK Human Fertilisation and Embryology Authority issued its first licence for the mitochondrial donation and replacement procedure to the Newcastle Fertility Centre under the Human Fertilisation and Embryology (Mitochondrial Donation) Regulations 2015/572. This article focuses on one fundamental ethical and a legal challenge that this legislation overlooks: the right of the conceived children to know and trace their genetic origins. The article argues that this is a natural and basic human right, which is guaranteed by legal documents in the UK and internationally, and is also morally justified. The Human Fertilisation and Embryology (Mitochondrial Donation) Regulations 2015/572 discriminate against three-parent persons by negating their right to know and trace their genetic origins. The article concludes with a justification for the specific amendment of the regulations so as to remedy the said unjust discrimination and violation of the natural and basic right to know and trace one's genetic origins.

The right to know one's genetic origins and cross-border medically assisted reproduction

Vardit Ravitsky

Israel Journal of Health Policy Research, January 2017; 61(3) pp 3-12

Abstract

The use of donor sperm or egg for reproduction raises the issue of the right of donor-conceived individuals to know their genetic origins. This paper argues in favor of acknowledging such a right and explores the challenges that cross-border medically assisted reproduction would raise in relation to it. It first explores possible justifications for such a right by discerning its possible conceptual and empirical groundings. It describes some key ethical and policy implications of the removal of donor anonymity. It then argues that **novel technologies such as mitochondrial replacement and gene editing raise new concerns in this area and may expand the scope of such a right.** Finally, it argues that while many barriers to accessing information about genetic origins already exist at national levels, cross-border medically assisted reproduction may exacerbate a reality in which many individuals conceived through third-party participation are deprived of information that may be crucial to their future well-being for medical or psycho-social reasons.