REVIEW

FERTILITY & REPRODUCTION

OPEN ACCESS

Donor Conception in the Interests of the Well-Being of Donor-Conceived Persons, and Other Parties Connected through Donor Conception—A Review

Sonja Goedeke*

Auckland University of Technology, Auckland, New Zealand

ABSTRACT

Gamete donation is increasingly being used by individuals to build their families, but legislation, policies, and practices vary significantly across jurisdictions. Historically, donations were often anonymous—a practice that remains possible in some countries, including across the Asia–Pacific. However, the significant advances in science that have allowed families to be created using donated gametes have also advanced the growing availability of direct-to-consumer DNA testing. This, coupled with a growing recognition of the rights and needs of donor-conceived persons (DCP), has driven a shift toward greater openness, particularly in Western countries. Individuals considering donor conception (DC) or becoming donors need to be aware of the psychosocial implications for themselves, their families, and, most importantly, the donor-conceived individuals. This review highlights key considerations, including disclosure of DC, access to identifying information about donors and siblings, opportunities for contact, altruistic donation, and adequate support systems. It also explores factors that can influence these provisions, such as cross-border reproductive care, informal or out-of-clinic donations, and large or unspecified donor limits. While not exhaustive, this review provides an overview of critical issues in the field. It is important to note that much of the existing research reflects a Western perspective, underscoring the need for further studies, particularly in the Asia–Pacific region.

Keywords: Donor Conception; Disclosure; Siblings; Medical Tourism.

INTRODUCTION: THE CHANGING CONTEXT OF DONOR CONCEPTION

Third-party reproduction refers to the use of reproductive assistance from someone other than the intended parent(s) in order to conceive. It may involve the use of donated gametes (egg/sperm), embryos, and/or the use of a surrogate. In sperm donation, sperm is provided by a third party (assigned male at birth), usually through a fertility clinic or sperm bank, and used either in artificial insemination or in vitro fertilization (IVF). Home insemination is also possible. Sperm donation has a long history of informal practice but has since become a routine service offered by fertility clinics in many countries. Initially used primarily by heterosexual couples dealing with male infertility, it is now increasingly sought by single mothers by choice and same-sex lesbian couples building their families.

Egg donation involves hormonal stimulation of a third party (assigned female at birth) followed by the retrieval of eggs/oocytes, fertilization in a lab through IVF, and embryo transfer to the intended mother (or in some cases, surrogate). Just over 5 years after the advent of IVF, the first births from egg donation were reported in Australia and the United States.[1,2] Since then, egg donation has become standard practice as a treatment option in many parts of the world for women with ovarian conditions, early menopause, advanced reproductive age, or unsuccessful IVF treatment.

Embryo donation, which involves donating "surplus" embryos from IVF treatment to another individual or couple, or the donation of embryos formed through separately donated eggs and sperm (double donation), is a more recent option in some countries. While embryo donations have reportedly increased in several jurisdictions, it remains a less popular option than either egg or sperm donation.[3]

Traditional surrogacy involves the use of the surrogate's eggs. However, in gestational surrogacy, a surrogate carries a pregnancy for the intended parent/s but has no genetic connection to the child since the embryo is created using either the intended parents' gametes or donor gametes. This review focuses specifically on considerations related to the use of donor gametes and embryos.

Different jurisdictions vary widely in terms of access to and regulation of donor treatment. For example, in their 2022 report of 64 countries, the IFFS reported that while donation was possible in most of the countries surveyed, some countries, such as Germany, offered sperm donation only. Embryo donation is not allowed in 14 European countries including Austria, Denmark, Iceland, Italy, Norway, Slovenia, Sweden, and Switzerland,[4] and remains illegal in

Received 21 November 2024; Accepted 8 March 2025; Published 14 April 2025

*Correspondence should be addressed to: Sonja Goedeke, Associate Professor, Department of Psychology and Neuroscience, Auckland University of Technology, 90 Akoranga Drive, Northcote, Auckland 0931, New Zealand. E-mail: sonja.goedeke@aut.ac.nz

many Sunni Muslim countries, including in officially secular Turkey.[5] Further, in some countries, such as the United States, donations may be performed but are largely unregulated by federal and state law.[3] Japan similarly has no laws regarding third-party assisted reproductive technologies.[6] In others, legislative provisions and/or policy frameworks have been set up, for example, various state laws across Australia, Ministry of Health regulations in China, the Human Fertilization and Embryology Authority (HFEA) in the UK, and the HART Act 2004 in New Zealand. In addition, some countries restrict access to donor conception (DC) to certain sectors of the population. For example, DC is not available to same-sex couples in Japan, China, and Hong Kong and in several European countries (including the Czech Republic),[6,7] and not available to single women in Singapore, China, and 9 out of 39 European countries surveyed.[4]

While historically donation across the world was largely practiced anonymously, with prospective parents encouraged to forget about the nature of the conception and not disclose the DC to their children or others,[8] there has been increasing recognition of the rights of donor-conceived persons (DCP) to access their genetic knowledge. There is thus a trend, particularly in Western countries, toward disclosure of DC and the release of donor-identifying information to DCP, usually upon reaching legal age (often 18 years).[9] Recording and registration of identifying donor, information has been introduced in countries such as Sweden (1984), Austria (1992), Victoria, Australia (1998), Switzerland (2001), the Netherlands (2004), Western Australia (2004), New Zealand (2004), Norway (2005), the UK (2005), Finland (2007), New South Wales Australia (2008), Germany (2018), Portugal (2018), Ireland (2020), France (2022), and Queensland, Australia (2024).[10] This makes it possible for DCPs to access information about their genetic background, assuming that they are aware that they are donor-conceived. Nonetheless, anonymous donation remains possible or required in many countries, including most of the USA, Singapore, Spain, the Czech Republic, Italy, Belgium, Japan, South Africa, and China.[11–13] Further, in some countries, cultural beliefs around genetic ties, for example, the link between patrilineal ties and Confucian filial duty in China, make the use of donor gametes difficult to accept, leading to secrecy.[13]

Even in anonymous donation jurisdictions, however, with the growing access to direct-to-consumer DNA testing and the use of social media, people connected through DC are far more readily able to become aware of genetic relatedness and identify and sometimes contact each other,[14] and potentially at earlier ages than allowed for in many legislated contexts.[15] Anonymity is thus effectively no longer possible. These developments position donation less as a one-off transaction with the end point a successful pregnancy but as a practice with wider-reaching long-term implications not only for the DCP, but also for their parents and family, the donor and family, and same-donor siblings (children born from the same donor).

Other than anonymous and identity-release donations, DC may also occur by donors known to prospective parents, for example, family members and friends. Increasingly, donation is also occurring outside of fertility clinic parameters through the online recruitment of donors via forums or websites specifically set up to aid in the matching of donors and parents.[16] Donations through home insemination, occurring outside of the parameters of formal medical care, also seem to be on the increase, especially among same-sex lesbian couples and single women, although the numbers are impossible to ascertain.

Nonetheless, several countries report a shortage of donors available locally and long waiting lists to access donor gametes, prompting prospective parents to travel to jurisdictions that have a more ready supply.[17] Internationally, intermediary commercial egg and sperm banks have become increasingly prolific and become a means for those seeking to build families to access and select donors, including through the import of gametes across borders.

While DC offers a way in which to build families for those not able to do so due to medical or social reasons, those considering using DC to build their families or contemplating becoming donors need to be aware of the potential psychosocial implications and challenges for themselves and their families, and most importantly, for the people born from DC. DCP support and advocacy groups have been set up in many countries, including Japan, the United States, the Netherlands, Belgium, Australia, and New Zealand, and have been instrumental in highlighting the needs and rights of DCP. Although there are reportedly some DCPs who believe that gamete donation is morally wrong and should be prohibited,[18] other DCPs and professional organizations supporting DCPs believe that their concerns may possibly be addressed through DC practices which include:

- Disclosure of DC to donor-conceived children/DCP, with early disclosure considered best.
- DCP access to identifying information about donors and siblings.
- DCP ability to contact donors and siblings.
- Altruistic donation.
- Adequate support provisions.[19,20]

Each of these areas will be addressed in the following, alongside relevant factors that may impact such provisions/practices, including cross-border reproductive care (CBRC) and the import of donor gametes, informal/out-of-clinic donation, and large or unspecified donor limits, that is, the number of individuals born, or families built per donor. Note that this review is not intended to be exhaustive but to provide an overview of key issues in the field. It is also important to point out that much of the research in the field comes from a Western perspective, and that further research is needed across the Asia–Pacific region.

DISCLOSURE OF DONOR CONCEPTION

Historically, secrecy around DC and donor anonymity has been framed as being in the best interests of DCPs and their parents. This approach was intended to prevent donors from "disrupting" the lives of recipients or DCP,[21] allowing families to appear "normal," safeguarding parent–child relationships, and reducing external pressures such as social stigma in response to DC.[22,23] At the same time, donor anonymity has been portrayed as advantageous for donors, respecting their privacy and shielding them from potential emotional, financial, or legal obligations toward DCP. It also aimed to mitigate potential impacts on donors' families and protect them from possible psychological harm.[21,24]

Research on the well-being of DCPs in the last two decades, however, has highlighted the potential importance of disclosing to DCPs the means of their conception.[25,26] In families where DC has not been disclosed, for example, DCP may often sense that secrets are being kept, negatively affecting parent–child relationships and family dynamics.[25,27–29] Nondisclosing parents may experience significant pressure in maintaining a secret, particularly where they have disclosed to others and there is a risk of unintentional disclosure, which could further compromise family relationships.[30] Indeed, where DCPs have inadvertently found out about their DC, negative experiences are consistently reported.[28] DCPs are often reported to be more upset about their DC being kept a secret than about the fact that they have been conceived in this way.[27] The increased use

of direct-to-consumer DNA testing inevitably increases the risk that DCPs not told by their parents will find out about their origins,[31] while at the same time potentially underscoring the importance of genetic connections in conferring kinship.[14,15] Anonymity can thus no longer be guaranteed, and nondisclosure is increasingly impossible to sustain.[15]

Several studies further suggest that the timing of disclosure is also instrumental in influencing outcomes, with later disclosure linked to negative outcomes, including lower levels of well-being and more adverse familial relationships.[29,32,33] In contrast, early disclosure has been linked to an ability to incorporate the knowledge of DC more readily into identity, particularly where parents are comfortable with and positive about the DC.[29,33–35] It is thus recommended that DCPs are raised with the knowledge of DC, with this "always" being known as part of their family story rather than being a "big reveal."[36] Furthermore, research suggests that disclosure be regarded as a process, with conversations around DC evolving over time alongside DCP's developing cognitive and emotional maturity. Conversations should be revisited on an ongoing basis to normalize and reduce the stigma of this form of family building and help build an understanding of DC and its implications over time.[27,28,34]

A recent systematic review[9] notes a general trend toward disclosure among parents in published studies with most disclosing to their children before the age of 10 years. Further, the majority of those who had not yet told were reported to be planning to disclose, although delayed decisions were also associated with lower disclosure overall. Several factors linked to the willingness of parents to be open were identified. These included demographic factors such as family form, with heterosexual families less likely to disclose than single mother and lesbian couple families (where the absence of a male parent may need to be explained). Parental values, such as parents' belief in the child's right and need to know, a desire to be open and honest, an awareness of the negative impact of family secrets, and the fear of inadvertent disclosure were the prime drivers for disclosure. The main drivers for nondisclosure related to a belief that this was not necessary, the desire to be a "normal" family, a lack of donor-identifying information to share, concerns about parent-child, child, and family relationships, and uncertainty of how to disclose.[9] Further, parents' comfort level with DC and confidence in disclosing were typically associated with disclosure, whereas unresolved grief or shame was associated with non or delayed disclosure.[9]

Interpersonal factors related to disclosure included couple dynamics, with disagreement over disclosure contributing to uncertainty about disclosure and disclosure delay, and a desire to protect the nongenetic parent related to indecision and nondisclosure.[9] While most parents in the included studies had disclosed by age 10 using a seed planting strategy and disclosure starting from birth, a few studies identified that parents wanted to wait until the "right time" when they perceived their children to be sufficiently emotionally and cognitively mature. Delayed disclosure has been reported to be problematic however, with research suggesting that delayed decisions may result in further delay or nondisclosure.[9]

Support from family and friends was also instrumental, with disclosure to family and friends reported to help normalize DC and facilitate disclosure to children. For a smaller number of parents, particularly in conservative cultural environments, disclosure could, however, negatively impact crucial relationships, leading to restricted or selective disclosure.[37–40] Relatedly, the wider social, cultural, and legal context could also influence disclosure decisions, with cultural values around genetic connections in kinship, attitudes toward new and alternative family forms, religious beliefs about IVF and use of donor gametes, and legal provisions requiring identity-release donation, all playing a role.[9] For instance,[41] studies on donor–recipient Chinese women revealed a pattern of information concealment. This was influenced by the conservative attitudes of older generations and the traditional Chinese emphasis on genetic connections, which underpinned decisions to withhold disclosure. Such nondisclosure was seen as a way to protect against stigma, preserve the parent–child relationship, and maintain family stability. Similarly,[5] research on Sunni Muslim women highlighted nondisclosure driven by both religious and cultural factors. Participants noted that disclosing DC could have severe repercussions, as Islamic law prohibits DC, equating it to adultery.

ACCESS TO IDENTIFYING INFORMATION

Proponents of disclosure have argued that it is not just the DC itself that needs to be disclosed, but that DCPs are interested in and need access to their genetic information, that is, the identifying information of the donor, and that this is critical for healthy identity development and psychosocial adjustment.[36,42,43] Indeed, Indekeu et al.'s systematic review reported that across the studies included in their review, DCPs expressed interest in the donor and/or same-donor families, as evidenced by the amount of information wanted by DCPs, and their active search for those to whom they were related through DC. DCP wanted to understand where their traits came from and if they shared similarities with the donor, what the donor was like as a person, the donors' motivation, and information about their ancestral and medical history. DCP also wanted information about their siblings. For some, this was related to a desire to access further medical and identity-relevant information or to prevent unknown consanguinity; for others, the information was also sought with the view to forming new relationships.[10] Where identifying information has been impossible to obtain, this has been reported to lead to perceptions of unfair loss and negative experiences.[42]

Although the trend in Western countries in recent years has been toward identity-release donation, where donors' recorded identifying information is made available to DCPs usually upon adulthood (often 18 years), the right of DCPs to access their donors' identifying information remains a contentious issue.[10,18] Proponents of nondisclosure argue that there is a lack of empirical evidence showing any difference in the psychological well-being of DCP between those who do or do not, have this information.[44] On the other hand, this is contested, particularly given that much of the research on DCP and family well-being centers on DCP as children when these issues may not yet be as salient.[45] Opponents of information release have also expressed concern about the impact on donors of revealing their identity, however, research suggests that many donors may support DCP's rights to access information,[46–48] be curious about, and have an interest in information about donor offspring, including in consideration of the needs and interests of their own, raised children.[49] Further, some donors have been reported to be interested not only in information about but in contact with DCP.[47]

Similarly, parents too may have an interest in accessing information about or having contact with donors, including having an opportunity to find out relevant medical or psychosocial information, to thank the donor, or as a preemptive tendency to set the scene for their DCP to access information about the donor and/or their siblings.[10] Parents' interest in same-donor families may be related to a belief that this information can help their children attain a better sense of who they are, prevent consanguinity, gain support for shared psychological or developmental challenges, or even create an extended family through providing the child with a sibling or future support system.[10] It appears that particularly, heterosexual parents' interest in and search for donors may be more related to the

donor as a source of information than someone with whom they or their children would necessarily form a relationship. Interest in and searching for same-donor siblings and families, on the other hand, may more often be related to a desire to build an extended family, as discussed further later in this article.[10]

Jurisdictions in which identity release is practiced typically maintain donor registers (e.g., the HFEA in the UK, Births Deaths and Marriages in NZ, the Stichting Donorgegevens Kunstmatige Bevruchting in the Netherlands, and up until recently VARTA in Victoria Australia) in which identifying information about the donors and DCP born are recorded. DCP (and in some cases donors, siblings, and parents) can then apply for this information at different times depending on the legal age limits specified by the jurisdiction or the criterion of "maturity."[42] Recent studies, however, have suggested limited rationale for current legal age limits.[42] Bolt et al.[42] suggest that donor information can be important for identity development and that many DCPs desire information in childhood and adolescence before this becomes legally accessible. They argue that age limits that allow release during the teenage years can make a potentially difficult developmental stage more challenging. Age limit restrictions also do not account for the fact that more than one child may be born from DC in a family, and often from the same donor, resulting in DCP potentially accessing information at different ages. Parents too are reported to express concern at their inability to answer some of their children's questions at younger ages.[42]

Finally, jurisdictions that have enacted legal provisions to record donor-identifying information have usually not introduced mechanisms to compel parents to disclose that DCPs are donor-conceived, and/or that their donors are identifiable. The disclosure decision still rests with parents, who, despite the possibility of DNA testing revealing their children's genetic information, may nonetheless choose not to do so. This has led to calls to ensure that this information is recorded and readily available to DCP, for example, through birth certificate annotation (as will be possible in Victoria, Australia, where from 2028, Births, Deaths, and Marriages will provide additional material to DCP known as an addendum, noting that further information is available about their birth, thereby alerting DCP)[50] and in recently passed law in South Australia which may involve changes to birth certificates stating the DCP is donor-conceived.[51]

In other countries, access to identifying information may be sought at the clinics facilitating the donor treatment or through sperm or egg banks, although difficulty in accessing information has been reported.[27,52] In the case of online recruitment or known donation, this information is typically held by the parents, although access to up-to-date information, particularly where contact is lost, may also be a challenge as the information is not formally recorded. DCP born under anonymous provisions, those who wish to access information without disclosing this to their parents, or those who have had negative experiences with formal linking methods or want confirmation of information, may also make use of DNA testing/linking websites and DC voluntary online registries/networks.[15,53,54]

ABILITY TO HAVE CONTACT

Motivations for contact

In addition to wanting to identify information about the donor, DCP may also be interested in contact. This is partly for similar reasons to those expressed above such as curiosity, the expansion of personal identity, and access to the medical history of their donor.[10,55,56] Interestingly, motivations for contact by adult DCP are often reported during or following critical life transitions (such as marriage or having a child), supporting the concept that identity formation is a motivating factor.[28,57] Some DCPs, however, may also be interested in contact because they would like to establish relationships with donors and/or genetically related siblings and families. Indeed, at the United Nations Conference on the 30th Anniversary on the Rights of the Child, DCP asserted their rights to preserve relations with biological, social, and gestational families, regardless of when or where they were conceived or born, and specified that those relations should be able to be maintained if mutually agreeable.[58] In some cases, however, DCPs' desire for contact with donors may be suppressed due to feelings of loyalty to their parents and fears of causing them distress.[27,57]

As noted earlier, while research suggests that parents seek connections with donors primarily as sources of information, others may also seek to build a connection with their donors to be more prepared for or confident about future contact between their children and donor, or to develop a connection early on so that the DCP never have to have the experience of not having known the donor.[10,59–61] While heterosexual parents may be interested in contact particularly to establish future relationality for their DCP, same-sex and single parents, who more typically need to account for the absence of an opposite-sex parent, may seek early connections to cultivate extended family.[10,62] Of interest here, however, is that same-sex and single parents appear to prioritize contact with siblings and same-donor families over donor connections. While single and same-sex mothers may value contact with the donor to affirm the child's genetic heritage, some also report feeling uneasy about the potential donor's parental rights and/or about the donor influencing their parental autonomy.[63]

On the other hand, connections with their children's donor siblings (and their families) are seen as not only helping their children better understand and explain their identity and provide a more secure sense of self but sometimes also as a means to offer their child a sibling or extended family. Furthermore, same-sex and single parents in particular may be driven to create a support system for themselves and their children through shared experiences to mitigate feelings of isolation.[10,62] Parents also describe the contact as providing opportunities to compare milestones, health information, and other traits, obtaining support for parenting.[64]

Donors too may be motivated to seek contact with their offspring, including because they believe that this may be helpful to DCP, to satisfy their own curiosity, and/or out of interest and sense of responsibility for the welfare of genetic offspring and that of their raised children and families.[10,21,65] Interestingly, egg donors have also been reported to desire contact not just for the benefit of the children, but because they see their donations as a personal act of gift giving, and they are interested in the recipients and how they are doing.[66]

Contact experiences

Research on the actual contact experiences among the parties involved in the DC process, while on the increase, remains relatively sparse, and frequently focuses on the contact experiences of adult DCP. Available studies suggest that the outcomes of such contacts are generally positive, with many individuals reporting feelings of satisfaction and fulfilment[55] after potential anxiety and awkwardness in early outreach.[67] For example, reports from DCPs who have successfully located and contacted their donors often described the experience as enriching and essential for their sense of identity and personal history.[54,55] This positive contact experience is particularly pronounced when the donors are receptive and supportive, while mixed or negative experiences, such as feelings of rejection and disappointment, have been reported primarily when expectations are unmet, DCP holds romanticized views of the donor, or when the donor is unwilling or unable to engage.[33,54] Close, family like

relationships are more frequently reported when contact occurs between DCP/parent and donor in childhood or early adolescence, with earlier age at connection related to easier facilitation of roles.[68,69]

Research on contact between same-donor siblings or half-siblings similarly suggests generally positive experiences, allowing for interpersonal connectedness, a sense of belonging by gaining information about origins and new family members, and a support system validating experiences and helping to diminish the sense of isolation that can come from being within a minority group of "donor-assisted" family.[70–72] Several studies report that same-donor siblings place value on their biological connectedness, referring to each other as brothers and sisters particularly if they had no siblings in their raised family or had poorer relationships with their siblings.[72] Contact among same-donor siblings may be less challenging than DCP: donor contact, where there may be much greater expectations of positive outcomes[72] or uncertainty about defining the nature of the relationship. Some DCPs may, of course, already have been in contact with same-donor siblings since childhood where this was initiated by their parents, while adult DCPs may express regret at the lost time and opportunity to develop sibling relationships.[73]

It should be noted that when DCP find multiple half-siblings, however, especially within a short amount of time, this can cause feelings of being overwhelmed or guilt at not being able to establish a connection with everyone. In Indekeu et al.'s[71] study of linking databases in the Netherlands, for example, some networks resulted in 40 donor siblings in one group, and higher numbers are also reported. For larger sibling networks such as these, contact is often reported as more sporadic, while more frequent and close contact is reported in some studies among smaller groups of siblings.[74]

Contact experiences from the donors' perspective when meeting DCP have also been reported as positive. However, unlike DCP, donors are not generally reported to initiate contact but to wait for DCP to reach out, making themselves available for when DCP wished to establish contact.[21] Some relationships evolved to include both the donors' and DCP's families, although this was affected by each party's familial context and past experiences.[21]

Research on contact experiences between donors and parents has been reported to be more complex, with several influential factors for both parties, such as the perceived threat of contact to the parental role, potential uncertainty of both parties' expectations from contact, and the negotiation of boundaries.[21,47,75] In general, research suggests that donors are clear that they are not the parents of DCPs and tend to designate "relational authority" to the DCPs and parents.[47,65] Positioning donors as extended family appears to allow donors to maintain an interest in DCP's lives without assuming any rights or responsibilities.[47,76]

ALTRUISTIC DONATION

Commercial donation, or payment constituting financial reward for donating eggs and sperm, is possible in several jurisdictions, such as the USA.[77] Supporters of this practice argue that compensation can help increase donor supply and recognize the time, inconvenience, and—in the case of egg donation—the potential risks and invasiveness of the procedure.[77,78] However, opponents express concerns about the potential exploitation of donors and issues with informed consent.[79,80] They also worry that compensation might attract donors who may misrepresent psychological or medical information to qualify for donation programs,[80,81] lead to the commodification of human body parts,[80,82] raise concerns about eugenics, and complicate how offspring understand the concept of payment.[82,83] Additionally, critics argue that payment may undermine the altruistic aspect of donation and depersonalize the donor's role, which could potentially reduce donors' interest in the outcomes of their donation.[34,80,84]

Indeed, recent research has particularly highlighted concerns by stakeholders around the type of donor that might be recruited through commercial donation. Donors motivated by financial reward are portrayed as having less than desirable qualities, including concealing information that may impact outcomes for DCPs, and being less interested in the longer-term implications for DCP. In contrast, altruistic donors are positioned as "good" people and ones who will make themselves available to DCP in the future.[81] However, research also suggests that financial and altruistic donations are not diametrically opposed in that many donors report financial motives *and* a simultaneous desire to help others.[79,84,85] Introducing money may not automatically change the altruistic nature of the donation.[83] Furthermore, most countries have screening protocols for donors (although, of course, donors' willingness to be available in the future cannot be guaranteed, even where identity-release provisions exist). The interest in the donor as a person may be especially relevant in the context of the heightened likelihood of contact between DCP and their donors, either through identity-release provisions or as a result of direct-to-consumer DNA testing—thus there may be a particular interest in trying to ensure that donors are the "right type" and "good" people with whom contact will be more likely to proceed favorably. It is also important to note, however, that even altruistic donors may have motives other than helping people create families, as evidenced by recent prolific donors in several countries, such as Australia[86] and the Netherlands (where the story of Jonathan Meijer has been featured in the Netflix documentary, The Man with a 1000 Kids).

Nonetheless, altruistic donation in DC may still be regarded as preferable and DCP advocacy groups, such as Donor Conceived Australia, for example, have called for a prohibition on all forms of commercialization of eggs, sperm, and embryos.[58] Payment constituting material advantage is prohibited by law in several European countries,[78,84] in the UK, Australia, New Zealand, China, and Singapore.[81,87,88] In most jurisdictions, however, donors can be reimbursed for reasonable expenses, including medical costs and costs related to travel. The HFEA in the UK, for example, recently changed their compensation guidelines to cap compensation for egg donors at £985 per donation "cycle." Donors may claim more if expenses for travel, accommodation, and childcare costs are higher.[89] In New Zealand, clinics tend to pay egg donors a one-off reimbursement fee of around NZD2,000, which on average covers most of the costs associated with donating.[90] Note, however, that the distinction between payment constituting financial reward, and payment in the form of reimbursement of expenses, may, of course, be somewhat blurred. The recently released European Society of Human Reproduction and Embryology (EHSRE) guidelines support the concept of "financial neutrality" and compensating donors for loss of income, actual expenses, and time invested—they suggest that compensation should be based on a transparent indicator, such as the GDP per capita of a country.[91] Other methods of donor recruitment, such as education and health promotion campaigns that bring the need for donors to public attention, as well as draw on personal stories of those requiring donors to build their families, may be ways in which to address donor shortages.[81]

PROVISION OF ADEQUATE SUPPORT

Counseling prior to donor conception

Counseling is frequently recommended for third-party reproduction, both for those contemplating using donors to build their families and for donors themselves, and is required in many countries, for example, Australia, New Zealand, the UK, and Singapore. Indeed, in Australia and New Zealand, the professional fertility counseling body, the Australian and New Zealand Infertility Counsellors Association (ANZICA), specify mandatory counseling *prior* to

embarking with DC.[92] Both donors and recipients (and their partners where applicable) are each required to have implications counseling which explores motivations for donation, feelings about nongenetic parenting, and the short- and longer-term implications of donation for all concerned—but especially for the DCP, needs and expectations around information sharing and contact, disclosure to the DCP and others, and legal information as to relevant legislation and guidelines. In the case of recipient-recruited donation, that is, where the donor is known to the recipient prior to the donation, particular emphasis is given on ensuring that both parties have similar ideas/preferences as to how the arrangement should be undertaken, both in the short- and longer-term,[92] although this may not be legally enforceable. Further, in New Zealand and Australia, donors and recipients known to each other, as well as those undertaking embryo donation, are required to have joint counseling to clarify the needs and expectations of each party.

The International Infertility Counseling Organization (IICO), which serves as an umbrella organization for national bodies providing infertility counseling, similarly underscores the need for psychosocial counseling and professional support.[93] They point out that DC has lifespan social, emotional, and relational, as well as health implications for all affected, including DCP and their current and future families, and donors and their current and future families. IICO emphasizes that the changing profile of those seeking donor treatment to include more single people and same-sex couples, the increase in cross-border care, and the impact of commercial DNA testing have all increased the complexity of DC, often in the context of inadequate legislative, policy, and counseling provisions.[93] As such, they recommend that a minimum of two free psychosocial counseling sessions from a qualified counselor, specifically trained in providing counseling services, is offered to intended parents or those contemplating donating gametes. Note that counseling for donation may include not just implications counseling or psychoeducation, but may also have elements of crisis counseling, supportive counseling, and therapeutic counseling (e.g., for grief and loss issues or adjustment to parenthood). Both IICO and ANZICA thus stress the need for qualified psychosocial professionals in what is a specialist area of practice.[92,93]

Counseling subsequent to donation

Providers and legislators also have a duty of care to ensure that counseling is accessible to all parties affected by donation not just prior to, but also *subsequent* to donation. For example, counseling may be useful to parents to facilitate parents' disclosure to their children and to others, helping them to decide when and how to disclose and to manage any of the implications for themselves, their children, and their families.[9,94] Furthermore, specialist counseling support is particularly important for DC linking, helping the various parties involved in DC—including DCP, donors, siblings, parents, and any others either gestationally or genetically connected to each other, to search for and connect with each other in a safe way.[93,95] Counseling teams may have to manage different expectations of levels of contact desired and outcomes of contact for the different parties. In some jurisdictions, specialist donor-linking services have been set up, some of which provide search and contact work, and some of which have professionally trained counselors to help those connecting manage the implications of the contact process. The Victorian Assisted Reproductive Treatment Authority (VARTA) in Melbourne, Australia, was one such service and both oversaw the donor register, as well as facilitated the exchange of information, correspondence, and contact among the different parties. This role has been transferred to the Ministry of Health, however, and the counseling support has unfortunately been withdrawn.[96] Similarly, in the UK, the HFEA has up until recently provided some intermediary support for individuals wishing to connect with each other. As of September 2024, funding for the support service has been discontinued and the HFEA now operates as an information source only.[96]

There are other state-funded services offering some degree of support for those wishing to link. UK DonorLink (which became Donor-Conceived Register [DCR] in 2013); the Dutch Fiom KID-DNA database established in 2010; and the recently set up Belgian Vlaams Afstammungscentrum in 2021.[97] These services are facing similar challenges, such as financial constraints limiting the number of staff and ability to provide ongoing support.[97] Given the increase in DC and the DC linking, these developments are of concern.

CHALLENGES IN DONOR CONCEPTION

Donor limits

Concerns around the number of offspring or families born from a donor are particularly salient in relation to anonymous donation, or where access to identifying information about the donor may be difficult to obtain. In these cases, with potentially large numbers of siblings, the risk of inadvertent incest and potential genetic malformations that may result from unknown consanguinity are increased. However, concerns also relate to the significant emotional distress that DCPs, donors, and parents may experience when they become aware of the fact that there are numerous people with whom DCP share genes, for example, donor siblings or half-siblings.

Even in jurisdictions where identifying information is recorded, there are no formal international limits on the number of times a donor can donate, and where local limits exist, intending parents may not be aware that there are no foolproof ways in which donations across clinics, outside of clinic parameters, and across countries can be monitored. Many international sperm banks have more recently asserted that they manage the number of offspring or families to whom a particular donor can donate—for example, Seattle Sperm Bank has a limit of 75 families per donor worldwide, but again, sperm and egg banks do not have any means to control whether donors on their books are donating to other banks, clinics, or privately. This raises the possibility of very large numbers of siblings. Intending parents using anonymous donors may reduce the risk of consanguinity by sourcing donors from abroad through commercial banks or in another part of their country.[98] However, with the rise in contact possibility between those connected through DC, either through donor registers or direct-to-consumer DNA testing, there is a much greater likelihood of individuals connecting with each other. Legislation, and expert fertility and family law advice in the area, appear to be lacking.

Research suggests that having a large number of siblings may be experienced as overwhelming and exhausting for DCP,[67,99] especially where they try to maintain contact. Furthermore, parents and DCP have expressed concern as to the willingness of donors to engage with potentially large numbers of offspring, and indeed, donors may also want limits to be enforced so that they do not have to feel a sense of obligation to be in contact with large numbers of offspring.[100]

At the United Nations Conference in 2019, DCP thus included the following statement with respect to limits: "To avoid the risk of consanguineous relationships, and the psychological impact of an unlimited number of potential siblings, the number of families that may be created using one donor's gametes should be limited to five."[58]

Cross-border reproductive care

CBRC refers to the practice where individuals/couples travel to another country or jurisdiction to access reproductive technologies or treatments that are either illegal, unavailable, or more expensive in their home country.[101] While it is impossible to tell how many people

travel to access fertility services outside of their home countries since there is no systematic collection of data, this is a growing phenomenon.[102] There are a range of reasons for which CBRC is sought, with limited access to and a lack of availability of donors a commonly cited reason.[102] Long waiting lists in the country of origin, and a lack of agency in selection, for example, being able to select donors of a particular age, ethnicity, or phenotype, are often cited as reasons for access overseas, especially from jurisdictions in which there are commercial egg and sperm banks offering better access.[101,102]

There are several challenges related to CBRC, however, that may present significant concerns for DCP and others. These include clinical and medical risks, such as ovarian hyperstimulation syndrome, a potential issue for egg donors in contexts where multiple eggs are required. Donors recruited through international egg and sperm banks are often young and financially vulnerable, for example, university students seeking to support their studies, raising concerns about their ability to make informed decisions that truly consider the longer-term implications for themselves, their families, or DCP.[103]

Legal concerns are also noted, for example, when patients from jurisdictions in which commercialization is prohibited access commercial egg and sperm donors. While intending parents may be accessing gametes overseas, if the intending parents are within local borders when they accept an offer for commercial donation or when they transfer payment, they may well be committing a criminal offense before they travel, and extraterritorial criminal offenses may apply, for example, in the Australian states of New South Wales, Australian Capital Territory, and Queensland.[102] Parents may also find that they are unable to import any surplus embryos back to their home countries, given they were formed through processes regarded as illegal in the patients' home country.

Of psychosocial concern is that CBRC often involves access to donor egg and sperm in contexts in which the donation is either anonymous, or access to identifying and genetic information about the donors may be limited, poorly recorded, or unreliable.[104] There are no international donor registers, and even where organizations such as egg and sperm banks record donor information, there are no means to ensure that donors are not donating at other clinics. As a result, DCP's ability to access information, and link with donors and genetic siblings may be compromised.

Some international banks have introduced identifiable donors—for example, the World Egg and Sperm Bank state that they have a commitment to "open identity" donation where donors agree to at least one form of communication with DCP once they reach adulthood. Given that this is not mandated in law, however, there is no way to ensure that this occurs. Further, the distance separating DCP and donor/siblings may be an additional issue, and DCP may find that there are disparities in cultural, language, and socioeconomic background that complicate DC linking.

In addition, donor limits may not exist in the jurisdiction in which parents access gametes, or the limits set by international egg and sperm banks may be large, not necessarily enforced, or not rigorously recorded. For example, European Sperm Bank[105] states that since there is no international cap on the number of families a donor can help, they have set a worldwide cap of 75 families, although intending parents can pay higher fees for lower family limits. The complexity of donor-linking under such circumstances is overwhelming! While sperm and egg banks may state that they adhere to country-specific requirements for donor gametes which get distributed internationally, there are few ways in which to guarantee this.

Intending parents who access gametes overseas thus need to be well-informed about the risks, for themselves, as well as for DCP, siblings, and donors, and ideally, donor recruitment and publicity initiatives would ensure local access. Research has raised concerns about cross-border access to gametes, and this was reflected by DCP at the International Convention in 2019, where they called for a prohibition on transnational DC stating that:

> It is not in the best interests of the child to be conceived or born in circumstances in which the "intending parents" have circumvented or breached laws within their own country by engaging in cross-border assisted reproduction, including but not limited to donor conception and/or surrogacy,

And that:

> It is not in the best interests of the child to be intentionally separated from their genetic families by geographical, linguistic or cultural barriers.[58]

While some countries have tried to address donor shortages by importing sperm and eggs through international egg and sperm banks (e.g., some Australian clinics collaborate with the Seattle Sperm Bank, the World Egg and Sperm Bank, and the European Sperm Bank), these collaborations may not necessarily address the concerns related to CBRC.

Informal access to donor sperm

DC that exists outside of formal clinic settings, that is, through home insemination appears to be an expanding area of family building, although it is impossible to determine exact numbers as there is no recordkeeping of such arrangements,[106] even in countries where donor registers are maintained. Sperm for home insemination can be accessed informally, for example, from a friend, family member, social contact, or from a donor found via advertisements or online. It may be used by intending parents who do not need or wish to use clinical interventions to conceive, and in addition to being accessed by heterosexual couples, is also used by same-sex lesbian couples and single mothers by choice who may face challenges in accessing donor sperm—for example, donors may be able to set restrictions on the use of their sperm and stipulate that their sperm may only be used by women in a heterosexual relationship.[107] In other cases, fertility treatment is either not legally available to single women or same-sex couples, or they may find it difficult to qualify for state-funded treatment because they may need to meet criteria of medical, rather than social, infertility.[108] Other reasons for choosing home insemination include perceived heterosexism in the clinic environment, the desire to avoid the clinical environment of the formal fertility route, and a desire to avoid the possible complexity and length of the clinic route.[106,109]

There are, however, significant medical and legal risks to accessing donor treatment outside of clinic parameters. For example, fertility clinics typically screen sperm for a range of genetic issues and diseases, while home samples are not subject to such screening. Further, if sperm donation occurs via private arrangement outside of the clinic setting, depending on the jurisdiction, the donor may be legally recognized as the child's father, rather than the donor. This could include rights to parenting access and responsibility for child support. Where donation is arranged through a clinic, the legal rights and responsibilities are clear for both the parents and donors.

Accessing treatment through clinics also means that counseling may more readily be available, and both the donors and recipient parents will have had the opportunity to consider the short- and longer-term implications for themselves and any children born or excising children from both parties.[109] In countries where donor registers are maintained, records will be kept and maintained to ensure that the DCP will have access to identifying information. In informal settings, this information may not necessarily be available or kept updated.

Finally, home insemination may increase the risk of a higher number of families created by one donor. There are no limits as to the number of families to whom an unlicensed donor may donate, thereby raising the risk of consanguinity. While there are also risks in terms of accessing donors through the clinical setting given that there are no reliable ways currently to enforce limits, the risk is reduced through the formal sector.

RECOMMENDATIONS FOR DONOR CONCEPTION PRACTICE

A number of recommendations for DC practice for legislators, policymakers, and health care providers follow from this review. These are briefly summarized as follows:

- Encourage parental disclosure of DC to DCP by offering professional guidance, psychoeducation, and implementing legislative measures that emphasize DCP rights to access their genetic information.
- Ensure that DCP can access identifying and up-to-date information about donors and siblings if desired through legal requirements mandating the recording of such information in central registers for each jurisdiction. Consider measures like annotating birth certificates to further support DCP access to this information. Provision should also be made for the recording of DC taking place outside of formal clinic settings, for example, through home insemination. Intending parents and donors should be provided with comprehensive information about their legal rights and responsibilities.
- Provide comprehensive psychosocial support to all parties involved in DC before, during, and after the process. This should include the facilitation of information exchange and connections among all parties affected by DC as desired through access to professionally managed services staffed by skilled personnel.
- Implement legislative provisions to ensure altruistic donation practices and set limits on the number of donations per donor.
- Launch public health campaigns to raise awareness about fertility, the need for donor gametes, and the implications of DC for individuals and families. Such efforts may also help reduce the number of people turning to CBRC.

CONCLUSIONS

DC is not merely a onetime solution for infertility but a pathway to building a family, with potential long-term implications for DCP, parents, donors, donor siblings, and their extended families. With the rise of direct-to-consumer DNA testing, it has become increasingly difficult to keep donor identities private, even in countries where donor information is not officially recorded or disclosed to DCP. Moreover, the voices of DCP advocating for their rights and interests are gaining recognition. Currently, significant gaps exist in legislation, counseling, and policy frameworks surrounding DC. Addressing these gaps is essential to ensure that DC is conducted in a way that prioritizes the well-being of all parties involved.

CONFLICT OF INTEREST

None declared.

ORCID

Sonja Goedeke https://orcid.org/0000-0001-8362-4422

REFERENCES

1. Sauer MV. History of oocyte and embryo donation. In: Sauer M (editor) Principles of Oocyte and Embryo Donation. Springer; 2013. DOI:10.1007/978-1-4471-2392-7_1
2. Sauer M. Revisiting the early days of oocyte and embryo donation: relevance to contemporary clinical practice. Fertil Steril. 2018;110(6):981–7. DOI:10.1016/j.fertnstert.2018.09.005
3. International Federation of Fertility Societies' Surveillance (IFFS). Global trends in reproductive policy and practice, 9th Edition. Glob Reprod Health. 2022;7:e58. DOI:10.1097/GRH.0000000000000058
4. Matteo M. Assisted Reproductive Technology. In: Bettocchi C, Busetto GM, Carrieri G, Cormio L. (editors) Practical Clinical Andrology. Springer; 2023. DOI: 10.1007/978-3-031-11701-5_18
5. Bokek-Cohen Y, Marey-Sarwan I, Tarabeih M. Underground gamete donation in Sunni Muslim patients. J Relig Health. 2022;61:2905–26. DOI:10.1007/s10943-021-01440-1
6. Shirai C. Infertility in Relation to Japanese Parental Norms. In: Tanaka K, Selin H (editors) Sustainability, Diversity, and Equality: Key Challenges for Japan. Science Across Cultures: The History of Non-Western Science, Vol 13. Springer; 2023. DOI: 10.1007/978-3-031-36331-3_2
7. Isley L, Martin D, Pandolfi E, Di Berardino T, Deai V. International variability in regulatory requirements for sperm donors. Reprod Biomed Online. 2024;48(Suppl 1):105056. DOI:10.1016/j.rbmo.2024.104056
8. Crawshaw M, Marshall L. Practice experiences of running UK DonorLink, a voluntary information exchange register for adults related through donor conception. Hum Fertil. 2008;11(4):231–7. DOI:10.1080/14647270801908228
9. Duff M, Goedeke S. Parents' disclosure to their donor-conceived children in the last 10 years and factors affecting disclosure: a narrative review. Hum Reprod Update. 2024;30(4):488–527. DOI:10.1093/humupd/dmae010
10. Indekeu A, Janneke A, Maas A, McCormick E, Benward J, Scheib J. Factors associated with searching for people related through donor conception among donor-conceived people, parents, and donors: a systematic review. F&S Rev. 2021;2(2):93–119. DOI:10.1016/j.xfnr.2021.01.003
11. Bauer, T. A systematic review of qualitative studies investigating motives and experiences of recipients of anonymous gamete donation. Front Social. 2022;7:746847. DOI:10.3389/fsoc.2022.746847
12. Ishii T, de Miguel Beriain I. Shifting to a model of donor conception that entails a communication agreement among the parents, donor, and offspring. BMC Med Ethics. 2022;23:18. DOI:10.1186/s12910-022-00756-1
13. Klein K. 2018. Transformations in the public perception of sperm donation in China. An analysis of media debate in Chinese newspapers in the 2010's. Tecnoscienza. 2018;9(1):29–48. DOI:10.6092/issn.2038-3460/17396
14. Darroch F, Smith I. Establishing identity: how direct-to-consumer genetic testing challenges the assumption of donor anonymity. Fam Court Rev. 2021;59(1):103–20. DOI:10.1111/fcre.12553
15. Gilman L, Redhead C, Hudson N, et al. Direct-to-consumer genetic testing and the changing landscape of gamete donor conception: key issues for practitioners and stakeholders. Reprod BioMed Online. 2024;48(1):103421. DOI:10.1016/j.rbmo.2023.103421
16. Kelly F, Dempsey D. Donor-conceived families relatedness and regulation in the digital age. In: Kelly F, Dempsey D, Byrt A (editors) Donor-Linking Families in the Digital Age—Relatedness and Regulation. Cambridge University Press; 2023, pp. 1–14.
17. Ethics Committee for the American Society of Reproductive Medicine (ASRM). Cross-border reproductive care: an Ethics

Committee opinion. Fertil Steril. 2022;117(5):954–62. DOI:10.1016/j.fertnstert.2022.01.012
18. Pennings G. The forgotten group of donor-conceived persons. Hum Reprod Open. 2022;2022(3):hoac028. DOI:10.1093/hropen/hoac028
19. Australian and New Zealand Infertility Counsellors Association (ANZICA). ANZICA Guidelines for Professional Standards of Practice: Donor Conception Linking Counselling (DCL-C). 2024. https://www.fertilitysociety.com.au/professional-groups-anzica-australia-new-zealand/
20. Donor Conceived Aotearoa. Basic principles for understanding the needs and perspectives of donor conceived people; 2022. https://donorconceivedaotearoa.co.nz/basic-principles
21. Kirkman M, Bourne K, Fisher J, Johnson L, Hammarberg K. Gamete donors' expectations and experiences of contact with their donor offspring. Hum Reprod. 2014;29(4):731–8.
22. Indekeu A, Rober P, Schotsmans P, Daniels K, Dierickx K, D'Hooghe T. How couples' experiences prior to the start of infertility treatment with donor gametes influence the disclosure decision. Gynecol Obstet Invest. 2013;76(2):125–32. DOI:10.1159/000353901
23. Pasch L. New realities for the practice of egg donation: a family-building perspective, Fertil Steril. 2018;110(7):1194–202. DOI:10.1016/j.fertnstert.2018.08.055
24. de Melo-Martin I, Rubin L, Cholst I. "I want us to be a normal family": toward an understanding of the functions of anonymity among U.S. oocyte donors and recipients. AJOB Empir Bioeth. 2018;9(4):235–51. DOI:10.1080/23294515.2018.1528308
25. Frith L, Blyth E, Crawshaw M, van den Akker O. Secrets and disclosure in donor conception. Sociol Health Illn. 2018;40(1):188–203. DOI:10.1111/1467-9566.12633
26. Golombok S. Love and truth: what really matters for children born through third-party assisted reproduction. Child Dev Perspect. 2021;15(2):103–9. DOI:10.1111/cdep.12406
27. Best S, Goedeke S, Thorpe M. Make our wellbeing a priority: donor-conceived adults call for ongoing support and conversation about their donor conception. Hum Fertil. 2023;26(2):337–46. DOI:10.1080/14647273.2023.2180439
28. Blyth E, Crawshaw M, Frith L, Jones C. Donor-conceived people's views and experiences of their genetic origins: a critical analysis of the research evidence. In: Beier K, Brügge C, Thorn P, Wiesemann C (editors) Assistierte Reproduktion mit Hilfe Dritter. Springer; 2020. DOI:10.1007/978-3-662-60298-0_24
29. Glidden EA, Thibaut D, Goodman J. The impact of the method of genetic identity disclosure on the donor conceived adult. J Psychosom Obstet Gynecol. 2022;43(3):258–64. DOI:10.1080/0167482X.2022.2030307
30. Daniels K, Grace V, Gillett W. Factors associated with parents' decisions to tell their adult offspring about the offspring's donor conception. Hum Reprod. 2011;26(10):2783–90. DOI:10.1093/humrep/der247
31. van den Akker O, Crawshaw M, Blyth E, Frith L. Expectations and experiences of gamete donors and donor-conceived adults searching for genetic relatives using DNA linking through a voluntary register. Hum Reprod. 2015;30(1):111–21. DOI:10.1093/humrep/deu289
32. Ilioil E, Blake L, Jadva V, Roman G, Golombok S. The role of age of disclosure of biological origins in the psychological wellbeing of adolescents conceived by reproductive donation: a longitudinal study from age 1 to age 14. J Child Psychol Psychiatry. 2016;58(3):315–24. DOI:10.1111/jcpp.12667
33. Lampic C, Skoog Svanberg A, Gudmundsson J, et al. National survey of donor-conceived individuals who requested information about their sperm donor—experiences from 17 years of identity releases in Sweden. Hum Reprod. 2022;37(3):510–21. DOI:10.1093/humrep/deab275
34. Daniels K. The perspective of adult donor conceived persons. In: Beier K, Brügge C, Thorn P, Wiesemann C (editors) Assistierte Reproduktion mit Hilfe Dritter. Springer; 2020. DOI:10.1007/978-3-662-60298-0_29
35. Widbom A, Sydsjö G, Lampic C. Psychological adjustment in disclosing and non-disclosing heterosexual-couple families following conception with oocytes or spermatozoa from identity-release donors. Reprod BioMed Online. 2022;45(5):1046–1053. DOI: 10.1016/j.rbmo.2022.06.011.
36. Mostyn A. Donor Conception and its Impact on Family Constructs—The Views and Experiences of Donor-Conceived Persons. Master of Arts in Psychology. University of Canterbury New Zealand; 2017.
37. Harrigan M, Priore A, Wagner E, Palka K. Preventing face loss in donor-assisted families. J Fam Commun. 2017;17:273–87.
38. Jociles M, Rivas A, Álvarez C. Strategies to personalize and to depersonalize donors in parental narratives of children's genetic/gestational origins (Spain). Suom Antropol: J Finnish Anthropol Soc. 2017;42:25–50.
39. Jociles M, Lores F, Konvalinka N. Indirect strategies for disclosing the genetic/gestational origins of children conceived by means of reproductive donation (Spain). J Comp Fam Stud. 2021;52(1):67–93.
40. Nordqvist P. The drive for openness in donor conception: disclosure and the trouble with real life. Int J Law Policy Fam. 2014;28:321–38.
41. Tsui EYL, Cheng J. The living experience of losing genetic continuity: concealment tendency in Chinese recipients of donor-assisted conception. J. Health Psychol. 2015;26(4):525–42. DOI:10.1177/1359105318820667
42. Bolt S, Janneke A, Maas B, Indekeu A, van Nistelrooij I. Legal age limits in accessing donor information: experiences of donor-conceived people, parents, sperm donors and counsellors. Reprod BioMed Online. 2024;48(6):103846. DOI:10.1016/j.rbmo.2024.103846
43. Widbom A, Isaksson S, Sydsjö G, Svanberg AS, Lampic C. The motives and experiences of donor-conceived persons requesting the identity of their sperm donors. Reprod BioMed Online. 2024;48(1):103413. DOI:10.1016/j.rbmo.2023.103413
44. Pennings G. Disclosure of donor conception, age of disclosure and the well-being of donor offspring. Hum Reprod. 2017;32(5):969–73. DOI:10.1093/humrep/dex056. PMID:28333327.
45. Crawshaw M, Adams D, Allan S, et al. Disclosure and donor-conceived children. Hum Reprod. 2017;32(7):1535–6. DOI:10.1093/humrep/dex107
46. Burke H, Gilman L, Nordqvist P. Being an Egg or Sperm Donor: Connections with Recipient Parents. Leaflet published by University of Manchester, Morgan Centre for Research into Everyday Lives. Manchester: University of Manchester, Morgan Centre for Research into Everyday Lives; 2020. https://research.manchester.ac.uk/en/publications/being-an-egg-or-sperm-donor-connections-with-recipient-parents
47. Goedeke S, Gamble H, Thurlow R. Extended families? Contact expectations and experiences of egg donors donating to previously unknown recipients. Hum Fertil. 2023;26(6):1519–29. DOI:1080/14647273.2023.2292592
48. Miettinen A, Rotkirch A, Suikkari AM, Söderström-Anttila V. Attitudes of anonymous and identity-release oocyte donors

towards future contact with donor offspring. Hum Reprod. 2019;34(4):672–8. DOI:10.1093/humrep/dez009
49. Blyth E, Crawshaw M, Frith L, van den Akker O. Gamete donors' reasons for, and expectations and experiences of, registration with a voluntary donor linking register. Hum Fertil. 2017;20(4):268–78. DOI:10.1080/14647273.2017.1292005
50. Births Deaths Marriages Victoria. Donor-Conceived Births—Birth Certificate Addendums. 2024. https://www.bdm.vic.gov.au/donor-conceived-births
51. Allan S, Adams D. Access to donor information overhauled in South Australia. *Bionews, 1235.* 2024. Progress Educational Trust. https://www.progress.org.uk/access-to-donor-information-overhauled-in-south-australia/
52. Beeson D, Jennings P, Kramer W. Offspring searching for their sperm donors: how family type shapes the process. Hum Reprod. 2011;26(9):2415–24. DOI:10.1093/humrep/der202
53. Newton G, Drysdale K, Zappavigna M, Newman CE. Truth, proof, sleuth: trust in direct-to-consumer DNA testing and other sources of identity information among Australian donor-conceived people. Sociology. 2023;57(1):36–53. DOI:10.1177/00380385221091184
54. Zadeh S, Jones C, Jadva V. "I have to remind myself that everyone's search is different": experiences and outcomes of searching and not searching for donor connections among donor conceived adults. Hum Reprod. 2024;2024:deae210. DOI:10.1093/humrep/deae210
55. Macmillan C, Allan S, Johnstone M, Stokes MA. The motivations of donor-conceived adults for seeking information about, and contact with, sperm donors. Reprod Biomed Online. 2021;43(1):149–58. DOI:10.1016/j.rbmo.2021.04.005
56. Widbom A, Isaksson S, Sydsjö G, Skoog Svanberg A, Lampic C. Positioning the donor in a new landscape—mothers' and fathers' experiences as their adult children obtained information about the identity-release sperm donor. Hum Reprod. 2024;36(8):2181–8. DOI:10.1093/humrep/deab146
57. Jadva V, Freeman T, Kramer W, Golombok S. Experiences of offspring searching for and contacting their donor siblings and donor. Reprod BioMed Online. 2010;20(4):523–32. DOI:10.1016/j.rbmo.2010.01.001
58. Donor Conceived Australia. International Geneva Principles for Donor Conception and Surrogacy. 2019. https://donorconceivedaustralia.org.au/geneva-principles
59. Dempsey D, Kelly F, Horsfall B, Hammarberg K, Bourne K, Johnson L. Applications to statutory donor registers in Victoria, Australia: information sought and expectations of contact. Reprod Biomed Soc Online. 2019;9:28–36. DOI:10.1016/j.rbms.2019.08.002
60. Kelly F, Dempsey D, Power J, Bourne K, Hammarberg K, Johnson L. From stranger to family or something in between: donor linking in an era of retrospective access to anonymous sperm donor records in Victoria, Australia. Int. J. Law, Pol. Fam. 2019;33(3):277–97. DOI:10.1093/lawfam/ebz011
61. Millbank J. Identity Disclosure and Information Sharing in Donor Conception Regimes: The Unfulfilled Potential of Voluntary Registers. Int. J. Law Policy Family. 2014; 28(3):223–256. DOI:10.1093/lawfam/ebu008
62. Goldberg A, Scheib J. Female-partnered and single women's contact motivations and experiences with donor-linked families. Hum Reprod. 2015;30(6):1375–85. DOI:10.1093/humrep/dev077
63. Kelly F. Autonomous motherhood in the era of donor linking: new challenges and constraints. Can J Fam Law. 2019;32(2):387–424.
64. Hertz R, Nelson MK, Kramer W. Donor sibling networks as a vehicle for expanding Kinship. J Fam Issues. 2016;38(2):248–84. DOI:10.1177/0192513x16631018
65. Nordqvist P, Gilman L. Donors: Curious Connections in Donor Conception. Bingley, UK: Emerald Publishing Limited; 2022.
66. Goedeke S, Gamble H, Thurlow R. Motivations for egg donation to previously unknown recipients: donation as a personal, relational act of giving. Hum Fertil. 2021;26(2):226–36. DOI:10.1080/14647273.2021.2005263
67. Rothblum E, Bos H, Koh A, Carone N, Gartrell NK. Adult offspring of lesbian parents reflect on having been donor conceived: feelings about their sperm donor and donor siblings. Couple and Fam Psychol: Res Pract. 2024;14(1):16–28. DOI:10.1037/cfp0000256
68. Koh AS, Rothblum ED, Bos H, Carone N, Gartrell NK. Sperm donor relations among adult offspring conceived via insemination by lesbian parents. J Reprod Infant Psychol. 2023:1–14. DOI:10.1080/02646838.2023.2227867. Published online 2 July 2023.
69. Koh AS, van Beusekom G, Gartrell NK, Bos H. Adult offspring of lesbian parents: how do they relate to their sperm donors? Fertil & Steril. 2020;114(4):879–87. DOI:10.1016/j.fertnstert.2020.05.010
70. Bolt SH, Notermans C, van Brouwershaven AC, Maas AJ, Indekeu A. The ongoing work of kinship among donor half-siblings in The Netherlands. BioSocieties. 2023;18(1):156–73. DOI:10.1057/s41292-021-00259-z
71. Indekeu A, Bolt S, Maas A. Meeting multiple same-donor offspring: psychosocial challenges. Hum Fertil. 2022;25(4):677–87. DOI:10.1080/14647273.2021.1872804
72. Scheib JE, McCormick E, Benward J, Ruby A. Finding people like me: contact among young adults who share an open-identity sperm donor. Hum. Rep. Open. 2020;hoaa057. DOI:10.1093/hropen/hoaa057
73. Blyth E. Genes r us? Making sense of genetic and non-genetic relationships following anonymous donor insemination. Reproductive BioMedicine Online. 2012;24(7):719–26. DOI:10.1016/j.rbmo.2012.02.010
74. Blyth E. Discovering the 'facts of life' following anonymous donor insemination. Int. J. Law Policy Family. 2012;26(2):143–61. DOI:10.1093/Lawfam/ebs006
75. Freeman T, Jadva V, Kramer W, Golombok S. Gamete donation: parents' experiences of searching for their child's donor siblings and donor. Hum Reprod. 2009;24(3):505–16. DOI:10.1093/humrep/den469
76. Nordqvist P, Gilman L. A sense of connectedness in reproductive donation. Contrasting policy with donor and donor kin lived experience. J Fam Issues. 2023;45(8):1973–96. DOI:10.1177/0192513x231194285
77. Goedeke S, Shepherd D, Rodino I. Support for recognition and payment options for egg and sperm donation in New Zealand and Australia. Hum Reprod. 2020;35(1):117–29. Published online 2020 Jan 22. DOI:10.1093/humrep/dez257
78. Pennings G, Ravel C, Girard JM, Domin-Bernhard M, Provoost V. Attitude towards reciprocity as a motive for oocyte donation. Eur J Obstet Gyn R B. 2018;225:194–8. DOI:10.1016/j.ejogrb.2018.04.038
79. Kool E, van der Graaf R, Bos A, Fauser B, Bredenoord A. What constitutes a reasonable compensation for non-commercial oocyte donors: an analogy with living organ donation and medical research participation. J Med Ethics. 2019;45(11):736–41.

80. Lee MS, Farland LV, Missmer SA, Ginsburg ES. Limitations on the compensation of gamete donors: a public opinion survey. Fertil Steril. 2017;107(6):1355–63. DOI:10.1016/j.fertnstert.2017.03.001
81. Goedeke S, Shepherd D, Rodino IS. Fertility stakeholders' concerns regarding payment for egg and sperm donation in New Zealand and Australia. Reprod. Biomed. Soc. Online. 2022;14:8–19. DOI:10.1016/j.rbms.2021.07.006
82. Graham S, Jadva V, Freeman T, Ahuja K, Golombok S. Being an identity-release donor: a qualitative study exploring the motivations, experiences and future expectations of current UK egg donors. Hum Fertil. 2016;19(4):230–41. DOI:10.1080/14647273.2016.1221148
83. Gilman L. Toxic money or paid altruism: the meaning of payments for identity-release gamete donors. Sociol Health Illn. 2018;40(4):702–17. DOI:10.1111/1467-9566.12718
84. Pennings G. Central role of altruism in the recruitment of gamete donors. Monash Bioeth Re. 2015;33:78–88.
85. Van den Broeck U, Vandermeeren M, Vanderschueren D, Enzlin P, Demyttenaere K, D'Hooghe T. A systematic review of sperm donors: demographic characteristics, attitudes, motives and experiences of the process of sperm donation. Hum Reprod Update. 2013;19(1):37–51. DOI:10.1093/humupd/dms039
86. Lever C. Brisbane sperm donor Alan Phan investigated by VARTA after fathering 23 children. 7 NEWS.2020 Dec 01. https://7news.com.au/lifestyle/parenting/brisbane-sperm-donor-alan-phan-investigated-by-varta-after-fathering-23-children-c-1682580
87. Faessler T. ART across the Asia Pacific—are we more alike or different? Singapore. ASPIRE webinar, 28 November 2024. 2024.
88. Yao H. Role of fertility counselling in China, ART across the Asia Pacific—are we more alike or different? ASPIRE webinar. 2024, 28 November 2024.
89. Human Fertilization and Embryology Authority (HFEA). Donating Your Eggs—What Compensation is Available? 2024. https://www.hfea.gov.uk/donation/donors/donating-your-eggs/
90. Fertility Associates. Treatment Costs and Payment Options. 2024. https://www.fertilityassociates.co.nz/treatment-costs-and-payment-options
91. European Society of Human Reproduction and Embryology (ESHR)E. ESHRE Position Paper on Gamete Donor Compensation. 2024. https://www.eshre.eu/Europe/Position-statements
92. Australian and New Zealand Infertility Counsellors Association (ANZICA). Guidelines for Professional Standards of Practice Infertility Counselling. 2023. https://www.fertilitysociety.com.au/professional-groups-anzica-australia-new-zealand/
93. International Infertility Counselling Organization (IICO). Statement about Psychosocial Counselling and Professional Support Related to Involuntary Childlessness, Including Implications Over the Life-Course. 2024. https://www.iico-infertilitycounseling.org/iico-statement-about-psychosocial-counselling-and-professional-support-related-to-involuntary-childlessness-including-implications-over-the-life-course-september-2024/
94. Indekeu A, Lampic C. The interaction between donor-conceived families and their environment: parents' perceptions of societal understanding and attitudes regarding their family-building. Hum Fertil. 2021;24(1):14–23. DOI:10.1080/14647273.2018.1533256
95. Indekeu A, Maas A. The experiences of donor-conceived people making contact with same-donor offspring through Fiom's group meetings. Donor-linked families in the digital age: relatedness and regulation. In: Kelly F, Dempsey D, Byrt A (editors) Donor-Linked Families in the Digital Age: Relatedness and Regulation. Cambridge University Press; 2023, pp.120–37.
96. Crawshaw M, Kerner R, Bridgens L. Donor conception is for life—Who cares? Who pays? Whose rights matter? Bionews, 1261. 2024. Progress Educational Trust. https://www.progress.org.uk/donor-conception-is-for-life-who-cares-who-pays-whose-rights-matter/
97. Indekeu A, Prinsen CFM, Maas A, Janneke BM. Lessons from 10 years' experience running the Fiom KID-DNA database, a voluntary DNA-linking register for donor-conceived people and donors in The Netherlands. Human Fertil. 2023;26(5):1164–1172. DOI:10.1080/14647273.2022.2144772
98. Salazar A, Diaz-Garcia C, Garcia-Velasco J. Third-party reproduction: a treatment that grows with societal changes. Fertil Steril. 2023;3(1):494–505. DOI:10.1016/j.fertnstert.2023.01.019
99. Frith L, Blyth E, Crawshaw M. et al. Searching for 'relations' using a DNA linking register by adults conceived following sperm donation. BioSocieties. 2018;13:170–189. DOI:10.1057/s41292-017-0063-2
100. Nelson M, Hertz R, Kramer W. Gamete donor anonymity and limits on numbers of offspring: the views of three stakeholders. J Law Biosci. 2016;3(1):39–67. DOI:10.1093/jlb/lsv045
101. Rodino I, Goedeke S, Nowoweiski S. Motivations and experiences of patients seeking cross-border reproductive care: The Australian and New Zealand context. Fertil Steril. 2014;102(5):1422–31. DOI:10.1016/j.fertnstert.2014.07.1252
102. Millbank J. What is the responsibility of Australian medical professionals whose patients travel Abroad for assisted reproduction? Med L Rev. 2019;27(3):365–89. DOI:10.1093/medlaw/fwy040
103. Cornthwaite K, Goedeke S, Shepherd D, Rodino I. Student views on recognition and payment options for gamete donation in New Zealand. Aust N Z J Obstet Gynaecol. 2023;63(6):753–9. DOI:10.1111/ajo.13702
104. Jackson E, Millbank J, Karpin I, Stuhmcke A. Learning from cross-border reproduction. Med L Rev. 2017;25(1):23–46.
105. European Sperm Bank. Our Family Limits. 2024. https://www.europeanspermbank.com/en/getting-started/family-limits
106. Gilman L, Nordqvist P. The case for reframing known donation. Hum Fertil. 2023;26(5):1385–92. DOI:10.1080/14647273.2022.2145242
107. Melville L. Lesbians making babies: why research on sperm, space and decisions matters. TKKA eJ. 2016;7:1–16. https://www.waikato.ac.nz/__data/assets/pdf_file/0008/317429/Lisa-Melville-Lesbians-Making-Babies.pdf
108. Shaw R, Fehoko E. Qualitative research: Barriers to accessing assisted reproduction for diverse and minority groups in Aotearoa New Zealand: Findings from a qualitative study. ANZ Soc Work. 2023;35(4):102–11.
109. Australian and New Zealand Infertility Counsellors Association (ANZICA) for Fertility Society of Australia and New Zealand (FSANZ). Home Insemination using Donor Sperm. 2024. https://www.fertilitysociety.com.au/home-insemination-using-donor-sperm/