Introduction

The first instance of family building using embryo donation was reported in Australia in 1983 (Trounson et al, 1983). However, in comparison to sperm and oocyte donation, embryo donation remains a comparatively rare form of family building (see Supplementary Information for a discussion of the difference between gamete and embryo donation) (de Lacey, 2005; Blyth et al, 2011; Hill and Freeman, 2011). Globally, fewer jurisdictions permit embryo donation than allow sperm or oocyte donation, and considerable legislative, policy and practice permutations are evident. For example, some jurisdictions where embryo donation is permitted, Belarus, Bulgaria, and Latvia, require embryos for donation to be created using separately donated sperm and donated oocytes (Gry et al, 2013), while New Zealand only permits embryos using the donor couple's own gametes to be donated to others for family building (ACART, 2008).

Embryo 'adoption' is a form of conditional donation, where the donor(s) can choose the recipient of their embryo and contact can be facilitated between the provider and recipient families (Frith and Blyth, 2013). This offers an alternative to fertility clinic-based anonymous embryo donation programmes, and has been pioneered by private agencies primarily in the US over the past two decades. To date, two research groups have studied embryo adoption in the US and both have involved those using the Snowflakes® programme, which is a division of Nightlight® Christian Adoptions. Gollard and Kashmeri (2011) interviewed 44 provider and recipient parents; Paul et al. (2010) and Frith et al. (2011) explored the motivations and experiences of 18 couples and 7 women who had provided embryos.

This study builds on our previous research exploring the experiences of couples who had relinquished embryos through Snowflakes® (Paul et al, 2010; Frith et al, 2011). One of the defining characteristics of this 'embryo adoption' model is information-exchange and the possibility of ongoing contact between provider and recipient families. Several participants in the previous study referred to contact with their recipient families and therefore the current study was designed to further understand these experiences. The new varied and diverse family forms produced by reproductive technologies are often discussed in the literature (Nordqvist and Smart, 2014), but the specific ways in which these new families are negotiated in practice has not been extensively investigated. This study throws light on what mechanisms of contact and intra-family relationships this specific group create, contributing to our knowledge of the longer-term psycho-social implications of assisted conception and, specifically, embryo donation.

Materials and Methods

Phase I

An online survey was conducted, open from 21 May to 30 September 2013. Snowflakes® sent an email advertising the study to all eligible individuals, who were those who had either provided or received embryos via Snowflakes® Embryo Adoption Program, with at least one child had been born as a result. Snowflakes® had worked with about 800 provider couples and about 500 prospective recipient couples, although not all of the latter would have had a baby, and of these, not all would have established contact with their provider family. At the outset of the study, it was estimated by Snowflakes® that about 50 pairs of provider and recipient couples might be in some form of contact with each other, although the actual number of such arrangements is unknown. Therefore, we cannot give a precise response rate. It was expected that the majority of participant families would contain young children and so the study was restricted to investigating the experiences of the adults.

Participants completed an anonymous online survey, hosted on Bristol Online Surveys, that sought information about: family composition, how many embryos they had either provided or received, the amount and type of contract with their provider/recipient and free responses to comment on how they felt about their experiences. The questionnaire was designed by L.F. and E.B. on the basis of their previous research and is available from the authors on request.

Phase II

At the end of the questionnaire, participants were invited to indicate their interest in participating in a follow-up study. In addition to Phase I participants, some new participants were recruited via Snowflakes® and one couple (who had used Snowflakes®) was recruited via existing participants. The semi-structured interviews were conducted by E.B. and L.F. using asynchronous email. This method was used because participants were based in the US and the researchers were in the UK. Interviews took place during 2014 and 2015. Previous experience endorsed the feasibility of this approach to data gathering (Berger and Paul, 2011; Frith et al, 2011). Analysis of Phase I data formed the basis for the construction of the Phase II topic guide: this covered basic information about the type and frequency of the contact and probes to explore in more depth the participants' experiences of forming these new relationships.

Eligibility for participation in the study included proficiency in English and access to the internet and email. Although these criteria risk disenfranchising potential participants, our previous experience indicated that, in practice, these requirements are met by all couples participating in the Snowflakes® program. Previous researchers investigating fertility issues have experienced difficulty in engaging men; this project was no exception and the majority of participants were women. However, to maximize participant recruitment, while we indicated our preference for participation of both members of the couple, no-one wishing to participate was excluded because her/his partner/spouse did not. Both Phases of the study were approved by the University of Huddersfield and the University of Liverpool ethics committees.

Data analysis

This paper reports data from both phases of the study. Phase I data were used predominantly to present quantitative findings illustrating frequency and type of contact, using descriptive statistics and Phase II were used data to draw out themes and reflections on the contact and building a relationship between provider and recipient families. To analyse the qualitative data, from both phases, we entered the transcripts of the interviews into NVivo 10 qualitative software. The coding strategy was based on a topic guide that covered: the history of the contact (how it started, who initiated it, why, and for what reasons was contact sought); their experiences of the contact; how they saw and conceptualized these new relationships; issues, both positive and negative, with the contact; views on the future; and any service provision or policy lessons they had. Data were analysed thematically to elicit codes in order to identify concepts and the constant comparative method was used to explore the relationship between concepts (Braun and Clarke, 2006). Once the data had been coded by each member of team, we discussed our codes and interpretations of the data and grouped our codes into the key themes presented in this paper.

The source of specific quotations is identified using the following formula: PH1 = Phase I; PH2 = Phase II; P = Provider; R = Recipient; F = Female; M = Male, and their unique number, e.g. PH1-PF1/PM1 couples have the same number, i.e. PH2-PF1/PM1. Original quotations are

reproduced verbatim, except for the correction of spelling and punctuation errors.

Results

Demographics

There were 17 providers (14 women and 3 men) and 28 recipients (27 women and 1 man) that took part in Phase I. Providers reported the birth of 22 children to recipients of their embryos. Of these children, 18 were aged 0–5 years and 4 were aged 6–11 years. There were 15 children born from embryos created using the gametes of both providers; 4 children were born from embryos created using donor oocytes; and 3 children were born from embryos created using both donor oocytes and donor sperm (the issue of using donated gametes to form embryos is discussed in a further paper, currently under review). Of the 17 providers, 14 had each provided embryos to a single couple; 2 had each provided embryos to 2 different couples; and 1 provider had provider embryos to 3 families.

Among the 28 Phase I recipients (27 women and 1 man), 43 children had been born as a result of embryo adoption and 1 recipient was pregnant with her second child (a full genetic sibling of her first child). Of these children, 30 were aged 0–5 years, 12 were aged 6–11 years and 1 was 12–17. There were five pairs of twins. None of the recipients indicated the use of donor gametes in creating the embryos. In 19 families, all of the children resulted from embryo adoption; of these, 10 were only children. Three recepient families also included 'naturally-conceived' children; two families included adopted children; and four families included both 'naturally-conceived' and adopted children. Of the 28 recipients, 22 had received embryos from 1 couple only, 5 had received embryos from 2 different couples and 1 had received embryos from 3 different couples. One recipient family 'shared' full genetically related children with another recipient family.

In Phase II, 8 providers (5 women and 3 men) and 12 recipients (10 women and 2 men) took part.

Demographic information for participants in both phases is provided in Table I.

Type and frequency of contact

Contact was often initiated through Snowflakes® (a division of Nightlight® Christian Adoptions):

> Initially it was facilitated by Nightlight. (PH2-PM2)

> We are in touch by email. Initially it was facilitated by Nightlight but recently we have provided direct email addresses so that we do not need to wait for the message to be delivered by Nightlight. (PH2-PF2)

Snowflakes® offered to mediate contact been families and although this route was often used in the initial stages, most study participants had subsequently established direct contact with their respective recipient or provider family (Supplementary Tables IV–VI). One of the distinctive aspects of the Snowflakes® programme is the ability to arrange contact between couples before the transfer of embryos, and the majority of participants had established some contact before the birth of the child (Table II). The ability to meet before the medical procedures took place was something that our participants valued.

Participants were also asked about the nature and frequency of contact, with contact generally taking place every 6–12 months. Forms of contact are listed in Supplementary Tables IV–VI. Additional forms of contact mentioned included: exchange of gifts (1 provider and 5 recipients); exchange of videos (2 providers and 2 recipients), exchange of pictures/photo books (4 providers and 12 recipients), and use of social media (5 providers and 5 recipients).

In Phase I, eight providers had made face-to-face contact with recipients and seven had actively included the children. Nine recipients had made face-to-face contact with the providers of their embryos and six actively included the children (Table II). Four recipients had met their provider once, two had met them twice, one had met on three occasions and two had met once a year since the birth of their child. Of those who had not yet met their provider, two were actively planning to meet, five hoped for future meetings and one indicated they would meet if the child wanted to. Participants frequently reported extensive geographical distances between themselves and their respective provider or recipient family/families and in-person contact, where this had taken place, required considerable logistical preparations and manoeuvres. In some cases, contact had included staying in each other's home:

> ... A few months ago, Family two came to visit and meet us. So the four girls and the families all met for the first time. We had sooooo much fun. We love it! We would love it even more if Family two lived closer and we could see them more! (PH1-PF1)

A recipient who was in contact both with her provider and another recipient of embryos from the same provider recounted how all three families had met up:

> [Earlier] this year, we drove across the country to spend one week visiting our provider family and the other family that is the recipient family of the embryos that are all biological siblings to our daughter. We had a JOYFUL week with our daughter's siblings and family. (PH1-RF6)

Desire for contact and 'open adoption'

The active involvement of both parties in the selection process and Snowflakes® guidance encourage an open approach, i.e. telling the child about their origins and possible contact and these features were what attracted participants to use the service.

> To be able to have an open adoption so our children could know each other and we could watch our biological children grow up; that option was priceless for us. (PH2-PF1)

The ability to establish some form of contact motivated a significant proportion of study participants to use Snowflakes®.

> The attraction to Snowflakes was the opportunity for the open adoption that was not an option through our doctor... We advised Snowflakes that we only wanted to be matched with couples willing to have contact. (PH2-RF1)

> The original agreement was to have a semi-open adoption, meaning we would contact as long as it was feasible and we would agree to visits if we were in the same country. (PH2-RF5)

The reasons given for such arrangements included a belief that openness and honesty were in the best interests of the children:

> Ultimately, we feel that whatever is in the best interest of our children should come first, regardless is it is awkward or uncomfortable for us. (PH2-RF4)

Table I Demographic characteristics of Phase I and II participants.

	Providers Phase 1	Recipients Phase 1	Providers Phase II	Recipients Phase II
Male	3	1	3	2
Female	14	27	5	10
Age				
31–35	2	7	0	1
36–40	4	5	2	2
41–45	3	12	3	6
46–50	2	3	1	1
over 50	6	1	2	2
Marital status				
Married	15	28	8	12
Divorced	2	0	0	0
Religion				
Christian—Roman Catholic	3	5	0	0
Christian—Protestant	8	19	6	10
Christian—other	4	4	0	0
No religion	1	0	2	0
Prefer not to answer	1	0	0	2
Ethnicity				
White—American	15	25	6	12
White—other	1	2	0	0
Combination	1	0	0	0
Chinese	0	1	0	0
Hispanic	0	0	1	0
Prefer not to answer	0	0	1	0

Table II When did contact between families begin for Phase I participants?

	Recipient Family 1	Recipient Family 2	Recipient Family 3	Provider Family 1	Provider Family 2	Provider Family 3
Before agreement was reached to transfer the embryos to recipient	6	0	1	8	1	0
After embryos were transferred to care of the recipient(s) but before embryos were used	6	0	0	7	1	0
After recipient became pregnant but before birth of the child	2	2	0	7	1	0
Following birth of the child	3	0	0	5	2	1

Part of this rationale was the desire to facilitate contact between genetic siblings in the different families:

> It is extremely important to us that some kind of contact is maintained with the adopting family. We would like our own children to know of their distant siblings, and, if possible, develop a relationship with them. (PH2-PM3)

> It is very important that [child A] and [child B] know their other siblings and have some contact with them. (PH2-RF8)

Recipients thought that ongoing contact provided an important source of up-to-date information about their provider:

> We have a resource to go to when our children, or when we, have questions. There's a direct connection. We only believe that the more information there is, the less questioning and insecurity our children have. If there is a medical issue, we can be made aware. (PH2-RF4)

Further reasons included recipients' desire to be transparent about the process and for their children to have a sense of where they came from:

> We want [child] to have a positive sense of identity. We want her to know her story and history (as complete as possible). Understanding her history and where she comes from will help her to understand who she is. (PH2-RF9)

Table III Summary of face-to-face contact (Phase I and Phase II).

Phase I		
Providers (n = 17)	Met recipients 8	Children have met 7
Recipients (n = 28)	Met providers 9	Children have met 6
Phase II		
Providers (n = 8)	Met recipients 5	Children have met 3
Recipients (n = 12)	Met providers 7	Children have met 4

Despite Snowflakes'® endorsement of open embryo adoption, this was not mandated for acceptance into its program:

> Snowflakes sent us a total of three adoptive family profiles. There was a couple who was devoutly Catholic and made it clear that they would keep the adoption a secret from their family and even the child. Something just didn't feel right about that. (PH2-PF5)

> The genetic family said they wanted a closed adoption. We decided that it wasn't our first choice, but we went with it. (PH2-RF2)

Views on contact may change over time, and not all participants set out with the intention of having contact, as this recipient shows:

> Our original feeling was that we probably wanted as little contact as possible. However, we did put in our profile that we would accept any level of interaction. We were coached that by doing this would increase the possibility of being selected by a donor family. (PH2-RM3)

However, after initial email contact with the provider family, they developed an ongoing relationship:

> We are all family now. No other questions or decisions are needed. They are great folks and the girls are sisters which is what is most important to me. (PH2-RM3)

Providers' views also could change; PH2-RF2 reported that her providers initially requested 'closed adoption':

> When the twins were born, the agency informed the genetic family. About a week later, the genetic mother approached the agency and asked if she could contact us. The agency asked if we were okay with that (we totally were thrilled!). (PH2-RF2)

Positive aspects of contact

Both providers and recipients thought that contact had to be mutually agreed, with recipients taking the lead in determining how this should develop, so as to promote the child's best interests. As one recipient said:

> As parents (both genetic and adoptive), we are the adults and should be mature enough to put our children's needs and desire above our own. (PH2-RF4)

For providers, curiosity as to how the child was being brought up, being assured that the child was well cared for and being able to have a relationship with them was an important benefit of contact:

> The positives are that we feel satisfied that the twins are being raised in a loving family that adores them. (PH2-PF5)

> We were of the mindset that watching the child grow up and being a part of her life was the biggest plus. Being able to LOVE HER!!!! Seeing birthdays, steps, sports, vacations, etc. We plan to be apart of her life forever. Not knowing leaves too much for the mind to ponder. (PH2-PM1)

The creation of relationships and family bonds was a key positive aspect of contact for both providers and recipients. A recipient mother, who was not initially keen on contact, developed a very strong relationship with the provider family, who had also given embryos to another family, and all three families had met:

> We flew with our daughter to meet her sisters and their families. To say the least, it was a truly remarkable visit. This experience and the relationships has be a huge blessing for us in our lives. Not only were we given our daughter, but a whole family too, two families actually, or one big family. (PH2-RF3)

PH2-PF1 also reported developing a close relationship with her recipient family, which started before the birth of the child:

> Then when she [recipient mother] was around six months pregnant, we up…to visit them for the weekend. We had dinner and met all of their family then had time just the four of us and I sat next to [recipient mother] with my hand on her belly waiting to feel our bio baby kick. It was an amazing experience…..We consider ourselves family and share pictures and talk weekly. (PH2-PF1)

Some participants reported contact with their providers or recipients' extended family.

> I am in periodic (quarterly) email communication with the paternal genetic grandfather. We are Facebook (FB) friends and he follows us on FB by liking pictures, status updates, etc. (PH2-RF8)

> [M]any family members have befriended our adoptive family on Facebook and follow/comment on their posts, stories, and pictures as well. (PH2-PF3)

One positive aspect of contact mentioned by both providers and recipients was that it enabled providers to resolve any feelings of wanting the baby back or recipients' fears that their providers might want their baby returned:

> The only negative thing I can think of at this point was the emotions when she was first born. When I first saw a picture of her and she looked so much like our children, I had that feeling of 'that's my baby and I want her'. That feeling only lasted about a week and I think the amount of contact we had helped me get past those feelings. (PH2-PF1)

> Although, there were twinges of those feelings initially, it was exceptionally brief and having the direct contact gave us more comfort about our decision than we would have had otherwise. (PH2-PF3)

> We were afraid in the beginning of this journey about the family wanting the baby back. And we thought that because they were in [a distant state], we would not be able to see them much and then they would not want the baby. These were all part of our FEARS as we entered into this chapter of our lives. (PH2-RF3 - who initially did not want contact, has met the providers, and now wishes that the families lived closer to each other)

Negative aspects of contact

Although participants reported overwhelmingly positive experiences regarding contact, some negative experiences were mentioned, particularly regarding concerns about differing parenting styles:

> The only negative I can think of is imaginary, at this point at least, and that is a worry over being scrutinized or criticized by the genetic parents. (PH2-RM5)

> The down side of open adoption, is the placing family may make different parenting decisions than the adopting family and vice versa...so the question is what do you do at that point? What do you do if you see the adoptive family making parenting decisions that you like or vice versa? (PH2-RF1)

This recipient, when reflecting on the negative aspects of contact, considered what might happen if providers and recipients disagreed over the parenting of the child. In this respect there is nothing providers could do if they were unhappy with the care of the child; they have no legal responsibilities or rights over the child. It is also worth mentioning that in our study, none of the providers expressed this (that they thought their child was not being cared for appropriately), so currently, at least, this is a concern that has not been realized.

One provider gave the following advice:

> I think the only thing I would add is that both families have to be aware that this is a very unique situation and they have to be careful not to over-step the boundaries PH2-PF4

Participants also reported logistical barriers to contact, primarily relating to time and distance. These relationships were characterized by similar problems and issues common to many personal relationships: differing expectations, lack of time to devote to them and geographical distance. As one participant said:

> They are too far away for the ability to develop a close relationship with the children at this stage; maintaining the distant relationship takes consistent effort from both families (but I do think that's any different than any typical family relationship where members are across the country from each other). (PH2-RM3)

> The negative on our end is that it just takes a lot of time and when family life is so involved with kids, there is little time to communicate with them. (PH2-RF7)

Future contact and relationships

One of the main issues facing families when thinking about contact was whether it should include the children or just the adults. Not all the contact between providers and recipients involved the children and the relatively young age of most children in participant families is likely to be a key factor in determining their involvement in contact between families. PH2-RF10 summarized the issues:

> We considered these issues separately and therefore we have contact with the genetic parents, but we chosen to not have our daughter have direct contact with them at this point (other than the visit when she turned two, which she doesn't remember). Some families we know have that distinction, so the adopted children have the same or similar levels of contact as the adoptive parents do. It's just interesting to note different families' opinions and perspectives on contact, and how they view it as impacting the children's emotional health (or not).

For her, contact was restricted to the adults:

> We don't expect any changes in contact, except for when our daughter gets into her teen years and if she requests to have contact herself, we will have to pray and discuss when is the right time and way for that to happen.

For a number of participants, contact was established to enable their children, when older, to be able to make contact themselves:

> We have never met either family face to face. We don't know if we will ever meet them face to face. We will meet them if the kids decide that they are at a place that they want to meet their genetic family. At what point they will decide to do this, we have no idea. Right now our main goal is to have the same level and type of contact with each family until each of our children come to that cross road. (PH2-RF7)

> [Daughter] will probably opt to have some contact with them [providers] or meet them, which is fine, after she is 18. She can make her own decisions then on developing a relationship with them and set the boundaries herself. It takes the pressure off us as parents to do that. (PH2-RF1)

> We have such an easy, open communication with the genetic parents that we feel it is a strong foundation we are building, so that when/if the day comes that our daughter wants to have contact herself, we can easily make that happen. (PH2-RF9)

Discussion

To our knowledge, this is the first study to explore how embryo adoption in the US, as a form of conditional donation, operates and how participant families define and negotiate the relationships created. The contact arrangements varied considerably, but all created the opportunity for future contact to be initiated by the child(ren) when they were older (if they wanted to). Generally the contact was positively described, although some challenges were acknowledged.

Snowflakes® encourages participants in embryo adoption to be open with any child/ren who are born and to keep open lines of communication for future contact. Thus, this programme operates in a different way compared to the anonymous clinic-based donation programmes used in other settings. When comparing our data from this study to other studies on embryo donation, this different context must be borne in mind. In our study, all participants had chosen to be open with their children, and this was an ongoing process: telling the child and then paving the way for future contact. Clearly, our participants were highly likely to be in favour of openness, and our study sheds light on the reasons for this approach and why participants thought openness was the preferred option.

Conditional embryo donation programmes are rare; New Zealand is one of the few jurisdictions outside the US that operates such a programme and thus studies conducted in New Zealand most closely mirror our study population. Goedeke et al. investigated the views and experiences of participants; 13 potential recipients of donor embryos (Goedeke and Payne, 2009) and 22 embryo donors and 15 recipients (Goedeke et al, 2015). These studies highlighted the significance of genetic connections and relationships: both donors and recipients regarded genealogy and genetic knowledge as critical for well-being and identity, and as bestowing immutable kinship ties between donors and offspring (p. 2345). They argue that this resulted in providers being concerned about who received their embryo and feeling some moral responsibility for the child's future well-being. As has been noted both by our participants and in other literature (Taylor, 2005), embryo adoption/donation is a unique way of forming a family and Goedeke et al. (2015) found that the metaphor of embryo donation as adoption was used by their respondents to make sense of this unique process. Their respondents, like ours, conceptualized the process of embryo donation as creating an extended family and talked about the creation of new, complex kinship relationships that created, 'the interplay between genetic, gestational and social aspects of reproduction and family building' (p. 2340).

The temporal nature of decisions was a key theme in our data. We found that some couples did not start out in favour of openness or contact, and their attitudes changed over time. Often, once the child was born, they found that they wanted to be more open and form a relationship with the provider/recipient family. Relationships could

also change, with some developing into deep friendships and others withering. Therefore, intentions as to how much contact and what type might be desirable were not always realized in practice. A key element of openness and contact for some participants, was to give the child the option when they were old enough to make their own decision regarding contact with their provider family. As Kalman (2004) has noted, family dynamics change and the temporal nature of intentions and experiences of forming a family through embryo adoption are often not captured. While our study presents only a view from a 'slice' of time in these families' lives, our results point to the importance of considering the life-course implications of forming families in this way. Families live with these decisions and resulting relationships for the rest of their lives and there is a need for further studies that consider these experiences in the longer term.

Both embryo recipients and providers were clear that the welfare of any children produced from embryo adoption and children in the respective families should be a central consideration. There was also a recognition by both groups that the recipients were 'the' parents and 'had the right' to make the parental decisions, without interference or judgement from the providers. Both providers and recipients mentioned aspects of the inherent tensions in this position, but the repertoire of traditional infant adoption was employed to give legitimacy to locating the recipients as the parents. Overall, our participants were generally happy with the relationships they were developing with their opposite number. The difficulties were seen as not dissimilar to other forms of relationships, where it was hard to maintain regular contact and thus the relationship suffered. The most common negative issues arising were lack of contact either due to time pressures, geographical distance or a miss-match in expectations.

A further element regarding contact between families highlighted in our study occurred when more than two families were connected following embryo adoption. This occurs when a provider provides embryos to more than one recipient family or when a recipient family receives embryos from more than one provider family. Study participants in this situation, albeit few in number, often recounted asymmetrical contact arrangements between the different families, thus making an inherently multifaceted arrangement even more complex. The potential implications of such variations may be profound for all family members and is currently an under-explored area.

Study limitations

This study focussed on those who had chosen to either receive or have given their embryos to others via an embryo adoption agency and, of that group, those who wished for, and had established, contact. Therefore, it does not capture those who did not want contact or their reasons for this. Hence, the study results cannot be extrapolated to other populations who provide or receive embryos for family building. The location and political context of embryo adoption in the US is a distinctive one and Snowflakes®, as a Christian adoption agency, obviously denes the likely clientele and limits the wider applicability of our findings. However, the studies carried out in New Zealand did highlight some common issues, hence our findings reiterate some of the themes found in other studies. The qualitative research was conducted by email, and arguably there are some limitations to this method: the researcher cannot pick up on visual and voice responses, build a rapport or clarify responses. However, there are also positive benefits of using this method. At the end of the interview, we asked participants how they had found the email interview process, and some reported that it had enabled them take their time to think about their experiences and reflect on their answers – something that may not be so readily facilitated in conventional face-to-face interviews.

Implications for practice

The embryo adoption model clearly fills a need; some people want to provide and receive embryos under such a conditional programme. How popular such a programme would be in other contexts is unknown, however as openness in gamete and embryo donation grows, so might such programmes (Blyth and Frith, 2015). These technologies build families, going well beyond a medical intervention located in the clinic, and they have long term repercussions. In recognizing this, given the unique challenges facing both recipients and providers of embryos, Goedeke et al. (2015) and some of our participants recommend some form of 'ongoing support mechanism' such as counselling might be useful for those negotiating the complex sets of new kinship patterns and balancing this with their children's welfare. There is, however, a lack of support for those involved and the children produced from reproductive technologies. As found in other studies (Crawshaw et al, 2016), specialist support is needed (i.e. people trained in the distinctive issues that might arise from these forms of family building) and providing this is a challenge that has still not been adequately addressed.

Conclusion

The use of embryos provided by a third party for family building is a contested form of reproductive technology. A conditional programme of embryo donation, such as that which operates in New Zealand and of which Snowflakes® is an example, are even more contentious and couching embryo donation as adoption has caused controversy (ASRM, 2016). However, conditional or embryo adoption programmes could provide an alternative to an anonymous, clinic-based model and give those who have surplus embryos the opportunity to choose who they wish to donate to and if they wish to have and maintain contact in the longer term.

Supplementary data

Supplementary data are available at Human Reproduction online.

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Authors' roles

L.F. and E.B. designed the study and collected the data. L.F., E.B. and S.L. analysed and interpreted the data and drafted and revised the manuscript.

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Conflict of interest

The authors have no conflict of interest to declare. Snowflakes is a commercial adoption agency and the authors have no relation to the organization, other than requesting that they participate in this research project.

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