

Who requests their sperm donor's identity? The first ten years of information releases to adults with open-identity donors

Joanna E. Scheib, Ph.D.,^{a,b} Alice Ruby, M.P.H., M.P.P.M.,^b and Jean Benward, M.S., L.C.S.W.^c

^a Department of Psychology, University of California, Davis; ^b The Sperm Bank of California, Berkeley; and ^c San Ramon, California

Objective: To report findings from 10 years of requests from adults eligible to obtain their open-identity sperm donor's information.

Design: Analysis of archived family and donor data. Semistructured interviews at information releases.

Setting: Not applicable.

Patient(s): A total of 85 DI adults requesting 43 donor identities; program data on 256 DI families.

Intervention(s): None.

Main Outcome Measure(s): We identified [1] demographic predictors of requesting donor identities, [2] information release timing and length, and [3] request motives.

Result(s): Just >35% of eligible DI adults requested their donor's identity. Adults ranged from 18–27 years, requesting at median age 18 years. More women than men requested. Proportionally fewer adults requested when they had heterosexual-couple parents, and proportionally more when they had one rather than two parents. In interviews, the common theme was wanting to know more about the donor, especially about shared characteristics. Most adults planned to contact their donor. More than 94% of adults had donors who were open to contact; adults expressed modest expectations about this contact.

Conclusion(s): In 2001, the first adults became eligible to obtain their open-identity sperm donor's information. Ten years of identity requests at one program indicates that information about one's donor is important to a significant proportion of these DI adults. Most requested their donor's identity soon after becoming eligible, suggesting some urgency to wanting the information. Interview data highlighted the role of donor information in helping adults better understand themselves and their ancestry. Findings hold important implications for practice and policy. (Fertil Steril® 2017;107:483–93. ©2016 by American Society for Reproductive Medicine.)

Key Words: Open-identity donation, information sharing, third-party family building, sperm donors

Discuss: You can discuss this article with its authors and with other ASRM members at <https://www.fertstertdialog.com/users/16110-fertility-and-sterility/posts/12730-22581>

Open-identity donation began in the United States in 1982 at a nonprofit donor insemination (DI) program that primarily served female same-sex couples and single women (1). At present more than one-third of US DI programs offer open-

identity donors, with the proportion of donors who opt to be (eventually) identifiable increasing with the length of time that a program has existed (2, 3). Open-identity donors in the United States typically provide extensive non-identifying information for recipients

and, when the offspring reach age 18 years, provide their name, and sometimes other identifying and locating information to offspring who request it.

The increasing number of open-identity programs in the United States appears associated with increased parental intent to disclose and desire for their children to have the option to know who the donor is and perhaps meet him. This holds for families parented by heterosexual couples (4, 5), as well as single women and female same-sex couples where children will eventually question why no father is present. Having an open-identity donor can make discussions about the

Received June 11, 2016; revised October 15, 2016; accepted October 16, 2016; published online November 22, 2016.

J.E.S. reports honoraria from the American Society for Reproductive Medicine and travel support from University of California Davis. A.R. has nothing to disclose. J.B. has nothing to disclose.

Supported by grants from the Lesbian Health Fund of the Gay and Lesbian Medical Association and The Consortium for Women and Research, University of California, Davis.

An earlier version of this article was presented at the American Society for Reproductive Medicine 2008 Annual Meeting and Mental Health Professional Group 2012 Postgraduate Course.

Reprint requests: Joanna E. Scheib, Ph.D., Department of Psychology, University of California, Davis, California 95616 (E-mail: jescheib@ucdavis.edu).

Fertility and Sterility® Vol. 107, No. 2, February 2017 0015-0282/\$36.00

Copyright ©2016 American Society for Reproductive Medicine, Published by Elsevier Inc.

<http://dx.doi.org/10.1016/j.fertnstert.2016.10.023>

family's origins easier, because children have the option at adulthood to seek information about questions their parents cannot answer. It also spares DI individuals the frustration of never being able to know more about the donor (e.g., Refs. [6–11]). The connection also appears elsewhere. In the Netherlands, Brewaeys et al. (12) found that when offered a choice of donor types, heterosexual couples who planned to tell their child chose open-identity donors 93% of the time, whereas those who did not plan to disclose chose these donors only 17% of the time (see also Ref. 4). In Sweden, Leeb-Lundberg et al. (13) found that most parents who had disclosed or planned to would have chosen an open-identity sperm donor if they had that choice.

Despite more people choosing open-identity donation, or being required to use it, such as in jurisdictions internationally that forbid anonymous donation (14), little is known about the experiences of DI adults who have open-identity donors and seek their information. It is not clear how many DI adults request their donor's information, what proportion will go on to contact the donor, and how having identifying information for and/or contact with the donor affects the DI adults, their donors and their respective families. Research indicates that DI children, adolescents, and adults want donor information. They want to know what he is like, what he looks like, whether he shares characteristics with them, and his medical history (e.g., Refs. [15–19]). Other DI persons are interested not only in the donor, but also in individuals who share their donor (19–23). A consistent theme across these studies is the desire to make connections with genetically related individuals and the information they hold. All of this reveals the significance attributed to the donor and genetic origins by DI people and suggests that this information may help contribute to their identity formation and psychological well-being (24).

Until now, DI adult experiences with open-identity donation remain relatively unexplored, because few programs worldwide have offspring old enough to obtain their donor's identifying information (14). In addition to the US program (The Sperm Bank of California, first offspring born 1983), the oldest programs are in Sweden (1985), Austria (1992), Victoria state, Australia (1998), and New Zealand (1990s). Although follow-up research is ongoing (e.g., Refs. [25–30]), it is hampered by few donor identity requests by eligible adults. Many of these adults may not even know of their family's donor origins (25). Efforts are underway to change this (30), but follow-up is challenging. The one exception has been in the United States at The Sperm Bank of California where families are comparatively open with their children about the family's origins (4, 31), and many DI adults have obtained their open-identity donor's information.

PRESENT STUDY

In the present study, we focus on experiences at one US open-identity program at The Sperm Bank of California to examine three research questions: [1] To what extent do DI adults use their option to obtain their open-identity donor's information? [2] Why do requesting adults want their donor's information? [3] Can an open-identity

program provide adults with the donor information they request? To do this, we followed the first 10-year cohort of DI adults who were eligible for their donor's identifying information.

By working with one DI program we could identify the sample of eligible adult offspring and then calculate the proportion who actually made a request. We also examined demographic predictors, such as gender and family type, that might indicate which offspring are more likely to request their donor's identity. Because previous research in adoption suggests that more women than men seek genetic origins information (32–34), we examine whether this trend extends to the current group of DI adults. Whereas Scheib et al. (19) did not find a gender bias in interest in a donor's identity among a subsample of the 10-year cohort of adults when they were adolescents, it is possible that a bias would emerge in a larger sample. Findings from other donor conception studies are mixed, with many showing a similar female-bias among adult searchers (6, 7, 18, 21) and one showing the opposite among 7- to 17-year olds raised in female same-sex-couple households (35).

We also examined whether interest in donor information is linked to the type of family in which one was raised. Earlier research with the 10-year cohort subsample of adolescents indicated that, in comparison to youths with two parents (heterosexual or female same-sex), those with single mothers expressed more interest in the donor (19). Parents from these families expressed positive feelings about possible identity releases, but the fathers tended to be the least enthusiastic (31). This is in line with previous DI family research that finds differences between mothers and fathers regarding anonymity and desire for information about the donor, a generally more fearful view of sperm donor conception among heterosexual couples, and greater difficulty in disclosing for men (36–41). In the present study, we examined whether adults raised by two parents, regardless of parental sexual orientation, are less likely to request their donor's identity, at least initially at age 18 years. We also examined whether there might be fewer requests from adults raised by heterosexual-couple parents, in part, because they are less likely to be aware of their donor conception. Among the 10-year cohort subsample, fewer DI adolescents raised by heterosexual couples knew about their origins compared to single and lesbian-couple families (31).

In addition to examining who makes requests, we identified the rate at which requests were made (i.e., proportion requesting and at what age), how long information releases took, and donor openness to contact from DI adults. Finally, interview data from the release process allowed us to explore adult motivations to learn more about the donor, and whether they were interested in contacting him.

Findings are relevant to researchers, practitioners, policy-makers, and families involved with donor conception. To our knowledge, this is the first study to provide outcome information about open-identity donation, including DI adult experiences and whether a program can successfully provide donor identifying information. As important, identifying shortcomings in information releases can assist other open-identity

FIGURE 1



Process of securing and releasing donor identifying information at The Sperm Bank of California's Identity-Release Program.

Scheib. Who requests their sperm donor's identity? Fertil Steril 2016.

programs in the United States and internationally in making preparations to serve and support both offspring and donor families.

MATERIALS AND METHODS

Sample

The sample included [1] all known families, [2] with an adult who was eligible to obtain their donor's identity, [3] during the first 10 years of possible identity releases, [4] at one

open-identity program. In addition, [5] only the first adult offspring to make an identity-request of a donor in a family was included in the study, so that donor identifying information had not been available before the request.

The study period began in September 2001, when the first eligible offspring turned age 18 years and ended 10 years later in September 2011, resulting in a sample of adults from 256 DI families. Adults were born between September 1983 and mid-August 1993 (18–29 years at end of study period; median age = 22 years). More than half of the cohort was male

(52.7%; child sex known for all but two families). Family type was known for 233 DI adults (91%), with most coming from families parented by a female same-sex couple (117; 50.2%). The remainder came from families parented by a heterosexual couple (73; 31.3%) or a single mother (43; 18.5%).

DI Program Protocol for Donor Information Release

To obtain a donor's identity at this program, the DI person must be at least 18 year old (Fig. 1, Initial Contact...). An initial inquiry is followed by talking with the program director (Alice Ruby), receiving a package of information and resources, completing and submitting (by mail or in person) a written request, and providing notarized verification of identity. This is followed by another, final conversation with the director. Discussions could be in person or on the phone (i.e., most families are from outside the San Francisco Bay area). The first discussion focused mainly on logistics of the process, a brief review regarding maintaining the donor's confidentiality until more was known about him (i.e., donor agreed to be identified to requesting adult offspring and not to others; Fig. 1, Donor Agrees...), and available resources and support. If the adult had an underage sibling(s), the director explained that she would need to contact the adult's parents (i.e., original recipients) to discuss the donor's preferences about disclosing his identity to younger siblings. The final conversation focused on confirming the adult's identity, describing what was known about the donor's openness to contact, discussing the donor's range of confidentiality preferences from being very open to private, questions about the adult's motivation and plans, if any, to contact the donor, and the potential for mismatched expectations between the requesting adult and the donor. Available support and resources were again reviewed. The donor's identifying information was then mailed or given to the adult. This means that at minimum a very motivated adult might take 1–2 days to obtain their donor's information.

The information an adult received about the donor was variable, dependent on what additional updates the donor provided, but at minimum included his name, last known contact information, and date and location of birth. In advance of any information releases (i.e., before an adult making a request), the program made every effort to contact a donor to inform him that his oldest offspring would soon be age 18 years and be eligible to request his identity, and to provide him (and partner, if applicable) with resources, including for support (Fig. 1, Post-program Contact: Donor). A donor was also asked to provide up-to-date medical and contact information, his openness to contact, and preferred method(s) of first contact (i.e., e-mail, letter, telephone, in person, other-donor defined), and an update on his life and family.

Data Collection

Identifying the sample of adults who request their donor's identity. We followed the request process of all eligible adults who contacted the program to obtain their donor's identity.

This involved recording the date when an adult initially contacted the program, returned completed application forms, and met with the program director to obtain their donor's identity. A total of 85 adults contacted the program, making this the sample of actual requesters.

Motivations. In addition to data about numbers of adults making requests and time it took them to complete the release process, semistructured, open-ended questions allowed us to learn about the adult's interest in obtaining their donor's identifying information (Why did you want to get your donor's identity?), if they planned to contact the donor (What are your intentions for requesting your donor's identity? Do think you will contact your donor?), and what they hoped would come from getting the donor's information (Do you have any expectations for this process or for contact with your donor, if you choose to contact him?). Questions were intentionally broad to allow the adult to guide the conversation. In addition, adults were asked these questions *after* they had been informed that the donor was open to contact and given his preferences on how to be contacted.

Analysis

Descriptive analyses were used to identify demographics (age, gender, family type) of adults who requested their donor's identity, the proportion of eligible adults who requested, details about the release procedure (proportion of requesters and length of time to complete the process), and information about the availability of donor contact information and openness to DI adult contact. Logistic regression and χ^2 analyses were used to identify predictors of requesting based on family type and gender. All comparisons used two-tailed tests of significance.

Interview data were analyzed by theme. An author (J.E.S.) and at least one research assistant created categories with coding schemes of key words and phrases for the interview responses after reading and re-reading them. Two research assistants then coded responses, with an inter-rater agreement of >87% for all but adult expectations (75%). The coders and one of the authors (J.E.S.) resolved discrepancies jointly. The study was approved by the University of California Davis Institutional Review Board.

RESULTS

Who Requested Their Donor's Identity? Gender and Family Type

During the first 10 years of possible releases, adults from 33.2% of eligible families (85/256) contacted the program for their donor's identity. Proportionally more women requested than men; whereas 46.5% of eligible adults were women, women actually made 61.2% of the requests ($X_1^2 = 10.00, P = .002$). Numbers suggested that family type might also be associated with likelihood of requesting. About a third (36.8%) of eligible lesbian-couple families and a quarter (23.3%) of eligible heterosexual-couple families had an (adult) child request their donor's identity. In contrast, more than half (58.1%) of adults from eligible single-mother families made a request (Table 1).

TABLE 1

Gender and family type of adults who requested their donor's identity (family type known for 233 of 256 eligible families).

Family type (n, eligible)	No. requesting	% requested	% requested by gender within family type
Single (43)	25	58.1	86.4 (19/22) of eligible women 28.6 (6/21) of eligible men
Lesbian couple (117)	43	36.8	38.2 (21/55) of eligible women 35.5 (22/62) of eligible men
Heterosexual couple (73) ^a	17	23.3	33.3 (12/36) of eligible women 13.9 (5/36) of eligible men

^a Offspring gender unknown for one family.

Scheib. Who requests their sperm donor's identity? *Fertil Steril* 2016.

We used logistic regression to test whether gender and family type predicted making a request. For family type, we tested whether adults were more likely to request information when they [1] had a single rather than two-parent family and [2] were more likely to know about their origins (i.e., had single or lesbian-couple parents). The results indicate that gender, having a single parent, and having heterosexual-couple parents were all related to an adult requesting their donor's identity (Table 2). Specifically, as indicated by the odds ratios, women were more than twice (2.33; 95% confidence interval 1.32–4.10) as likely as men to request their donor's identity, as were adults raised by a single mother, compared with those with two parents (odds ratio 2.40; 95% confidence interval 1.16–4.97). In contrast, having heterosexual-couple parents halved the probability of requesting, compared with adults with lesbian-couple or single parents (odds ratio 0.51; 95% confidence interval 0.26–0.99).

We then considered whether the absence of a same-gender parent was related to an adult's information request, that is, whether men in single or two-mother families would be more likely to request their donor's identity. This appeared to be a trend, at least in the two-mother families. Running a model that included this additional variable, however, indicated that the absence of a same-sex parent was not predic-

tive of requesting one's donor's identity ($\beta = -0.379$, SE = 0.683, $P = .579$; odds ratio = 0.684).

Adjusting for Nondisclosure in Heterosexual-Couple Families

Proportionally fewer adults made requests when they had been raised by a heterosexual couple. Based on previous research (e.g., Ref. [31]), not all DI adults will know about their family's donor origins. Because of this, the rate at which adults request their donor's identity (85/256, 33.2%) at this program was artificially lowered, which, in turn, might be misinterpreted by other open-identity programs when preparing for their own identity releases. To adjust for nondisclosure, we based estimates of disclosure by family type on findings from a subset of the program families (31; parents of a first child born between 1983 and 1988). Scheib et al. (31) contacted parents from 55 families whose adolescents are now among the adults in the current sample. Heterosexual couples made up 24% (n = 13) of the sample; the rest were single or lesbian-couple parents. All single-parent participants and those with a same-sex partner had adolescents who knew about the family's donor origins. Three of the 13 adolescents with heterosexual-couple parents did not. One teen has since learned and, as an adult, obtained her donor's identity. This indicated that the disclosure rate among heterosexual-couple families at this program might be as high as 85% (11/13). Nachtigall et al. (42) and others (38, 43), however, have suggested that families who are secretive about their origins are unlikely to participate in a study that can reveal this information to their children. Consistent with this, none of the heterosexual-couple parents who declined to participate (n = 5) in the Scheib et al. (31) study had told their adolescent about the family's donor origins. A more accurate disclosure rate is then 61% (11/18). But there were also a group of heterosexual couples excluded from the study because no contact information was available and for whom disclosure status was unknown. We could not assume that they were identical to either the decliners or participants, and because parents with open-identity donors may be more likely than average to disclose, we used a conservative 65% disclosure rate (between 61% and 85%) among the eligible families parented by a heterosexual couple. This then allowed us to estimate that the rate of requesting donor information among eligible DI adults who knew (230/285) of their family's origins was closer to 40% (85/230).

TABLE 2

Logistic regression: predictors of adults requesting their donor's identity.

Predictor	B	SE	P value	Odds ratio (exp (B), 95% CI)
Woman	0.844	.289	.003	2.33 (1.32, 4.10)
Single parent	0.874	.372	.019	2.40 (1.16, 4.97)
Heterosexual-couple parents	-0.680	.344	.048	0.51 (0.26, 0.99)
Constant	-0.963	.248	.000	0.382

Note: CI = confidence interval.

Scheib. Who requests their sperm donor's identity? *Fertil Steril* 2016.

Age at Which Adults Make Their Request

Adults who requested their donor's identity ranged from 17–27 years. Adults who requested before turning 18 years (20% of sample) were counted as making the request at age 18 years. In these cases, they received the package for review or were asked to call back closer to their birthday; forms were accepted by the program when they turned 18 years. The median age at which adults made requests was 18 years and 1 month (SD = 2.0 years). Whereas the sample ranged in age from 18–27 years, 92.9% of requests came from 18- to

21-year olds, suggesting that for this sample, adults often made their request soon after they became eligible.

From Requesting to Identifying One's Donor: Completing the Release Process

Within 3 months of the close of the 10-year study period, 64 (75.3%) adults who had contacted the program had completed the release process and obtained their donor's identity. We calculated the length of the process from the day the adult contacted the program until she or he completed the final meeting. Completion time ranged from 1 day to >3 years. Median time to complete was 28 days (mean, 111 days). Most (71.9%) took ≤ 2 months, with 92.2% completing within 1 year. By 4 years after the close of the 10-year study period, three more adults had completed the process, one taking almost 7 years to do so. (These three were not included in the analyses.) For the remainder yet to get their donor's identity, time-in-process ranged from 4 to >10 years.

Donor Openness to Contact

A brief interview completed the release process. Before questions about the adult's motivation and plans, the program director discussed the donor's openness to contact from DI adults. Of the 43 donors whose identity was requested in the first 10 years, most (90.7%; including a relative of a donor who had died) were open to contact; four did not want any contact from the program or DI adults. Among donors who were open—ranging from providing least to most direct initial contact and availability—12.8% provided one option of mail or e-mail, 33.3% gave at least two options of mail, e-mail, and/or phone, 30.8% agreed to all but in-person contact, and 23.1% were open to anything, including an in-person

first contact. Among the four donors who were not open to contact, two provided no updated information and two provided at least one means of contact (letter or phone). Among the 64 adults who obtained their donor's identity within the 10-year (plus 3 month after) study period, one had completed the process before the questions about motivations and plans were included. Four had donors who were not open to contact, therefore their interviews focused only on mismatched expectations, how to proceed, and available resources and support. Interview responses from these four adults were analyzed separately from the 59 adults with donors who were open to contact.

Motivations, Plans, and Expectations for Obtaining the Donor's Identity

Motivations. Once an adult knew that their donor was open to contact, the program director proceeded with optional, open-ended questions, the first being why the adult wanted to get their donor's identifying information. Almost one third (30.4%) spontaneously reported that they had wanted their donor's information for a long time, and/or that they had "always wondered" (Table 3). In contrast, six adults (10.7%) said their interest in the donor's information had changed over time—from previous disinterest to only now seeking his identity. (Three adults with heterosexual-couple parents had learned recently about having a donor, so were excluded from this count.)

Three themes emerged from coding adult motivations for getting their donor's identity: all adults but one (58/59) described reasons fitting into at least one of these three (Table 3). The simplest, given by 10 adults (16.9%), was "to have the information," with no other details or reasons

TABLE 3

Motivations for obtaining the donor's identity (categories are not mutually exclusive).

Motivations	% (n/59)	Illustrative quotes
Timing		
Wanted the information for a long time	30.4 (18)	"Hoping that 14 or 15 years of curiosity will be fulfilled." "I have an insatiable curiosity."
Interest increased over time	10.7 (6)	"I never cared, but [am] asking [now] out of curiosity"
Themes		
Want more information	94.9 (56)	"[To] see who he is and what he does and what I got from him." "[S]ee why he chose to be a donor" "...a photo to see if there is any resemblance ... also want to see if [there is] any resemblance to [others who share the donor]." "[C]uriosity, not to have a relationship."
Wants more information ...with reference to self	60.7 (34/56)	"[I'm] different from the rest of my family ... see the male side of my parentage" "[Want] a photo to see if there is any resemblance." "It's a big part, half of you to know." "[T]o know what parts of me are connected to genetics, looks, personality ... to fill in questions, to feel more connected to parts of me that I have questions about."
Wants more information ... with reference to health	7.1 (4/56)	Mentions medical or health
Just to have the information	16.9 (10)	No other details or information given
Gratitude	8.5 (5)	"[T]o say thank you for helping bring me into this world."
Other		
External influences	16.9 (10)	"My mom's been encouraging me for a long time."

Scheib. *Who requests their sperm donor's identity?* *Fertil Steril* 2016.

given. The second, given by five adults, focused on gratitude toward the donor, wanting to show him how things turned out and update him on their life, "...maybe tell him about myself."

The third and most common reason, however, given by 94.9% of adults, was based on the desire for more information—important enough that they were willing to put significant effort into obtaining their donor's identity. Most focused on wanting to know who he was as a person and what he looked like. Few ($n = 4$) mentioned wanting medical or health information.

Interest in the donor was then further coded, including whether the adult specifically referenced himself or herself, or the hope that the information could help them learn something about themselves. Over half (60.7%) of the 56 self-referenced in their response (Table 3). The information sought most often concerned what the donor was like as a person—his physique, psychologically—and how he was situated in context (his genealogy), rather than a list of facts. The comments typically focused on inherited traits, such as appearance, and the extent of resemblance between the donor and the young adult, which might indicate to the DI adult that there was a meaningful connection based on similarities. "...[T]o see what he looks like... not looking for a relationship with him. I want to see who he is. I've wanted to since I was young...[I was] always told I don't look like [mother]. I want to see if I look like the donor." Several adults were clear that it was about identity, "...part of my identity that I don't have any idea about," "It's a big part, half of you to know." It was also about trying to complete a picture and move on, "...to fill in the missing links...resolution is the biggest thing; the book opened when I was very young and now it will close or get to the next chapter." Finally several adults mentioned their parents, for example, "[I] have two parents who love me very much, but I want to know that part of me," perhaps partly to protect and show loyalty to their parents, as well as to be clear that it was information and not a parent that was sought.

It is important to note that others did not feel anything was lacking. Instead, they focused on identifying the influences that shaped them and the quest for self-knowledge.

"It's not for a part of a sense of self...[it] doesn't feel lacking.... I'm interested in nature versus nurture."

"Most people know 'I get this part of me from my mom and this from my dad.' The main thing now is to see where things come from. All I know now is my darker skin comes from him. Just curious to see. [It's] a unique thing to do."

One adult did not give any of the above motivations. Instead he explained that he had "not been that interested," but that his parents had encouraged him to obtain the information.

Following this, we identified 10 participants for which an external influence was mentioned; eight individuals reported that a parent(s) or sibling (2) had motivated them to make their request.

Plans for contacting the donor. The program director asked what the adult's "intentions [were], such as if [they] plan to contact the donor" (or the donor's relative for the two adults whose donor had died). Most (74.6%) expressed interest in contacting the donor, with one specifically stating "soon." Six adults (10.2%) said they did not plan to contact the donor. A further nine (15%) were unsure:

"I don't know. It depends on how satisfied I am with the packet [of donor information]. Maybe an e-mail. I'm not interested in donor/daughter time."

Five gave timelines for contact (i.e., six were unsure when, three planned to make contact "later"). Plans for contact seemed to be in an exploratory phase and conditional, based on the update provided by the donor and his future response to actual contact.

"If all goes well, I would like to meet him."

"I think it will depend on how I feel at each stage. It will depend as it happens. [My] intention is to have at least one conversation [or letter, e-mail]."

Four adults (7%; excluding the two adults whose donor had died) explicitly stated an interest in a relationship with their donor, "[m]aybe develop a relationship, but it wouldn't be the most important thing if didn't work out." In contrast, almost 20% (11/57) explicitly stated that they were "not looking for a relationship."

"I'm not looking for a father...[I'm] interested from genetic point of view. I don't have any idea what he will be like...[it] could be awkward."

"I don't expect him to be receptive... It would be nice if he is interested in providing the information I want. I've never expected to have a long-term connection with him. I'm interested in contact if he is too."

Expectations of the donor. At this stage of information release, before any contact with the donor, these young adults seemed reluctant or unable to articulate any specific hopes and expectations or they articulated contradictory expectations. If the adult replied that they did not have any expectations, the program director probed further. Responses were then coded into four mutually exclusive categories of none, low, moderately positive, and very positive/hopeful.

Overall, most adults expressed low (63.2%; two adults were not asked) or no (17.5%) specific hopes or expectations of what would happen after receiving their donor's identity. Some simply said they had no expectations. Voicing low expectations included wording, such as "just" or "fine with whatever," that minimized or downplayed their plans and/or how important the information was. Responses included: "...just want some questions answered, just want to know which parts of myself are from him." "If something comes of it, great. If not, it's ok. I hope he wants to meet me." "I just want to know. I don't know what to expect."

"...just want to talk, I don't expect [donor] to show up at birthdays."

Fewer adults were positive. Nine (15.8%) were coded as moderately positive and just two as very positive/hopeful and excited. One who responded moderately positive said: "I just want to see what he looks like.... Not really [re. expectations]. I hope he'll be nice, but I don't expect him to go out of his way.... If I were in his position, I'd want to see what my kids look like, so maybe he's curious too.... I'm excited!"

One of the two very positive adults responded: "I would like a lasting relationship as friend and daughter." Interestingly, this last quote came from an adult whose sibling had met their (different) donor and had a very positive experience.

Adults with Donors Who Were Not Open to Contact

Four adults in the sample obtained information that their donor was not open to contact. The director released each donor's identifying information and either the last known contact information (for the two nonresponsive donors) or only the preferred contact information provided by the other two. Although not asked questions about motivations, it was clear that the adults had been interested in contact. One also mentioned having wanted to know who the donor was for a long time. All were very disappointed and upset. Their meeting focused on providing them with emotional support and further support options, including counseling.

DISCUSSION

The aim of this research was to provide insight into DI adult requests for their donor's identity, specifically who makes requests and why. Results indicate that during the first 10 years of possible releases, adults from a third of eligible families (85/256) contacted the program for their donor's identity. With parental nondisclosure considered, the estimated rate of requesting was closer to 40%. Proportionally more women requested than men. Numbers also indicated that family type was associated with requesting; adults raised by one parent requested proportionally more often than those raised by two. Adults who requested their donor's identity ranged from age 17 to 27 years, with most being <21 years. Three-quarters of adults who requested, eventually completed the process and obtained their donor's identity from the program. Time to complete the release process ranged from 1 day to >3 years, with 75% of adults completing within 3 months, and 92% within a year.

Likelihood of requesting a donor's identity was higher overall among women than men, much like among adoptees who search for a birth parent (e.g., Ref. [33]) and DI adults registering for volunteer donor linking (18, 21). Interestingly, however, seemingly more similar proportions of women and men requested their donor's identity when they had been raised by two mothers. Requests were not statistically related to the absence of a same-sex parent when growing up; requests came from similarly disproportionate ratios of men and women who had been raised by a single mother as when raised by a heterosexual couple. Further exploration is needed to identify unique aspects of female same-sex-couple households. One possibility, in line with the review by Biblarz and Stacey (44) of children raised

by same-sex couples, is that the men in this study may have been showing less gendered behavior (see also Ref. [45]), including their interest in exploring social and kin networks.

That requests were more likely to come from adults raised by one rather than two parents is similar to earlier findings with a subsample of these participants. As teens, individuals raised by a single mother reported more interest in their donor than teens from the other family types (19). Although suggestive, we cannot know from these findings alone whether DI teens and adults with two parents were less interested in their donor. These individuals also had a genetically unrelated parent to consider, in a context where a genetic link (to the donor) was recognized as important. Some of this consideration may have been present when the adults qualified their interview responses with information about who their parents were and their strong connection to them. Other research indicates that DI children and adults are concerned about and protective of their genetically unrelated parent in contexts, for example, where ties to the donor or donor-linked others are emphasized (46, 47). Perhaps relatedly, we saw fewer adults from families parented by a mother and a father. Although some of this was due to parental nondisclosure, some eligible adults may have been reluctant to request donor information out of sensitivity to their father's feelings from being infertile (21, 42, 47, 48), as well as from potential insecurity about being the "real" parent.

Most requesters reported wanting to learn more about the donor as a person. Their answers appeared to reflect a desire or need to complete a picture. Many wanted information to answer the questions "Am I like him? What similarities do we share?" Some stated that gaining knowledge about "where this other part of me comes from," might bring about resolution, or even "...make [them] feel more real." Overall, the issue of genetic relatedness was quite important to this sample of young adults, with new knowledge about the donor being a possible way to explore possible kinship based on inherited characteristics and gain self-knowledge. Adult interest in contacting the donor, eventually, and possibly forming a relationship, further signified the relevance of genetic relatedness and origins knowledge to both identity formation and the identification of important people, even in the absence of a social connection. The exploration of the connection to the donor also reveals that sharing the family's donor origins with the DI person, as well as considerable nonidentifying knowledge about the donor (characteristic of this DI program) were not enough to address information needs of these adults. Other research about DI adults seeking information has revealed motivations, questions about, and uncertainty regarding potential relationships with the donor similar to those articulated by the current group of DI adults (18,21,26,30,47,49-51).

Although the adults had learned that their donor was open to contact, they expressed consistently low expectations for what might follow from identifying and possibly contacting him. Whether these responses reflect actual hopes remains to be seen in follow-up studies. However, the potential for information and contact holds considerable importance to the DI person, as was clear from the strong negative responses of adults whose donors took away that potential. Freeman

et al. [26] reported similar responses among DI adults linking with previously anonymous donors. Both sets of findings suggest that stated low expectations may reflect a coping strategy by adults to protect themselves from hoping for more than the donor is willing to provide, and that the donor's importance becomes salient only when expectations are not met. It also underscores the fact that receiving donor information and considering the implications is a process for these young adults. The DI adults may benefit from preparation before identifying the donor, beyond what the program provided, that includes exploring expectations, preparing for a range of outcomes, and having more extensive support available, when needed [26, 30, 50].

In the present study, many adults were aware that their path to identity formation included their relationships to the families who raised them, whether genetically related or not. Adults repeatedly emphasized that they had parents, and seeking the donor's identity was about something more (see also Ref. [26]). Their statements indicated that the network of people important to them included their family of origin, as well as their donor. Clearly, their thoughts about how knowledge of the donor complements, but does not replace, their earlier understandings of self can only be fully explored by following up with the adults in a context where they can speak more freely than during the release process, and after they have a chance to absorb the donor information and potentially contact him.

We do not know much about the other >60% eligible adults who did not request their donor's identity. Some will not have the opportunity to make a request, as they have yet to learn about their family's donor's origins. For those who know, the decision to obtain more information about and possible contact with the donor is influenced by multiple factors. Among the DI adults who requested, major developmental milestones (graduating high school, leaving home) may have triggered the decision to obtain information. Other factors could include the nature of the adult's relationship with their parents and family (e.g., Refs. [11, 33]). Although identity development may be salient in late adolescence, identity and constructing the meaning of donor conception does change over time [24]. Among nonrequesters, exploring the meaning of one's donor conception may be deferred and may await—as is seen with adoption—later developmental triggers, such as marriage or parenthood [52]. Furthermore, there may be other individuals who believe that the donor information is not relevant to their sense of identity and may never request their donor's identity [53].

For the 25% who did not complete the release process, future research could help us understand how an adult moves from interest to actively obtaining a donor's identity. In work with donor-offspring linking, it was very common for people “to leave long gaps . . . between their initial enquiry and making an application,” (Ref. [26], p. 278; see also Ref. [18]). Among adoptees searching for birth relatives, Wrobel et al. [54] note that engaging in identity exploration can evoke a range of emotional responses, including anxiety, uncertainty, discouragement, sadness, excitement, and satisfaction. This means that the DI adult's request for information is an emotionally loaded event. Knowledge from adoptee birth

parent searches could benefit understanding of how to better support DI adults seeking donor information [30].

Open-identity donation presents ethical dilemmas that have not been studied. One of the concerns is that neither the donor nor the DI provider can anticipate how the donor will feel 18+ years after agreeing to be open-identity. It is clear that donors can change their mind and previously anonymous donors have agreed to openness years later (e.g., Refs. [55–57]). This raises the question of how to balance donor interests with the interests of the DI person [55, 58]. What happens when the donor cannot be found, is deceased, or refuses contact? A small number of donors (9%) in the 10-year study period did not want their information released or any contact with DI adults or the program. Because the donor signed a prior agreement with the DI program, the program honored adult requests for identifying information. The donors were informed of this and offered support. Although open-identity, the original agreement did not include a commitment to have contact with DI adults. The distinction between releasing information and having personal contact is one that, at times, has been overlooked, such as in statements by parents and others that “when you are 18, you can meet your donor.” This highlights the need to counsel parents about appropriate expectations and to counsel donors from the beginning to understand what they are and are not agreeing to with a DI program's open-identity policy. Requesting a means (e.g., letter) through which DI adults can obtain more information, but also respect a donor's privacy, can help a donor and his partner shape and control the release process to meet their needs.

Interpretation and Limitations of the Findings

The intention of the current study was to provide information about the final phase of an open-identity program—releasing donor identifying information to adult offspring. Outcomes included assessing DI adult interest in obtaining information through rates at which they requested and obtained their donor's identity, and finding that >90% of donors were willing to provide an update for DI adults, in addition to program-supplied information. Although open-identity donation required only that donors be identifiable, many were also open to some form of contact from DI adults. Although the DI program was able to successfully fulfill donor identity requests, program shortcomings became clear when donors could not be reached or responded negatively to the prospect of information releases.

Further studies are needed to assess what follows from information release and contact with a donor, and how to best prepare and support donors, offspring, and their respective families. Follow-up with donors, too, is important to obtain their perspectives, including the benefits and shortcomings of being open-identity (e.g., Ref. [56]). In addition, insight from DI adults who obtained their donor's identity outside of the program (e.g., Ref. [47]) will be important; this group likely includes adults who never completed the DI program release process.

Several study limitations should be kept in mind when interpreting the findings. Questions about motivations and

expectations were asked in a context in which the conversation was brief, and adults may have felt pressure to answer in certain ways. Questions were also open-ended, rather than checklists to endorse, therefore answering required more effort and willingness to share by the adult. Longer, structured interviews in future studies may provide a better understanding of DI adult motivations and hopes. Because the DI program director asked the questions yet also providing the desired information, adults may have been less willing to share potentially less acceptable motivations (e.g., desire for a father) or felt the need to minimize their expectations. It is not clear, however, that an independent body would be perceived as less of a gatekeeper, when adults are asked to share their motivations (59).

We expect findings to generalize, to some extent, to other DI adult populations with similar sample characteristics. Based on previous work, families from this DI program tend to be highly educated, economically well-off, and from urban centers (4, 31). It is also likely that most are of European descent, similar to the majority of program donors, whom recipients typically choose to match their families. Compared with others from this 10-year time period, however, parents from this DI program will differ in including a higher percentage of single women and female same-sex couples, in addition to the heterosexual couples with male infertility. Consequently, the proportion of families who were open about having a donor will be higher than most. In addition, there were indications in this study sample that the couples with male factor infertility were disclosing at a higher rate than in other populations studied (e.g., Ref. [13]). As such, other DI adult populations from this time period are expected to include higher proportions who learned unintentionally and/or closer to the time of requesting a donor's identity, which may influence motivations and hopes for contact with the donor (16).

In conclusion, despite limitations, it is remarkable how consistently DI adults in this study wanted more information about their donor and consequently about themselves. In exploring the meaning of the genetic connection with the donor, by comparing similarities between themselves and their donor, they hoped for an expanded sense of their identity. This process of identity formation seemed important for their sense of belonging ("I'm different from the rest of my family") and comfort with oneself ("to feel more connected to parts of me that I have questions about"). Present study findings suggest that open-identity programs can be successful, as measured through a general willingness among this program's first donor cohort to provide updated contact, personal and medical information 18+ years after leaving the program, and as measured by the majority of requesting DI adults completing the release process and obtaining their donor's information. In addition, as a result of the DI adults who shared their disappointment, better support options and counseling are now available at the current DI program. That 90% of donors were also open to contact from DI adults—despite knowing little about them or the outcome of possible contact—shows the goodwill and generosity of these donors and their partners.

Because the number of parents disclosing is increasing, and parents are often counseled to disclose, we expect a

growing number of DI adults will seek information about their donor, whether from a sperm bank, a registry, or through DNA testing (60, 61). It is urgent that DI providers begin to address policies and best practices for releasing information to people who have a sperm donor, regardless of whether the donor was open-identity or anonymous.

Acknowledgments: The authors gratefully acknowledge the assistance of Courtney Rawitch, Emily McCormick, Nora Lee, Heather Rowley, Maribel Lopez, and Kelly Inabnett with data entry, coding, and/or manuscript preparation; Emilio Ferrer for statistical guidance; and anonymous reviewers for their constructive feedback. We are grateful to Barbara Raboy, who broke new ground by creating an open-identity program, Maura Riordan for supporting it, and all the donors, prospective parents, and their respective families, who were pioneers in open-identity donation.

REFERENCES

1. Raboy B. Secrecy and openness in donor insemination: a new paradigm. *Politics Life Sci* 1993;12:191–2.
2. Scheib JE, Cushing RA. Open-identity donor insemination in the United States: is it on the rise? *Fertil Steril* 2007;88:231–2.
3. Johnson KM. Fertility clinic, egg donation agency, and sperm bank policies. *Fertil Steril* 2011;96:877–9.
4. Scheib JE, Riordan M, Shaver PR. Choosing between anonymous and identity-release sperm donors: recipient and donor characteristics. *Reprod Tech* 2000;10:50–8.
5. Blyth E. Full-sibling embryos created by anonymous gamete donation in unrelated recipients. *Fertil Steril* 2012;97:e4.
6. Cordray B. A survey of people conceived through donor insemination. *DI Network* 1999;14:4–5.
7. Turner AJ, Coyle A. What does it mean to be a donor offspring: the identity experiences of adults conceived by donor insemination and the implications for counseling and therapy. *Hum Reprod* 2000;15:2041–51.
8. Hewitt G. Missing links: identity issues of donor conceived people. *J Fertil Couns* 2002;9:14–20.
9. McWhinnie A, Rose J, Whipp C, Jamieson L. Who am I? Experiences of donor conception. Leamington Spa, UK: Idreos Educational Trust; 2006.
10. Spencer LW. Sperm donor offspring: identity and other experiences. Charleston, South Carolina: Book Surge, LLC; 2007.
11. Mahlstedt PP, LaBounty K, Kennedy WT. The views of adult offspring of sperm donation: essential feedback for the development of ethical guidelines within the practice of assisted reproductive technology in the United States. *Fertil Steril* 2010;93:2236–46.
12. Brewaeys M, de Bruyn JK, Louwe LA, Helmerhorst FM. Anonymous or identity-registered sperm donors? A study of Dutch recipients' choices. *Hum Reprod* 2005;20:820–4.
13. Leeb-Lundberg S, Kjellberg S, Sydsjö G. Helping parents to tell their children about the use of donor insemination (DI) and determining their opinions about open-identity sperm donors. *Acta Obstet Gynecol Scand* 2006;85:78–81.
14. Blyth E, Frith L. Donor-conceived people's access to genetic and biographical history: an analysis of provisions in different jurisdictions permitting disclosure of donor identity. *Int J Law Policy Family* 2009;23:174–91.
15. Crawshaw M. Lessons from a recent adoption study to identify some of the service needs of, and issues for, donor offspring wanting to know about their donors. *Hum Fertil* 2002;5:6–12.
16. 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. *J Law Med* 2012;19:769–89.
17. Ravelingien A, Provoost V, Pennings G. Open-identity sperm donation: how does offering donor-identifying information relate to donor-conceived offspring's wishes and needs? *J Bioeth Inq* 2015;12:503–9.

18. Van den Akker OB, Crawshaw MA, Blyth ED, Frith LJ. Expectations and experiences of gamete donors and donor-conceived adults searching for genetic relatives using DNA linking through a voluntary register. *Hum Reprod* 2015;30:111–21.
19. Scheib JE, Riordan M, Rubin S. Adolescents with open-identity sperm donors: reports from 12-17 year olds. *Hum Reprod* 2005;20:239–52.
20. Hertz R. Turning strangers into kin. In: Nelson M, Garey A, editors. *Who's watching? Daily practices of surveillance among contemporary families*. Nashville, TN: Vanderbilt University Press; 2009:156–74.
21. Jadva V, Freeman T, Kramer W, Golombok S. 'Offsprings' experiences of searching for and contacting their donor siblings and donor. *Reprod Biomed Online* 2010;20:523–32.
22. Hertz R, Mattes J. Donor-shared siblings or genetic strangers: New families, clans, and the internet. *J Fam Issues* 2011;32:1129–55.
23. Goldberg AE, Scheib JE. Female-partnered and single women's contact motivations and experiences with donor-linked families. *Hum Reprod* 2015;30:1375–85.
24. Benward J. Identity development in the donor conceived. In: Guichon J, Mitchell I, Giroux M, editors. *The right to know one's origins*. Brussels, Belgium: ASP; 2012:166–91.
25. Lalos A, Gottlieb C, Lalos O. Legislated right for donor-insemination children to know their genetic origin: a study of parental thinking. *Hum Reprod* 2007;22:1759–68.
26. Freeman T, Bourne K, Jadva V, Smith V. Making connections: contact between sperm donor relations. In: Freeman T, Ebtehaj F, Graham S, Richards M, editors. *Relatedness in assisted reproduction: families, origins and identities*. Cambridge, UK: Cambridge University Press; 2014:270–95.
27. Hammarberg K, Wilson C, McBain J, Fisher J, Halliday J. Age when learning about mode of conception and well-being among young adults conceived with ART. *J Reprod Infant Psychol* 2015;33:1–13.
28. Daniels KR. New Zealand: from secrecy and shame to openness and acceptance. In: Blyth E, Landau R, editors. *Third party assisted conception across cultures: social, legal and ethical perspectives*. London, UK: Jessica Kingsley Publications; 2004:148–67.
29. Daniels K, Gillett W, Grace V. Parental information sharing with donor insemination conceived offspring: a follow-up study. *Hum Reprod* 2009;24:1099–105.
30. Johnson L, Bourne K, Hammarberg K. Donor conception legislation in Victoria, Australia: the "Time to Tell" campaign, donor-linking and implications for clinical practice. *J Law Med* 2012;19:803–19.
31. Scheib JE, Riordan M, Rubin S. Choosing identity-release sperm donors: the parents' perspective 13–18 years later. *Hum Reprod* 2003;14:1392–9.
32. Krueger H. Why adoptees search: an existential treatment perspective. *J Counsel Dev* 1997;75:195–202.
33. Howe D, Feast J. *Adoption, search & reunion: the long term experience of adopted adults*. London, UK: Children's Society; 2000.
34. Muller U, Perry B. Adopted persons' search for and contact with their birth parents II: adoptee-birth parent contact. *Adopt Q* 2001;4:39–62.
35. Vanfraussen K, Ponjaert-Kristoffersen I, Brewaeys A. An attempt to reconstruct children's donor concept: a comparison between children's and lesbian parents' attitudes towards donor anonymity. *Hum Reprod* 2001;16:2019–25.
36. Brewaeys A, Golombok S, Naaktgeboren N, de Bruyn JK, van Hall EV. Donor Insemination: the Dutch parents opinions about confidentiality and donor anonymity and the emotional adjustment of their children. *Hum Reprod* 1997;7:2591–7.
37. Crawshaw M. Prospective parents intentions regarding disclosure following the removal of donor anonymity. *Hum Fertil* 2008;11:95–100.
38. Shehab D, Duff J, Pasch L, MacDougall K, Scheib JE, Nachtigall R. How parents whose children have been conceived with donor gametes make their disclosure decision: contexts, influences and couple dynamics. *Fertil Steril* 2008;89:179–87.
39. Eisenberg ML, Smith J, Millstein SG, Walsh TJ, Breyer BN, Katz P. The infertility outcomes program project group: perceived negative consequences of donor gametes from male and female members of infertile couples. *Fertil Steril* 2010;94:921–6.
40. Anderson KN, Scheib JE, Chen M, Connor JJ, Rueter MA. Fear-based disclosure: different challenges and motivations across single mothers and same-sex female- and heterosexual-couple parents with sperm donor-conceived children. *Fertil Steril* 2015;104:e356.
41. Isaksson S, Skoog-Svanberg A, Sydsjo G, Thurin-Kjellberg A, Karlstrom PO, Solensten NG, et al. Two decades after legislation on identifiable donors in Sweden: are recipient couples ready to be open about using gamete donation? *Hum Reprod* 2011;26:853–60.
42. Nachtigall RD, Tschann JM, Quiroga SS, Pitcher L, Becker G. Stigma, disclosure, and family functioning among parents of children conceived through donor insemination. *Fertil Steril* 1997;68:83–9.
43. Lycett E, Daniels K, Curson R, Golombok S. School-aged children of donor insemination: a study of parents' disclosure patterns. *Hum Reprod* 2005;20:810–9.
44. Biblarz T, Stacey J. How does the gender of parents matter? *J Marriage Fam* 2010;72:3–22.
45. MacCallum F, Golombok S. Children raised in fatherless families from infancy: a follow-up of children of lesbian and single heterosexual mothers at early adolescence. *J Psychol Psychiatry* 2004;45:1407–19.
46. Vanfraussen K, Ponjaert-Kristoffersen I, Brewaeys A. Why do children want to know more about the donor? The experience of youngsters raised in lesbian families. *J Psychosom Obstet Gynecol* 2003;24:31–8.
47. Beeson DR, Jennings P, Kramer W. Offspring searching for their sperm donors: how family type shapes the process. *Hum Reprod* 2011;26:2415–24.
48. Isaksson S, Skoog-Svanberg A, Sydsjo G, Linell L, Lampic C. It takes two to tango: information sharing with offspring among heterosexual parents following identity release sperm donation. *Hum Reprod* 2016;31:1–8.
49. Harris RE, Shanner L. Seeking answers in the ether: longing to know one's origins is evident from donor conception websites. In: Guichon J, Mitchell I, Giroux M, editors. *The right to know one's origins*. Brussels, Belgium: ASP;2012:57–71.
50. Crawshaw M, Gunter C, Tidy C, Atherton F. Working with previously anonymous gamete donors and donor-conceived adults: recent practice experiences of running the DNA-based voluntary information exchange and contact register, UK DonorLink. *Hum Fertil* 2013;16:26–30.
51. Cushing AL. 'I just want more information about who I am': the search experience of sperm-donor offspring, searching for information about their donors and genetic heritage. *Inf Res* 2010;15.
52. Grotevant HD. Toward a process model of identity formation. *J Adolesc Res* 1987;2:203–22.
53. Lillehammer H. Who cares where you come from? Cultivating virtues of indifference. In: Freeman T, Ebtehaj F, Graham S, Richards M, editors. *Relatedness in assisted reproduction: families, origins and identities*. Cambridge, UK: Cambridge University Press; 2014:97–112.
54. Wrobel GM, Grotevant HD, McRoy RG. Adolescent search for birthparents: who moves forward? *J Adolesc Res* 2004;19:132–51.
55. Pennings G. The 'double track' policy for donor anonymity. *Hum Reprod* 1997;12:2839–44.
56. Daniels KR, Kramer W, Perez-y-Perez MV. Semen donors who are open to contact with their offspring: issues and implications for them and their families. *Reprod Biomed Online* 2012;25:670–7.
57. Crawshaw M, Daniels K, Adams D, Bourne K, van Hooff JAP, Kramer W, et al. Emerging models for facilitating contact between people genetically related through donor conception: a preliminary analysis and discussion. *Reprod Biomed Online* 2015;1:71–80.
58. Allan S. Donor conception, secrecy and the search for information. *J Law Med* 2012;19:631–50.
59. Victorian Assisted Reproductive Treatment Authority. *Central and voluntary registers*. Available: <https://www.varta.org.au/central-and-voluntary-registers>. Accessed June 9, 2016
60. American Society for Reproductive Medicine. Informing offspring of their conception by gamete or embryo donation: a committee opinion. *Fertil Steril* 2013;100:45–9.
61. Harper JC, Kennett D, Reisel D. The end of donor anonymity: how genetic testing is likely to drive anonymous gamete donation out of business. *Hum Reprod* 2016;31:1135–40.