



Advancing gender inclusivity for Two-Spirit, trans, nonbinary and other gender-diverse blood and plasma donors

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Abstract

Background and Objectives: Two-Spirit, trans, nonbinary and other gender-diverse (2STGD) donors face challenges in donation. While many blood operators aim to address these challenges, to date, no empirical study with these donors has been conducted to guide their efforts. This paper reports 2STGD donors' views on a two-step approach asking donors their gender and sex assigned at birth (SAAB), and expanding gender options in donor registration.

Materials and Methods: A qualitative community-based study was conducted with 2STGD donors ($n = 85$) in Canada. Semi-structured, in-depth interviews were conducted from July to October 2022, audio-recorded and transcribed. Data were analysed using a thematic analytic framework.

Results: Participants were divided on their views of a two-step approach asking gender and SAAB. Themes underlying views in favour of this approach included the following: demonstrating validation and visibility, and treating 2STGD donors and cisgender donors alike. Themes underlying views not in favour or uncertain included potential for harm, compromising physical safety, and invalidation. All participants were in favour of expanding gender options if blood operators must know donors' gender.

Conclusion: Results indicate that a two-step approach for all donors is not recommended unless the blood operator must know both a donor's gender and SAAB to

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ensure donor and/or recipient safety. Gender options should be expanded beyond binary options. Ongoing research and evidence synthesis are needed to determine how best to apply donor safety measures to nonbinary donors.

Keywords

blood donors, donor screening, gender diversity, nonbinary, plasma donors, qualitative methods, transgender

Highlights

- Results indicate that a two-step approach (i.e., asking donors their gender and sex assigned at birth [SAAB]) for all donors is not recommended unless it is imperative that the blood operator know both a donor's gender and SAAB to ensure donor and/or recipient safety.
- Results indicate that gender options should be expanded beyond binary options of woman/female and man/male if blood operators must know a donor's gender.
- Additional research and evidence synthesis should be conducted to determine how best to apply donor safety measures for nonbinary donors.

INTRODUCTION

Two-Spirit, trans, nonbinary, and other gender-diverse blood and plasma donors (henceforth 2STGD donors) face challenges in donation and have increasingly advocated for more inclusive and affirming donation policies and practices [1] (see Supporting Information S1 for glossary of terms). For example, a significant barrier for some 2STGD donors is a lack of gender/sex options beyond woman/female (W/F) or man/male (M/M). While many blood operators recognize the importance of ensuring that the donation experience is affirming and inclusive for 2STGD donors, to date, no empirical study with these donors has been conducted to guide their efforts [2, 3].

Blood operators use a donor's gender or sex/sex assigned at birth (SAAB) to ensure recipient and donor safety [3]. First, for blood operators using gender-specific donor questionnaires, different pregnancy questions and/or different versions of the men-who-have-sex-with-men (MSM) questions may be asked (to minimize the risk of transfusion-related acute lung injury and transfusion-transmitted infection). Second, a donor's gender/SAAB is used to determine donor safety criteria including estimated blood volume (EBV), minimum haemoglobin level, inter-donation period and ferritin cut-off values. Third, gender/SAAB is used to direct component production and testing such as programming apheresis collection and using plasma from donors registered as W/F for fractionation and not transfusion [3]. Any changes to how a donor's gender/SAAB is registered must consider both impacts on 2STGD donors, and how gender/SAAB is used for screening and processing.

Canadian Blood Services (CBS), one of two blood operators in Canada, is responsible for the collection and distribution of blood and blood products to all provinces and territories except Quebec. Any changes to screening criteria that may impact recipient safety must be approved by Health Canada, the regulator, before implementation. Beginning in 2016, a standardized approach was implemented to screen 2STGD donors. Donors who self-disclosed as 2STGD were

registered in their declared gender if they had genital gender-affirming surgery, or in their SAAB if they had not [3]. With the implementation of sexual-behaviour-based screening (SBBS) for all donors in September 2022, 2STGD donors are no longer asked if they have had genital gender-affirming surgery. SBBS refers to replacing the gendered MSM questions with gender-neutral sexual behaviour-based questions asked to all donors. With this change, the donor's gender/SAAB is no longer needed to guide which version of the questions they are asked. Currently, all binary donors are registered in their self-declared gender. While this is a significant improvement, nonbinary donors must still register in a binary gender or SAAB.

Globally, blood operators have different practices for registering donors' gender/SAAB [4]. This range is due, in part, to laws and policies that impact 2STGD people. These include laws in some countries that limit or prohibit 2STGD people's ability to live visible and authentic lives in their felt gender, and the lack of laws and policies to ensure physical and psychological safety for them. Where there is some consistency, however, is that most blood operators [4, 5] offer only binary gender/sex options (i.e., W/F or M/M) to donors since most rely on blood establishment computer systems (BECS) and automated collection devices that only allow for two gender/sex options. Data from one blood operator in the US that recently added gender options (i.e., F, M, Trans and Other) show no compromise to safety [5].

Cisnormativity underlies the erasure of 2STGD people [6]. Cisnormativity is a system of thought that includes the following assumptions: a person's gender is determined by, and always aligns with, SAAB; gender does not change over time, and everyone's gender and SAAB is the same and binary (woman = female or man = male). Any person whose gender and/or sex is not consistent with these assumptions is considered an outlier with attendant social, cultural, legal, health, and political consequences [6, 7]. Whether consciously or not, cisnormative assumptions that can cause harm to 2STGD donors are built into donor systems, processes, and practices.

Providing more inclusive gender options is not a unique consideration only for blood operators. Research on survey design for health and population-level data recommends a two-step approach (asking both gender and SAAB), which is more gender inclusive and accurate than a single question [8, 9]. A two-step question can address erasure of 2STGD people in research and bureaucratic systems [6], provided that options for gender and SAAB are not limited to binary options. Addressing erasure of 2STGD people in health and population survey data is a necessary first step to ensuring that they receive adequate healthcare resources and services. For healthcare settings that provide clinical care for 2STGD people, additional considerations may be necessary [10].

What remains unclear is whether the recommendation of a two-step question in surveys is transferable to blood donation. Suggested options that may improve the current gender limitations include the following: (1) moving to a two-step question for all donors; (2) keeping a single question asking gender and expanding gender options; and/or (3) moving to a more gender-neutral donation process overall whereby knowing a donor's gender is not necessary. These options are not mutually exclusive and given the significant impact on 2STGD donors, it is imperative to understand their views on these different options. Moreover, if additional gender options are provided to donors, the views of 2STGD people must be prioritized when determining which options to include since they will be most affected by options offered.

This paper reports results from a qualitative community-based study that was initiated in 2022 before Health Canada approval, and CBS' implementation of, SBBS and changes for 2STGD donors. Since 2STGD people and communities have not always been well-served by research and researchers [11, 12], we applied a community-based methodological approach that foregrounds co-learning between researchers and community members, shared decision-making, and benefits to communities involved [13–15]. We conducted an exploratory study to (1) better understand 2STGD donors' experiences of the donation process; (2) identify barriers and enablers to an inclusive, affirming, respectful and safer donation experience for 2STGD donors; and (3) explore 2STGD donors' views on the donor questionnaire and expanding gender options. Results presented below focus on the third objective and report participants' views on a two-step question and expanding gender options for donors. In the discussion, we apply study results to various options to advance gender inclusivity for 2STGD donors.

MATERIALS AND METHODS

This project applied ethical guidelines for research with 2STGD communities as outlined by the Canadian Professional Association for Transgender Health [16]. A Community Advisory Group of 2STGD community members provided feedback on study materials and guidance throughout the research process. REB approval was obtained from CBS (Ottawa, Canada) and the University of Victoria (Victoria, Canada).

Participant recruitment and data collection

Participants were recruited through the CBS donor database. Eligibility criteria included (1) self-identify as 2STGD, (2) 17 years and older, (3) donated or tried to donate blood and/or plasma in the previous 24 months and (4) comfortable in English. Because not all 2STGD donors would have self-identified when they donated, recruitment included two groups of donors: (1) donors known by the blood operator to be 2STGD and (2) general donor pool. All donors in group 1 who met eligibility criteria were sent a recruitment email ($N = 360$). Three thousand donors in group 2 were randomly selected to receive a recruitment email. Initially, we aimed to recruit 30–40 participants; however, given the high level of interest and our commitment to hearing from everyone who wanted to participate, everyone who expressed interest and met eligibility criteria was included for a total of 85 participants. Because we cannot determine whether a participant was recruited through group 1 or 2, we cannot calculate a response rate for each group.

Data were generated through in-depth, semi-structured interviews conducted July–October 2022. Participants had the option to be interviewed by telephone or videoconference, and to be interviewed by a transgender, nonbinary, or cisgender member of the study team. Interview topics included experiences with blood/plasma donation, experiences completing the donor questionnaire, and views on expanding gender options in donor screening. Open-ended questions enabled participants to share what was relevant to them to ensure that data were grounded in the experiences and views of the participants. Interviews were 20–75 min long, audio-recorded with participants' consent and transcribed. Following transcription, participants were able to review their transcript. Participants were offered a \$25 e-gift card.

Data analysis

Data analysis was guided by an interpretivist epistemological approach. According to this view, phenomena are known primarily through the meanings, interpretations, and ideas that people use to make sense of, or construct, the phenomena of interest [17]. Because a guiding research question was to understand 2STGD donors' views on potential improvements to registering donors' gender, we used thematic analysis for its methodological flexibility [18, 19]. First, deductive coding of participants' views as either in favour of changing to a two-step question, uncertain about this change, or not in favour of this change was completed. Second, open and inductive interpretive coding was completed to understand the reasons, assumptions and meanings underlying their views [18, 19].

Data were coded by three members of the research team. Each person independently read an interview transcript making note of both categorical and a priori codes (e.g., views on a two-step question), and interpretive or thematic codes (e.g., demonstrating validation and visibility). Following this in-depth read, coders met to discuss and develop a codebook. All three then applied the codebook

TABLE 1 Characteristics of study sample and all known 2STGD donors.

Characteristics	Study participants (n = 85)	Known 2STGD donors (N = 450) ^a
	Number (%)	Number (%)
Age		
17–19	4 (4.7)	30 (6.7)
20–29	40 (47.1)	239 (53.1)
30–39	26 (30.6)	122 (27.1)
40–49	10 (11.8)	38 (8.4)
50+	5 (5.9)	21 (4.7)
Gender		
Trans woman/transfeminine ^b	23 (27.1)	-
Trans man/transmasculine ^c	41 (48.2)	-
Nonbinary	20 (23.5)	-
Agender	1 (1.2)	-
Gender/SAAB^d		
Female	-	298 (66.2)
Male	-	152 (33.8)
Ethnicity		
Indigenous/Aboriginal	1 (1.2)	10 (2.2)
Asian/E Asian/SE Asian	4 (4.7)	33 (7.3)
White/Caucasian	70 (82.4)	326 (72.4)
Filipino	2 (2.4)	1 (0.2)
Latin American/Hispanic	1 (1.2)	4 (0.9)
South Asian	1 (1.2)	8 (1.8)
Multi-ethnic	6 (7.1)	15 (3.3)
Arabic/Middle Eastern	-	2 (0.4)
Black/Black Caribbean	-	4 (0.9)
Other	-	30 (6.7)
No response	-	17 (3.8)
Number of donations		
1	6 (1.3)	-
2–3	16 (18.8)	-
4–9	26 (30.6)	-
10–19	23 (27.1)	-
20–29	7 (8.2)	-
30–39	4 (4.7)	-
40+	3 (3.5)	-
Donor status		
New donor (1 donation)	6 (1.3)	190 (42.2)
Return donor (>1 donation)	79 (92.9)	260 (57.8)

^aDonors with a 6500 code were 0.08% of the total donors over the same period (N = 562,513). Only 360 of the 450 donors were sent a recruitment email.

^bParticipants provided their gender in free text. Trans woman/transfeminine also includes transgender woman, trans female and female.

^cParticipants provided their gender in free text. Trans man/transmasculine also includes transgender man, trans male and 'just M'.

^dThe gender/SAAB categories provided here are the options provided by Canadian Blood Services.

independently to a second interview transcript and noted any differences in the interpretation of codes to ensure clarity of the codebook and relative consistency across coders. Following this second step, two members coded the remainder of the interview transcripts using

Nvivo 12. All coders met weekly during the coding process to discuss the process, analytic themes, and any new emergent codes. Disagreements between coders were resolved through discussion and all coders agreed on the final codebook.

Participant characteristics

More than three-quarters of participants were between the ages of 20 and 39 (77.7%), the largest proportion self-identified as trans man/transmasculine (48.2%), followed by trans woman/transfeminine (27.1%), and nonbinary (23.5%). Most were White (82.4%) and return donors (92.9%) and had donated over four times (74.1%). Compared with all known 2STGD donors who had donated from June 2020 to September 2022 (study recruitment period), slightly more participants were in the 40+ age groups, participants were less ethnically diverse, and more were return donors. Comparing gender characteristics for these two groups is not possible since donors are limited to binary options only in donor registration. It is noteworthy that 25% of participants—those who are nonbinary or agender—could not be registered in their gender within the current binary system (see Table 1).

RESULTS

Participants' views were mixed on a two-step approach asking gender and SAAB with 50.6% ($n = 43$) in favour of this change, 21.2% ($n = 18$) not in favour, and 28.2% ($n = 24$) uncertain about this change. In presenting thematic results below, we have combined participants who were not in favour and uncertain since these two groups expressed similar themes concerning the reasons for, and meanings underlying, their views.

In favour of a two-step approach

Demonstrating validation and visibility

Moving from a single question asking gender or SAAB with binary options only, to a two-step approach of asking gender and SAAB was viewed as validating and giving visibility to gender diversity among donors. Participants whose gender was not offered by the options of F or M provided by CBS felt invisible or erased. This was particularly the case for nonbinary participants and for those 2STGD participants who wanted their gender to be visible. One participant explained that a two-step question signalled that they would be visible in 'people's thought processes and systems' (P09).

Validation and visibility were also related to clarity in the donation process. Some participants found that the current limitations on gender registration led to ambiguity regarding if they should indicate to donor centre staff that they are 2STGD:

At least there would be an opening for conversation instead of me feeling like, do I just tell them [I am trans], or do I wait 'til they ask? Sometimes that's a little awkward and I'm never sure how to bring it up. (P45)

These participants assumed that blood operators need this information. However, without a clear question asking if they are 2STGD,

they found the current process confusing and, at times, inconsistent because of different staff practices. On this point, a few participants wanted to be asked directly if they are transgender if the blood operator needs to know, and then to have this question followed with a two-step question. Several also mentioned that a two-step question was preferred because it is consistent with changes made to the latest version of the Canadian census (2021).

Being treated the same as cisgender donors

During the interview, participants were told that if a two-step question were implemented, it would be asked to all donors. This was viewed by some as an improvement because it meant that they would be treated the same as cisgender donors. Many interpreted this to mean that they would not be singled out and asked additional questions about genital gender-affirming surgery, as they had been prior to the changes in September 2022.

Not in favour or uncertain of a two-step approach

Potential for psychological harm

For many participants not in favour, or uncertain, of a two-step approach, asking SAAB not a neutral question because it evokes past experiences that caused psychological distress. In particular, participants expressed concerns that asking SAAB could cause psychological harm to 2STGD people 'who have endured a lot of trauma around their sex and gender' (P07). Being asked explicitly their SAAB was described as a reminder that their gender does not align with their SAAB. One participant explained that being asked their SAAB is a reminder of 'a body and a person that is not them' (P44), while another explained that they 'would be against a [two-step question] because when a person transitions, their dead life is their dead life' (P81). Participants also spoke about feeling discomfort because they considered asking SAAB to be asking about their genitals and therefore highly 'intrusive' (P84). For these participants, being asked their SAAB would be asking them to verify someone who they are not, with the potential for psychological harm caused by being reduced to their genitals. Others described the potential psychological harm of being judged by staff who may not understand or accept gender diversity.

Having to out themselves and compromise safety

In addition to potential psychological harm, participants expressed concerns with a two-step approach requiring 2STGD donors to out themselves when both questions are asked. Some participants explained that being out as trans 'opens people up to discrimination and transphobia' (P70). That is, providing this information carries with it risks to their safety. A two-step approach also raises the potential to be inadvertently outed if other donors or staff overhear their

responses, or if staff speak about their responses in a public area, compromising the physical safety of 2STGD donors. Some participants did not feel safe enough to be out in their communities, especially in smaller communities. For some, the potential to be outed, coupled with the risk of having their gender be ‘something that can be used against you down the line’ (P82), was enough to deter them from donating if a two-step approach is implemented.

Invalidating who they are

Asking a two-step question was viewed by some participants as invalidating who they are because they interpreted asking SAAB as suggesting that their gender is not sufficient or a ‘real’ reflection of who they are. Several likened it to asking racialized people where they are ‘really from’ when they say they are from Canada; a question that is widely understood by many in the Canadian context to be inappropriate, if not racist.

Underlying assumptions

Key to understanding the different views on a two-step question were assumptions held by participants regarding the need for blood operators to know both gender and SAAB. Those who were in favour of a two-step question did not question why the blood operator needs to know both. Some stated that they understood the blood operator needs to know SAAB, and many spoke about preferring a two-step question over the single question asking a donor’s gender followed by additional questions to 2STGD donors only (i.e., the screening process at the time of the study). This suggests that participants in favour held the assumption that blood operators need to know both gender and SAAB. Most participants who were not in favour or uncertain of a two-step question questioned why blood operators would need to know SAAB, suggesting that they did not assume that blood operators need this information. For example:

I don’t want to just randomly disclose to people my sex assigned at birth. I don’t have to do that in literally any other setting... Even in a healthcare setting, I don’t need to randomly disclose my transness unless it’s related to my care, right? If I have a uterus, it’s only relevant if I have abdominal pain. If I’m going in for a sprained ankle, who cares?... If you’re taking my blood, why are you asking me about my genitals?

(P85)

Several suggested that a better approach than a two-step question would be to continue to move to a more gender-neutral screening process that relies less on organizing donors into different genders to assess donor health, recipient safety, and blood/plasma processing. Instead, participants preferred the blood operator to ask all donors

about specific information needed. For example, asking all donors about pregnancies rather than asking only those donors registered as woman/female. As one participant put it, asking directly is better than ‘approaching it [i.e., needed information] sideways’ (P29).

Expanding gender options

All participants were in favour of expanding gender options beyond binary options if the blood operator needs to know a donor’s gender. Several explained that expanding options would provide visibility and validation for 2STGD donors without having to ask a two-step question. At minimum, participants recommended adding ‘nonbinary’, ‘Two-Spirit’ and ‘self-describe’ options. Because genders are dynamic and may change, they suggested that a ‘self-describe’ option, or an option that would enable donors to write in their gender, would be preferred. Several suggested ‘prefer not to say’ as an option to make gender disclosure optional.

DISCUSSION

2STGD donors’ views on more inclusive ways to register gender offer important insights for blood operators. First, taken as a whole, we suggest that results indicate that a two-step approach for all donors is not recommended unless it is imperative that the blood operator know both a donor’s gender and SAAB to ensure donor and/or recipient safety. This suggests that recommendations for a two-step approach in health and population surveys are not necessarily transferable to a donation context. Given that participants in favour of a two-step approach assumed that blood operators must know SAAB, the imperative to know SAAB must first be established, and the need to know SAAB must be weighed against participants’ concerns regarding potential psychological and physical harm of asking SAAB.

On the question of whether it is imperative to know SAAB, consideration of the uses of gender/SAAB in blood donation is warranted. For blood operators who have implemented an SBBS approach, a donor’s gender/SAAB is no longer needed to determine which version of the gendered MSM question they must answer. If MSM questions remain, it is necessary to consider whether knowing a donor’s SAAB is imperative, or if the information to determine which version of the question to ask could be arrived at differently. For blood operators who use gender/SAAB to ask only those registered as W/F about prior pregnancies and miscarriages to guide blood component use, they might consider asking all donors this question. Many participants preferred that blood operators ask direct questions to elicit the information they need rather than using gender/SAAB as a proxy. Use of gender and/or SAAB to determine donor safety measures should also be considered. Many 2STGD, and cisgender, donors take hormones that can impact haemoglobin level [20] and may also impact EBV [3]. As such, using a donor’s SAAB may not offer the most accurate donor safety measures, and asking about hormone use may be warranted.

While not an exhaustive list, these considerations are offered to support blood operators in different jurisdictions and contexts that may have different practices.

If, after having considered all options, blood operators consider it necessary to ask a two-step question, it is imperative that they consider how the questions will be asked (e.g., online or in person, one time or every donation), how the information will be stored, who will have access to it, and how the information will be used (i.e., why gender and SAAB are necessary for blood donation) must be explained to donors. To minimize risks to psychological and physical safety, we recommend asking donors their SAAB online and only once, ensuring security of this information and providing access only to staff who require it for specific purposes. That is, minimizing the potential for a donor's SAAB to be shared in public areas and thereby compromise safety. If the questions are asked in person, staff must be trained to ensure questions are asked in a respectful and inclusive manner.

A second option is to ask all donors a single question regarding their gender and to expand gender options. All participants were in favour of this change, leading to our recommendation that gender options be expanded, even if a two-step approach is taken. Expanding gender options could also deliver on the desire of some participants to feel validated, make gender diversity visible, and to treat 2STGD and cisgender donors alike. In Canada, additional options should include nonbinary, Two-Spirit, and self-describe, which would enable donors to write in or tell staff their gender if they feel safe enough to do so. As some participants noted, an increasing number of health and bureaucratic forms now offer additional gender options, increasing the expectation that blood operators do the same. In Canada, the census now includes a third, open text, option under the question asking the respondent's gender [21]. For other countries, research in collaboration with 2STGD communities should be conducted to determine which additional gender options to include. Participants explained that expanding gender options would be most significant for nonbinary donors. We recognize that a significant limitation in providing additional gender options is the BECS used by many blood operators, and would encourage ongoing international collaboration to make necessary system updates. Updates should include flexibility in options to allow blood operators in different countries to offer options that are meaningful and appropriate for their context.

With additional gender options, we recommend ongoing research and review of existing research to apply donor safety measures and criteria (i.e., minimum haemoglobin, donation frequency, and EBV) to nonbinary donors. Review of research on physiological markers (e.g., ferritin, exogenous and endogenous hormone status), donor choice through an informed approach (i.e., providing information about donor safety measures associated with each gender option so that donors can make an informed decision when registering their gender), or other ways to determine donor safety measures for nonbinary donors should be conducted to establish the most accurate and inclusive donor screening criteria. Nonbinary donors may be on hormone therapy [22] and therefore blood operators should not assume that they are not when determining appropriate donor safety measures. In the shorter term, while research and

evidence synthesis is ongoing, the Association for the Advancement of Blood and Biotherapies recommends applying 'the most protective donor safety measures for nonbinary people' [23]. These criteria, however, should not be referred to as binary gender/SAAB criteria (e.g., referred to as applying the 'female criteria' to nonbinary donors). Rhetorical naming plays a significant role in organizing systems of thought that can reinforce cisnormativity and contribute to erasure of nonbinary people.

A third option is for blood operators to move towards a more gender-neutral donation process whereby knowing a donor's gender may be optional. This is already happening with, for example, the move to a more gender-neutral SBBS approach by some blood operators. Asking all donors about prior pregnancies is another example of providing a more gender-neutral process. That some participants suggested donors should have the option to provide their gender indicates some support for a fully gender-neutral process. On the other hand, other participants valued being seen as 2STGD and making gender diversity among donors visible. For many of these donors, blood/plasma donation was an act of social advocacy, demonstrating that 2STGD people participate in acts of social citizenship. While efforts to offer a more gender-neutral donation process are ongoing, we recommend that reasons for asking gender be explained, gender options be expanded, measures associated with gender options be clearly explained, and to enable donors to indicate their gender online/on an app.

Finally, staff must be trained to engage with donors on this topic. At the very least, staff training should equip them to explain clearly why gender (and/or SAAB) is relevant to donation, how the information will be used and who will have access to this information. Many participants did not know why this information was needed, and/or were given conflicting information. Frontline staff are critical to ensuring a positive donation experience [24] and ensuring safety in the donor centre [25].

2STGD donors make valuable contributions to blood systems and blood operators should continue their efforts to provide a more inclusive donation experience for them. This paper contributes evidence-informed recommendations to support blood operators in these efforts. Ongoing research and engagement with 2STGD donors is needed to address multiple barriers that they experience during donation.

Limitations

To build on thematic findings, the prevalence of differing views could be determined by conducting a survey with a larger representative sample of 2STGD donors. Our study sample had an overrepresentation of experienced and White donors whose views may differ from first-time and racialized donors. Further study of first-time and racialized 2STGD donors is needed with an intersectional analysis. Finally, this study was conducted before changes made to the trans screening criteria in September 2022. Examining the impact of these changes on 2STGD donors is highly recommended.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

Data are not publicly available.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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