




Reinduction of the Temporarily Deferred Donors for Laying the Foundation of Safe and Sustainable Blood Supplies: A Review in the Indian Context

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Received: 19 August 2021 / Accepted: 29 December 2021 / Published online: 10 January 2022
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Abstract Temporarily deferred donors are a forgotten pool of potential blood source. When dealt appropriately, they can easily be inducted back to the main stream pool of voluntary donors. Although there are multiple studies from India on the deferral rates and patterns; not much has been done with respect to the follow up of these donors and active efforts to bring them back to donate blood. In this narrative review, we discuss the impact of temporary deferral, factors affecting the return and appropriate strategies to improve the return rate of these donors.

Keywords Temporary deferral · Blood donation · India · Recruitment · Retention

Introduction

Recruitment and retention of voluntary blood donors is one of the fundamental goals of transfusion services. Multiple factors influence the decision to donate blood. There are motivating factors, such as altruism, moral responsibility, self-esteem, warm glow, awareness about the need, personal request and receiving incentives [1–4]. Efforts to boost donation numbers by reinforcing these motivating factors have been studied and are known to work successfully [5–8]. Equal role is played by deterring factors like fear, temporary deferral, lack of awareness, apathy and unpleasant donation experience [1, 2, 4]. These factors prevent the donor, as well as their peers and relatives from donating blood. Hence, understanding the donor psychology is the key and efforts must continue to sustain the recruited pool for laying the foundation for a safe and sustainable blood supply. In this narrative review, we discuss one unique deterring factor i.e., temporary deferral (TD), that is done with a positive intent, but may have a negative impact on donor retention. In addition, we also discuss the factors affecting return of temporarily deferred donors (TDD) and strategies to improve their return.

Impact of TD on Donor Return

Deferral criteria set up by regulatory authorities are to ensure not just recipient safety, but donor safety as well. The various reasons for TD as per the latest amendment in the Drugs & Cosmetics Act and the Rules have been detailed in Table 1 [9]. The deferral might benefit the donor in some cases, when a silent underlying medical condition is identified through the screening process [10–13]. It is important to understand the effect of TD on the donor

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Table 1 Causes of temporary deferral

| | | |
|---------------|--|-------------------------|
| Medical | Low Hemoglobin | |
| | Cardio-vascular (High/low–Blood pressure / pulse rate) | |
| | Medication intake (those acceptable after a deferral period) | |
| | Menstruation / Pregnancy / Abortion/ Lactation | |
| | Vaccination | |
| | Infectious diseases (Malaria, Typhoid, Dengue, Chikungunya, Tuberculosis, Chickenpox, Skin infection, Hepatitis A/E, Conjunctivitis, Osteomyelitis, Pyelonephritis, UTI, etc.) | |
| | Respiratory causes (Abnormal respiratory rate, Common cold, fFu) | |
| | Endocrinological conditions (Diabetes, Hypothyroidism not controlled despite medication) | |
| | Minor non-specific symptoms (Fever, Malaise, Headache etc.) | |
| | Allergy | |
| | GI upset, Endoscopy | |
| | Migraine | |
| | Past blood transfusion | |
| | Previous whole blood donation < 3 months (males); < 4 months (females) Change in dose or type of medication for Diabetes, Hypertension and Thyroid disorders | |
| | Unknown medication till details can be ascertained | |
| | Surgical | Major / minor surgeries |
| | | Tooth extraction |
| Demography | Age < 18 years | |
| | Weight < 45 kgs | |
| Miscellaneous | Tattoo | |
| | Ear piercing | |
| | Lack of sleep | |
| | Fasting | |
| | Alcohol intake | |
| | Foreign Nationals | |
| | Apprehensive donor | |

psyche. There is conclusive evidence from studies abroad on the detrimental effect of TD on future donations. The Australian Red Cross observed that TD delayed the time to next donation, reduced frequency of future donations and increased the dropout rate significantly when compared to donors who were not deferred [14]. Similar results were observed by the American Red Cross, wherein nondeferred donors were 29% more likely to donate blood in future when compared to TDD [15]. Also, first time donors were less likely to return after a TD when compared to repeat donors [16, 17].

Studies from other countries observed that TD significantly reduces the probability of donor return, increases time taken for a subsequent donation, reduces overall donations in future when compared with donors who have never been deferred [14–17]. This is because, the “proud-blood-donor” identity is lost and the habit of regular donation is interrupted. Also, a deferred donor is likely to feel dejected, consider his/her time wasted, and thus conclude that donation procedure is difficult and communicate the bitter experience to their peers. Tangibly apart from the anxiety; time and financial implications that arise upon the donor when an ailment is identified unexpectedly and the related cost incurred for treatment.

TD rates in India have been observed to vary from 2.9 to 12.9% [18–26]. Common causes being low hemoglobin, abnormal blood pressure, alcoholism, underweight, medication intake and recent infections (Table 2). Hence, a sizeable pool of donors is lost over the years due to TD. There is dearth of data on the follow-up of Indian donors after TD, and only a few studies have followed TDD [27–29]. Studies to understand the impact on donor’s psyche will help in coming up with strategies suitable for sustaining the regional blood supply.

Theoretically, TDD should be easier to re-recruit as they have been successfully motivated, overcome their fear, willfully spent their time and effort to reach the donation site at least on one occasion. But in practice, these donors harbor more inhibitory inertia, sequel to the dejection of deferral. Hence, a holistic approach is essential to recruit them back.

Factors Affecting Return of TDD

TD in itself negatively impacts donor return. Sensitive groups such as first time donors, younger donors, replacement donors, donors lacking awareness on blood requirement, deferred multiple times, had a bad donation experience, deferred unnecessarily, received improper communication about the duration of deferral are more unlikely to return for a subsequent donation [20, 30–37]. Female donors may actually be a safer source [38]. However, the gender effect on return rate is not explicitly clear, as some studies observe that men are less likely to return after TD, whereas others observed the contrary [17, 31, 32, 39]. The common reasons for TD in female donors are low hemoglobin, menstruation, pregnancy and lactation. The status of these conditions changes over time and are amenable to interventions to resume donation easily. But, females in general are multitaskers with more responsibilities and hence may not have time to spare for

Table 2 Temporary deferral rates and common reasons for temporary deferral in various parts of India

| Study | Study population | Temporary deferral rate (%) | Common reasons for deferral |
|-------------------------------------|------------------|-----------------------------|--|
| Ahmad et al. [15] Delhi | 7806 | 12.3 | Low Hb: 5.5% Alcoholism: 1.6% Abnormal BP: 1.3% |
| Kandasamy et al. [16] Karnataka | 99,680 | 10.4 | Low Hb: 5.6% Abnormal BP: 1.4% Underweight: 0.9% Alcoholism: 0.7% Medication: 0.5% |
| Sundar et al. [17] Karnataka | 16,706 | 3.7 | Low Hb: 1.3% Infection: 1.0% Underweight: 0.7% Abnormal BP: 0.6% |
| Agnihotri et al. [18] Maharashtra | 6357 | 11.2 | Low Hb: 6.5% Abnormal BP: 1.3% Medication: 0.8% Underweight: 0.3% |
| Chauhan et al. [19] Uttar Pradesh | 26,029 | 4.6* | Low Hb: 2.3% Alcoholism: 0.9% Medication: 0.3% Infection: 0.3% |
| Meinia et al. [20] J&K | 16,015 | 6.2* | Low Hb: 2.9% Medication: 1.0% Underweight: 0.5% Infection: 0.4% |
| John et al. [21] Kerala | 16,805 | 2.7* | Low Hb: 0.5% Infection: 0.4% Medication: 0.3% Alcoholism: 0.3% |
| Chaudhary et al. [22] Uttar Pradesh | 14,269 | 12.6 | Underweight: 5.3% Low Hb: 3.1% Under age: 0.9% Infection: 0.8% Abnormal BP: 0.6% |
| Bahadur et al. [23] Delhi | 16,694 | 7.5* | Low Hb: 2.9% Underweight: 2.4% Alcoholism: 0.6% |

Hb Hemoglobin, *BP* Blood pressure, *Corrected temporary deferral rate (after excluding jaundice / hepatitis infection)

blood donation [40]. Bruhin et al. observed that male donors react to the first deferral, whereas females respond only after repeated deferrals [39]. Other impediments like prolonged waiting time, distant location of donation site and bad conduct of staff also have an unfavorable effect [41–43]. Identifying the sensitive groups and implementing strategies targeting each group will help in improving the overall return rate of TDD (Table 3).

Strategies to Improve TDD's Return

There are three possible strategies that deserve attention and implementation. First, to minimize the “dejection” feeling among TD donors (information, education and communication). Second is to keep in touch with the TD donor in between the deferral period (donor engagement). Third is to work on modalities to re-recruit them (communication and motivation).

Short Term Strategies

- Easing the deferral process: The preliminary steps in re-recruitment of the TDD starts at the time of deferral. Self-deferral, preliminary telephonic or online screening may help in reducing the time spent in physically reaching the donation center. TD documentation and retaining contact details of TDD must be given due importance, without which the donor may be lost from the blood center records.
- Communication: This is the most important step which will help in donor return. Some donors misinterpret their deferral to be permanent or assume that they will

be rejected in their next attempt as well [30, 32]. Hence, information on the nature (temporary or permanent), reason and duration of deferral must be clearly yet politely conveyed to the donor [44]. Fixing the next appointment for donation and guiding the donor towards an alternate good deed can also be a motivating factor [31].

Long Term Strategies

- Enrollment in research studies: Once the donor has left the donation site, various strategies to keep in touch with the donor like enrolling them in research studies

Table 3 Sensitive groups, reasons for not returning and tailored strategies to improve donor return rate among TDDs

| Sensitive groups | Reasons for not returning | Strategies to improve donor return rate |
|--------------------------------|---|--|
| 1. First time donors | Yet to develop the “proud blood donor” identity More nervous about donation May justify TD as a reason not to donate in future | Increase awareness on need of blood Allaying fears of first-time donors Personal request to donate blood Make blood donation more convenient (location and timing) Small reward or prize to encourage first-time donors |
| 2. Younger donors | More resilient to dejection of deferral Apathy | Adopting soft skills during deferral Target youth sentiments to re-recruit (Friendship’s Day) Adjust donation camps according to exams and holidays Promote group donation (National Service Scheme/Red Cross/Red Ribbon Clubs) Keep in touch via social media platforms |
| 3. Replacement donors | Lack of altruism Donate blood only when personally asked | Donor education to improve awareness Motivational messages and conversation Mobile blood donation drives |
| 4. Donors lacking awareness | Not aware of the shortage of blood supply, importance of donating blood and the nobleness in the act of donation Expect personal request to donate blood | Donor education and motivation Increasing awareness on need of blood via personalized letter, SMS, e-mail, telephonic conversation and social media platforms |
| 5. Longer duration of deferral | Out of touch with the blood collection services Confuse their deferral to be permanent | Clear communication regarding duration of deferral Keep in touch with donor in between the deferral period Enrollment in research studies Assisting in treatment of underlying cause of deferral Re-recruit immediately after completion of deferral period |
| 6. Bad donation experience | Reduced intent to donate again Share bad experiences with peers and relatives Increase in fear and vasovagal reactions | Training of staff with respect to soft skills Receive feed-back from donors and to regularly audit staff performances Shorten waiting time Improve donation environment Efforts to minimize donor reactions |
| 7. Unnecessary deferral | Unnecessary rejection, stigmatization and stress in donors Frustration when another blood centre accepts donor for donation Diminish confidence in organization | There should be no inter-staff variation in screening policies Strict adherence to SOP When in doubt, discuss with senior or in-charge |

and offering tests / treatment related to the reason behind deferral can be adopted. [45, 46] The current COVID-19 pandemic had its own share in disrupting blood collection due to lockdown, donor fear and increase in deferral rate due to additional screening criteria. [47–49] During such times, offering additional tests like antibody detection may keep donors in touch with the blood center. Also, registering the deferred donors in the convalescent plasma registry may bring back “proud-blood-donor” identity.

- Timely reminders: Negative emotions of dejection gradually fade over time and re-recruitment is best done as soon as the completion of deferral period [14, 30, 50, 51]. Reminders through personalized letter, SMS, e-mail or telephonic conversation have been found to work successfully [36, 52–54]. Telephonic communication has been observed to have a better return rate, but SMS services were found to be more cost-effective with a better contact rate [55].
- Easing the process of donation: Time constraint has been the most common reason given by the TDD for not donating blood again [56]. Hence, organizing mobile drives, widening collection hours, taking steps to prevent vasovagal reactions and encouraging to donate in other blood centers shall help in improving overall donor return rate [30, 57–60].
- Donor welfare clinics: Setting up donor welfare clinics will be a step towards easy and hassle-free way of helping the donors in obtaining treatment for the deferral reason. This in long run will promote donor return. As low hemoglobin is one of the most common reason for temporary deferral in our country; performing relative investigations, encouraging dietary modifications and offering iron supplementation can be an assured way to reduce future deferral rates.
- Improving donor awareness: Appropriate counselling to improve the awareness among donors regarding the importance of safe and adequate blood supply in itself will help in donor return back.

Summary & Conclusion

There is a sizeable TDD pool that needs to be tapped for augmenting and sustaining blood supplies. TD donors are already past the non-donor inertia and just need engagement with the donation team using any of the previously mentioned strategies to be inducted again. The TDD, deferred on account of donor safety such as the females may represent a safe donor pool for future. In India, although the deferral patterns have been studied in detail, only few studies have followed up the TDD. Hence, more

evidence from studies on the effect on donor psyche following TD, the intention to donate and the actual donor return rates is needed to plan holistic tailor-made strategies to re-induct the TDD. The reason behind paucity of literature from our country is the lack of a unified donor data retrieval system. Introduction of an online donor management system will help in donor mapping and retrieval of donor information easier and will lay the foundation safe and sustainable blood supplies for the future.

Authors Contribution PJA Literature search, initial preparation and editing of manuscript KK Literature search, initial preparation and editing of manuscript SS Conceptualization, literature search, manuscript editing, review and final approval RRS Manuscript editing, review and final approval PC Manuscript editing, review and final approval.

Funding Not Applicable

Declarations

Conflict of interest The authors declare that they have no conflict of interest.

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