

Analysis of efforts to maintain safe donor in main donor pool after completion of temporary deferral period

Ripal Shah, Sunita Tulsiani¹, Harimoorthy V², Ankit Mathur³, Nabajyoti Choudhury⁴

Medical Director,
Indian Red Cross
Society Blood Bank,
Ahmedabad, Gujarat,
¹Jeevanjyot Blood
Bank, Nagpur,
Maharashtra,
²Prathama Blood
Center, Ahmedabad,
Gujarat, ³Consultant
Transfusion Medicine,
TTK Rotary Blood
Bank, Bangalore,
⁴Additional Director &
HOD, Department of
Transfusion Medicine,
Fortis Memorial
Research Institute,
Gurgaon,
Haryana, India

Abstract:

Background: Voluntary blood donation is not satisfactory all over India. In India, about 55% of donation is through voluntary non-remunerated blood donors (VNRBD). However, about one third already motivated blood donors are deferred due to stringent screening criteria, either temporarily or permanently. The temporarily deferred donors could be a good source of blood donation after deferral period. **Aims:** The present study is carried out to know retrieval of blood donors those who are deferred temporarily. **Design:** The present study is carried out in the Regional Blood Transfusion Centre of Western India. All donors screened as per the guideline and deferred donors are categorized as temporary and permanently deferred donors. **Materials and Methods:** From temporarily deferred donors, reason for deferral is considered. As per reason of deferral, time duration for recalling the donor is defined. Based on this, donor is called back to donate again. **Statistical Analysis:** Chi-square test is applied. **Result:** A total of 33% donors were deferred either temporarily or permanently. In the repeat donors (5.32%) deferral rate was significantly higher than first time (1.32%) donors. Significant female preponderance was observed (15.05% vs 2.51%). Majority of temporarily deferred donors were less than 40 years of age (80.80%), graduate (82.90%), from low income group (62.90%) and profession was service (48.10%). **Conclusion:** Low hemoglobin (78.30%) was the most common reason of temporary deferral, both in first time and repeat donors (71.00%). Efforts to increase the hemoglobin in the repeat donors will improve the donor retention and overall blood safety can be increased.

Key words:

Donor return, hemoglobin, retrieval, temporary deferral, voluntary non-remunerated blood donors/ blood donor

Introduction

Blood is scarce material which is available only from donation by human beings. It is widely accepted that the highest safety levels of quality and safety are achieved when the blood supply is based on voluntary, non-remunerated donations.^[1] Blood transfusion has proven benefits but it also carries serious risks including transmission of infection to the recipient. To ensure recipient safety in mind, each BTS is following stringent criteria for donor selection as per law. During stringent blood donor selection, many voluntary donors are deferred. Efforts to ensure donor and recipient safety have reduced the population of eligible voluntary donors. Donors who are temporarily deferred should be clearly informed of the reason and actively encouraged to return after a suitable interval.^[2,3] Most of the temporarily deferred donation conditions are usually ranged from few days to few months, which make the person eligible to donate blood again.^[4] The voluntary blood donation in India is about 55% and even in developing countries number of voluntary donation is reducing due to various reasons (ref x 2). One possible way for the increasing voluntary donation is to retrieve the possible voluntary donors

who are self motivated and came forward for blood donation but are deferred on temporary basis from blood donation activity. This study was conducted to find out efficacy of retrieving voluntary donor from deferred donor pool, to fulfill the gap of donation and requirement by motivating already motivated but deferred donors, to follow up of the return donation pattern after deferral and to see change in donor return rates, especially among first-time donors.^[5]

Materials and Methods

The present prospective study was carried out on random Voluntary Non-Remunerated Blood Donor (VNRBD) at a Regional Blood Transfusion Center (RBTC) at Ahmedabad. All donors were screened according to the standard operating procedure (SOP) based on Indian Drug and Cosmetic Act (1940). The study was conducted from August 2006 to July 2007. In the present study whole blood donors who volunteered to donate blood in the in-house (IH) sessions or mobile vans (MV) but deferred temporarily were included. Among all deferred donors, randomly selected 1000 temporarily deferred donors from MV and IH were included in the study.

Access this article online

Website: www.ajts.org

DOI: 10.4103/0973-6247.106742

Quick Response Code:



Correspondence to:

Dr. Ripal Shah,

2, Keshavkunj Flats,
Near Jethabhai Park,
Narayan Nagar Road,
Paldi, Ahmedabad,
Gujarat, India.

E-mail: drripalshah@yahoo.co.in

Depending on the reasons of deferral, the period was defined for the donor to come back for blood donation. For lower age the criteria was kept as 3 months, for acute infection or medication it was 7 days. For the reasons like low hemoglobin (Hb), minor operation and lower blood pressure, duration was kept as 3 months from the date of deferral. Deferral period for females due to menstrual cycle was kept at 7 days. After completion of deferral period, the donors were called back for donation. At the time of deferral, a well defined performa, in the form of questionnaire was given to blood donors to fill up. Format includes the demographic data, reason for donation, past deferral if any and detail of past deferral, willingness to donate again after completion of deferral period etc. Donors were evaluated as per different demographic data. Chi-square (χ^2) test was applied for statistical analysis.

Results

The study was carried out from August 2006 to July 2007. During the study period, a total of 34,625 donors donated whole blood altruistically in various sessions in MV, or IH and blood donation camps. Total 10896 (33.00%) donors were deferred either temporarily or permanently in the different sessions of blood donation. Out of deferred donors, a total of 3596 (29.05%) donors were deferred either temporarily or permanently in MV or IH.

Total 20,974 (60.57%) donors were first time donors and 13651 (39.43%) were repeat donors. In the study group, 277 (27.70%) donors were first time and 723 (72.30%) were repeat donors. In the repeat donors deferral rate was significantly higher than first time donors ($P < 0.05$). When there was significant seasonal fall in the total blood collection, blood collection in MV and IH remains consistent (October-November and March-April). This suggests that there was a consistent blood donation occurring in the MV and I/H session. Donors were deferred either temporarily or permanently depending on the reason of deferral. In MV and IH, 72.00% donors were deferred temporarily and 28.00% donors deferred on permanent deferral criteria. Out of 7625 temporarily deferred donors, 2593 (34.00%) donors were deferred in MV and IH and rest were deferred in outdoor blood collection drives. Out of these temporarily deferred donors, 1000 donors were randomly included in the present study.

In the present study, 84.30% male donors and 15.70% female donors deferred temporarily were included. In the present study

Table 1: Comparative analysis of total donors and study group donors

		Total donors (%)	Study group donors (%)
Age	18-30 years	17742 (51.2)	521 (52.1)
	31-40 years	9958 (28.75)	287 (28.7)
	41-50 years	5144 (14.85)	148 (14.8)
	51-60 years	1781 (5.2)	44 (4.4)
Gender	Male	33582 (97)	843 (84.3)
	Female	1043 (3)	157 (15.7)
Occupation	Business	12056 (34.8)	286 (28.6)
	Service	13458 (38.8)	481 (48.1)
	Student	6717 (19.3)	135 (13.5)
	Police/army	187 (0.5)	1 (0.1)
	House wife	555 (1.6)	69 (6.9)
	Professional	820 (2.3)	21 (2.1)
	Other/ not specified	832 (2.4)	7 (0.7)

period, 2.51% of total male donors and 15.05% of total female donors deferred temporarily. Significant female preponderance was observed ($P < 0.05$). In the study group of temporarily deferred donors, the mean age of donors was 31.7 years. And more deferral was observed in the donors with age less than 40 years (80.80%) [Table 1].

Various socio-economic reasons responsible for temporary deferral were also analyzed. Among temporarily deferred donors, significant ($P < 0.05$) donors were graduates. In both first time and repeat donors, more number of temporarily deferred donors were from low income category. Donors were studied according to different occupations (business, service, students, housewife, professional, police etc). The correlation among different occupations and donor deferral was not statistically significant ($P > 0.5$). MV and IH area were the preferred sites for blood donation in repeat donors. Approximately 86.45% of repeat donors had a pleasant experience and preferred donation in MV or IH session. Similarly, for both male and female donors, the preferred site for blood donation was IH donation area because of ambience and ease. The preference to donate blood at MV and IH in case of male donors was significantly ($P < 0.5$) higher probably because of distance (nearer to place of work).

Among different types of temporary deferrals, low hemoglobin level was the major reason with 197 first time (71.11%) and 586 repeat (81.05%) donors. After excluding other miscellaneous causes of temporary deferral, low blood pressure was found as a second commonest reason of temporary deferral. Approximately 41 (4.10%) donors were deferred due to low blood pressure [Table 2].

Motivational reasons for blood donation were surveyed at the time of donation. Most of the voluntary donors (99.10%) were donating blood due to self motivation. A total of 991 (99.10%) of temporarily deferred donors were self motivated. Out of them, 717 (71.70%) were repeat donors and 273 (27.30%) donors were first timers. Blood center has a policy to offer priority to donors in terms of security for blood requirement by self or relative in future. None of the donors gave priority to avail the blood insurance policy for self/ near relatives and also for testing for infectious markers which demonstrated altruistic nature of blood donors. Only 5 (0.05%) donors were motivated for directed donation.

On retrieval of voluntary donors from deferred donor pool, 312 (31.20%) donors came forward with the positive response and they volunteered to donate blood. On the reattempt for blood donation 270 (27.00%) donors passed all the criteria. But unfortunately

Table 2: Reasons of temporary deferral in the first-time and repeat donors

Reasons of deferrals	First time donor (%)	Repeat donor (%)
Low hemoglobin	197 (71)	586 (81)
Low blood pressure	13 (5)	28 (4)
Acute infection	12 (4)	25 (4)
Malaria	05 (2)	06 (1)
Menstrual cycle	04 (1)	03 (0.4)
Short duration	03 (1)	32 (4)
Others*	43 (16)	43 (6)
Study group donors	277	723

*Others: Fasting, open wound, steroid, chikun guinea, chicken pox, operation, breathlessness, pulse rate more than 100/min, tremors, difficult vein, rashes on hands, lower age by 3 months etc

42 (4.20%) donors again disqualified the acceptance criteria and they were deferred again. Among the group of repeat donors, 298 (41.21%) visited any of the blood donation sessions but from the first time donors only 14 (5.05%) had tried to donate again. In repeat donors, 262 (36.23%) had donated blood successfully and 36 (4.98%) donors could not donate successfully and they were deferred again. For first time donors, 8 (2.88%) donated blood after deferral period is over and 6 (2.16% of total first time and 42.86% of responded first time) donors referred in the next attempt also. But unfortunately 688 (68.80%) of total donors have not responded to the attempt by the center for re-donation [Table 3]. Among these, 425 (58.78%) were repeat and 263 (94.95%) were first time donors. The commonest reason for re-deferral was low hemoglobin. Hemoglobin level less than 12.5 gm/dl was reported in 37 (88.09%) of total re-deferral with 88.89% among repeat donors and 83.33% of first time donors. On asking about the preferred site of blood donation in future, majority of the donors informed the MV or IH are the preferred site of donation [Figure 1].

Total of 133 (49.25%) of responder including 37.5% of first time and 49.61% of repeat donors came forward for donation within 7 days of feedback (immediate response). Intermediate response (more than 7 days but less than 1 month) was noticed in 74 (27.40%) donors including 12.50% of the first time donors and 27.40% of repeat donors. Total 63 (23.33%) donors responded to communication from blood center but it was delayed by more than one month including 50% of first time and 22.51% of repeat donors.

Discussion

Transfusion of allogeneic blood and blood products are medical interventions used to treat patients facing acute, life-threatening situations such as trauma, major surgery, chemotherapy, etc., or who require chronic blood component replacement. Blood transfusion service (BTS) is dependent on voluntary donors immensely. It is a fact that blood donors are microscopic minority in any community.^[2] Blood transfusion has undoubted benefits but it also carries serious risks including transmission of infection to the recipient. Availability of safe blood and blood products is a basic requirement of health care programs. For that, recruitment and retention of voluntary donors is a key element in safe and sufficient blood supply.^[6] Although donor demographic characteristics are important to gain more repetitive donors, stringent donor selection criteria are necessary to protect donors and recipients.^[7]

In India, about seven million units are collected annually against the requirement of about eleven million, for a population of about 1.1 billion. The blood collection system is still dependent predominantly on replacement family donors (about 45%). So it

Table 3: Summary of deferral and donation after completion of deferral period

	First time donors (%)	Repeat donors (%)	Total
Donor deferred	277	723	1000
Called	277	723	1000
Returned for donation	14 (5.05)	298 (41.21)	312
Redeferred	06 (2.16)	36 (4.98)	42
Donated after deferral	08 (2.88)	262 (36.23)	270

is very important to motivate and retrieve donors and bring back them in the main stream, once they donated or got deferred.

The present study was also aimed to increase collection of blood from the temporarily deferred donors. The study was planned to evaluate methods of retrieval of the temporarily deferred donors after the specific period of deferral is over. The negative effect of temporary deferral on the blood donor has been noted in a similar study.^[8] It is important to remotivate and convert these donors as regular donors who were motivated but deferred due to some reasons in previous occasions.

During this study period, a total of 34625 voluntary altruistic donors donated whole blood. Out of which 10896 (33%) donors were deferred. In the blood center, 13651 (39.1%) donors were repeat donors. Blood donation in MV and IH sessions were the most preferred sites by repeat voluntary donors. The deferral in blood mobile vans and In-house session was 3596 (29%). Halperin *et al* (1998) reported in the American Red Cross that the deferral rate was 7%. In a study at Lahore, Rahman M *et al* (2003) also reported low deferral rate of 9.25%. In another study by Custer B *et al* (2004) from Washington,^[9] 13.6% persons were deferred. Lim JC *et al* (1993) in Singapore^[10] and in New York by Kessler D *et al* (1999)^[11] also reported same deferral rate of about 14.4% in prospective blood donors. Farrales *et al* (1977)^[12] and in Mexico by Simon *et al* (1991)^[13] also reported the rate of disqualified volunteer donor was 17.6% and 18% respectively. Tomasulo PA *et al* (1980) observed that the donor deferral rates in regional blood centers vary from 5 to 24%.^[14] As per extensive internet search, the deferral rate in the developing world in the recent years is not available. One Indian study from north India by Chaudhary *et al* (1995) reported 16.4% of total donors disqualified for various reasons in Northern India.^[15] In the present study, deferral rate reported was 33%, and causes of higher deferral rate could be because of very stringent donor selection criteria and inclusion of about 40% repeat donors in this study. In the group of repeat donors deferral rate was 5.3% against 1.3% of first time donors. This observation suggests that deferral rate due to anemia was comparatively higher in the repeat donors than first time donors. In another study by Bashawri (2002) from Saudi Arabia, 19% repeat volunteer blood donors were deferred due to anemia related reasons arising out of frequent donation.

To prevent donor loss and improve retention, it is important

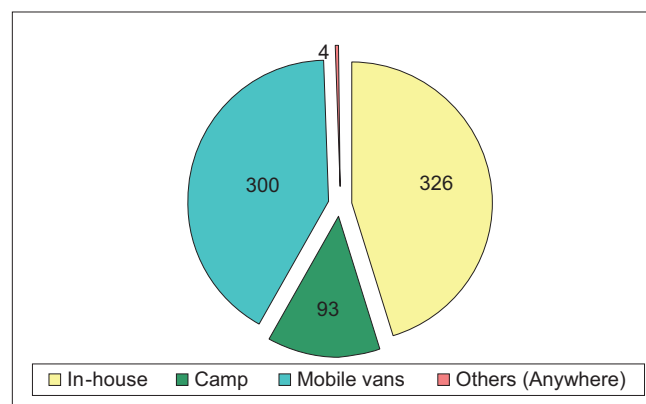


Figure 1: Preferred sites of blood donation in temporarily deferred donors

to understand the major deterrent of blood donation and to identify factors that can be effectively addressed by blood center. Inconvenience is a major barrier for blood donation. Blood collection in mobile facility, good attitude by staff can improve donor recruitment.^[16] In the present study, about 12,378 (35.74%) donors donated blood in IH and MV which was about one third of donation. For donors of both genders MV and I/H are more preferred sessions. The reasons could be due to easy accessibility, pleasant experience, better care, convenient to reach, etc.

In the present study, (2.51%) male and 157 (15.05%) females were deferred temporarily. Out of total temporarily deferred donors, males were 84.3% and females were 15.7%. Significant female preponderance was observed ($P < 0.5$). Shahshahani *et al* (2006) reported that the attitude level of women was high but performance level was very low. Motivation level was high in female but level of deferral is also high in female donors.^[17] Fernández MA *et al* (1996) observed that in donors group, 58.4% of female and 41.6% of males were there.^[18] Boulware LE *et al* (2002) conclude their study with the finding that female, black race and fear of hospitals are three major factors negatively associated with prior history of blood donation.^[19] Sebok *et al* (2007) reported disproportionately more women deferred in comparison to men.^[20] In a study from India, Parihar-Malhotra M *et al* reported males constituted 78% and female 22% of rejection.^[21]

In present study, the commonest reason of temporary deferral was hemoglobin level less than 12.5 gm/dl (78.3%) as per regulatory norms. After excluding other miscellaneous causes of temporary deferral, blood pressure was found as a second commonest reason of deferral. Approximately 41 (4.1%) donors deferred due to low blood pressure. Lim *et al* (1993); Halperin *et al* (1998); Sellors *et al* (2002); Rahman *et al* (2003); Sebok *et al* (2007) also reported low hemoglobin as a major reason of temporary deferral. The researchers observed the most common finding that disallows blood donation was unacceptable hematocrit level, which accounted for 60 percent of the total deferrals. On the other side Parihar-Malhotra M *et al* reported low hemoglobin as the largest cause of deferrals in female donors (61%) from western India. But in their study, they observed among total donors 34.5% of deferred donors had high blood pressure, 16.64% had low Hb [Table 4].

Table 4: Summary of donors

	34625 total donors	
	↙	↘
	20974 first-time donor	13651 repeat donors
	↓	
	10896 total deferral	
	↙	↘
Study group:	277 first-time donors	723 repeat donors
Reason of deferral		
Low hemoglobin	197 (71.11)	586 (81.05)
Blood pressure	13(4.69)	28 (3.87)
Acute infection	12 (4.33)	25 (3.56)
Donor return:		
Donation	8 (2.88)	262 (36.23)
Redeferral	6 (2.16)	36 (4.98)
Not responding	263 (94.95)	425 (58.78)
Reason of redeferral:		
Low hemoglobin	5	32
Blood pressure	0	1
Acute infection	1	2

In the present study, 31.2% donors returned for blood donation after a defined period of temporary deferral and out of them 270 (86.54%) were able to donate blood successfully. There was remarkable difference in terms of return for blood donation both in first time and repeat donors. A total of 2.88% of first time donors donated blood and 2.16% deferred again. In repeat donors, 36.23% donors donated blood on the second attempt and 4.98% donors deferred again. Total of 68.8% donors not responded to a retrieval call from blood center; in first time donors 94.95% and in repeat donors 58.78% had not responded. This observation correlated with the study by Custer *et al* (2004) which shows that the donor deferral has negative effect on the donor, especially more pronounce with first time donors. Repeat donors were regularly coming in contact with BTS and they used to respond in cases of emergency also. As well as motivation level was also high in repeat donors as compared to first time donors. That may be the reason why more number of repeat donors responded to a retrieval call. According to finding of this study, repeat but deferred donors can be more easily and in less span of time can be retrieved.

A study Maryland Zou *et al* (2005) at American Red Cross reported that 22.08% of temporarily deferred donors returned for blood donation over a span of 3 years.^[22] Reich *et al* (2006) from California observed total of 20.5% first time donors returned for donations. Custer *et al* (2007) from California also reported more repeat donors returned for blood donation.^[23] According to them depending on the deferral category, 14-31 percent of first time and 58 to 90 percent of repeat donors returned. The effects of deferral were more pronounced than expected, affecting both first time and repeat donors. Blumberg *et al* (1982) reported that 13% of deferred had granted full permission to donate after completion of deferral period.^[24] Halperin *et al* (1998) reported that non-deferred donors were 29% more likely than first time donors with short term deferral to return (80% vs. 62%). According to them non-deferred donors had donated 81% more whole blood units than deferred donors in the same period.

In Indian scenario, voluntary donation is always in shortage. Deferred donors are already motivated and easy to retrieve. If efforts are made on the retrieval of self motivated but deferred donors, blood bank can have good pool of safe blood donations. It is recommended from this study that temporarily deferred blood donors should be called for donation after completion of temporary deferral period to maintain voluntary blood donation in resource poor countries like India. Secondly, in India previously majority of the donors were replacement donors and as efforts towards voluntary donors are increasing, the impact of deferral was strong. So it is advisable to make efforts to retrieve this important source of safe donors. As majority donors have preferred MV session, by using replicates of MV, voluntary donations can be increased.

Conclusion

Temporary deferral has a negative effect on retrieval, both in first time and repeat donors. Repeat donors were more receptive for blood donation after completion of deferral period and they responded promptly. In the evaluation of reasons of the re-deferral, hemoglobin was the prime reason in both first time and repeat donors. The effect of low hemoglobin was more pronounced in the repeat donors. The repeat donors are well motivated and they are more willing to donate blood regularly. It was observed that

31.2% deferred blood donors responded to call for blood donation and 36.23% repeat and 2.88% first time blood donors again could donate blood. Due to their repeated blood donation, their iron store may be low and it took long time to replenish their iron level. So it is the duty of BTS to provide them with good counseling and medical advice to build up their iron store. It is recommended to maintain safe donor pool from deferred blood donors who are already motivated and many a times are repeat blood donors. This donor pool could be an excellent source of voluntary blood donors for countries across the globe, especially for developing countries.

References

- Gibbs WN, Britten AF. Guidelines for the organization of a blood Transfusion Service, WHO; 1992. p. 1-11.
- Anonymous. All about blood. Donor screening and deferral. American Association of Blood Banks; 2003. p. 1-29.
- Anonymous. World Health Organization. 14 June World Blood Donor Day to Honor Voluntary Unpaid Donors All over the Globe. 2005. Available from: <http://www.newscom.com>. [Last accessed on 2011 Dec 7].
- Piliavin JA. Temporary deferral and donor return. *Transfusion* 1987;27:199-200.
- Reich P, Roberts P, Laabs N, Chinn A, McEvoy P, Hirschler N, *et al.* A randomized trial of blood donor recruitment strategies. *Transfusion* 2006;46:1090-6.
- Thornton JD, Wong KA, Cardenas V, Curtis JR, Spigner C, Allen MD, *et al.* Ethnic and gender differences in willingness among high school students to donate organs. *J Adolesc Health* 2006;39:266-74.
- Arslan O. Whole blood donor deferral rate and characteristics of the Turkish population. *Transfus Med* 2007;17:379-83.
- Halperin D, Baetens J, Newman B. The effect of short-term, temporary deferral on future blood donation. *Transfusion* 1998;38:181-3.
- Custer B, Johnson ES, Sullivan SD, Hazlet TK, Ramsey SD, Hirschler NV, *et al.* Quantifying losses to the donated blood supply due to donor deferral and miscollection. *Transfusion* 2004;44:1417-26.
- Lim JC, Tien SL, Ong YW. Main causes of pre-donation deferral of prospective blood donors in the Singapore Blood Transfusion Service. *Ann Acad Med Singapore* 1993;22:326-31.
- Kessler D, Romney RA, Georges E. Donor deferrals by medical history. *Transfusion* 1999;39 Suppl:S138-P.
- Farralles FB, Stevenson AR, Bayer WL. Causes of disqualification in a volunteer blood donor population. *Transfusion* 1977;17:598-601.
- Simon TL, Rhyne RL, Wayne SJ, Garry PJ. Characteristics of elderly blood donors. *Transfusion* 1991;31:693.
- Tomasulo PA, Anderson AJ, Paluso MB, Gutschenritter MA, Aster RH. A study of criteria for blood donor deferral. *Transfusion* 1980;20:511-8.
- Chaudhary RK, Gupta D, Gupta RK. Analysis of donor deferral pattern in a voluntary blood donor population. *Transfus Med* 1995;5:209-12.
- Schreiber GB, Sharma UK, Wright DJ, Glynn SA, Ownby HE, Tu Y, *et al.* First year donation patterns predict long-term commitment for first-time donors. *Vox Sang* 2005;88:114-21.
- Shahshahani HJ, Yavari MT, Attar M. Knowledge, attitude and practice study about blood donation in the urban population of Yazd, Iran, 2004. *Transfus Med* 2006;16:403-9.
- Fernández Montoya A, de Dios Luna del Castillo J, López Berrio A, Rodríguez Fernández A. Attitudes, belief and motivations in blood donors and non-donors. *Sangre (Barc)* 1996;41:427-40.
- Boulware LE, Ratner LE, Ness PM. The contribution of sociodemographic, medical, and attitudinal factors to blood donation among the general public. *Transfusion* 2002;42:669-78.
- Sebok JA, Notari EP, Chambers LA. Seasonal temperature variation and the rate of donor deferral for low hematocrit in American Red Cross. *Transfusion* 2007;47:890-4.
- Malhotra P, SavitaKumari, Kumar R. Prevalence of anemia in adult rural population of North India. *J Assoc Physicians India* 2004;52:18-20.
- Zou S, Musavi F, Notari EP. Prevalence of selected viral infections among temporarily deferred donors who returned to donate blood: American Red Cross blood donor study. *Transfusion* 2005;45:1593-600.
- Custer B, Chinn A, Hirschler NV, Busch MP, Murphy EL. The consequences of temporary deferral on future whole blood donation. *Transfusion* 2007;47:1514-23.
- Blumberg N, Shah I, Hoagland J, Shirer L, Katz AJ. Evaluation of individuals deferred from blood donation for medical reasons. *Vox Sang* 1982;42:1-7.

Cite this article as: Shah R, Tulsiani S, Harimoorthy V, Mathur A, Choudhury N. Analysis of efforts to maintain safe donor in main donor pool after completion of temporary deferral period. *Asian J Transfus Sci* 2013;7:63-7.

Source of Support: Nil, **Conflict of Interest:** None declared.