

# Rates and Reasons for Blood Donor Deferral in a Tertiary Care Hospital of Jammu Region

Irm Yasmeen<sup>1</sup>, Meena Sidhu<sup>2</sup>, Ibrar Ahmed<sup>3</sup>, Arshad Hassan Siddique<sup>4</sup>

<sup>1,2</sup>Department of Immunohaematology and Blood Transfusion Medicine, Govt. Medical College, Jammu

<sup>3</sup>Department of Paediatrics, Govt. Medical College, Jammu

<sup>4</sup>Department of Blood Transfusion and Immunohaematology, SKIMS, Soura, Srinagar

**Abstract:** Background: Safe blood is ensured through proper donor selection. Blood transfusion services have the responsibility to provide safe and adequate blood to the recipient. However, a large number of apparently healthy donors are unable to donate blood for various reasons. The aim of the study was to evaluate the rate and reason of blood donor deferral in Jammu region. Methods: The study was retrospective, done in the SMGS Hospital Department of Transfusion Medicine Govt. Medical College, Jammu from April 2015 – March 2016. Data from the records of the registered donors were collected. Results: Total donors were 20708 out of which 753 (3.6%) were deferred because of various reasons. The common reasons for deferral were low haemoglobin (41.43%) followed by alcohol intake within 72 hours (9.96%), medication (7.1%), underweight (4.2%), uncontrolled hypertension (3.8%), fever (3.4%), jaundice (3.2%) and miscellaneous causes (26.8%) which includes donors having history of epilepsy, tuberculosis, allergic diseases, previous blood transfusion within a year, dog bite, cardiovascular diseases and high risk behaviour. Conclusion: We suggest them nutritional intake and iron supplementation especially females They were counselled properly and follow up was done to guide the recruitment and retention efforts.

**Keywords:** Donor Deferral, Blood safety, Low Haemoglobin

## 1. Introduction

Blood donors are the backbone of blood transfusion services. The process of blood donation involves voluntary non-remunerated blood donors coming forward to donate blood willingly<sup>6</sup>. The aim is to ensure safe and adequate availability of blood and its products for transfusion to the recipients<sup>11</sup>. To achieve this goal, proper donor selection is very important so that unhealthy blood should not be transfused to the recipients and also to reduce the rate of blood discarding. Decision about blood safety need to be made with the best interests of the recipients in mind. Blood recipients face of the recipients in mind. Blood recipients faces an imposed risk concerning safety and find themselves in a position of having to trust decision on blood safety made by others, as they frequently have no alternatives to transfusion. If the blood is infected then the risk of acquiring an infection when exposed through blood transfusion is very high.

The interest of recipients are paramount, and hence the safety of blood supply because no one knows when their life might depend on it. So, in the interest of this, selection of donors is done by donor selection criteria given by WHO guidelines. Individuals who are not able to donate blood are called as deferred donors. They are deferred either temporary or permanently depending upon the causes. Many people are deferred from donating blood because they might have been exposed to pathogens that might be transmitted through the transfusion of blood.

Blood donation is a valued social activity. Donors should only be deferred from donating blood if there is a good and proportionate cause, unnecessary blood donor deferral should be prevented.

The safety and availability of blood and blood products for transfusion requires the recruitment and selection of voluntary non-remunerated blood donors, the quality assured screening of all donated blood and its products and safe and rational clinical use of blood. In our set up, voluntary blood donations are less when compared to replacement blood donations and donors were keenly examined and screened for donation of healthy blood. This study was conducted to evaluate the rate and reasons of blood donor deferral which can determine the overall health status of our general population.

### Aims and Objectives

To evaluate the rate and reason of blood donor deferral in our region.

## 2. Material and Methods

A retrospective study was conducted in the Blood Bank of Shri Maharaja Gulab Singh Hospital, Jammu over a period of one year from April 2015-March 2016. It was a record based study. Records of all whole blood donors who were registered in that period were studied and categorized according to gender, type of donors either replacement or voluntary, temporary or permanent deferral and cause of deferral. Donors were provided with the donor questionnaire form followed by physical examination done by the incharge bleeding officer and Haemoglobin estimation by CuSO<sub>4</sub> method with a cut off value of 12.5gm/dl were done. The data was analysed using SPSS window version 17.0 and is presented in tabular and appropriate diagrammatic forms.

### 3. Results

Total number of registered donors in the blood bank of SMGS hospital in the period of study were 20708 out of which 753 donors were deferred and 19955 donors were eligible for donating blood.

753 donors representing 3.6% of entire registered donor population were found unfit for blood donation due to various reasons. The majority were deferred for temporary reasons (90.1%), (679) and some were deferred permanently (9.9%), (74). The causes of temporary and permanent deferral were given in the tabulated form (2, 3). Five leading causes of temporary and permanent deferral are given in the pie chart.

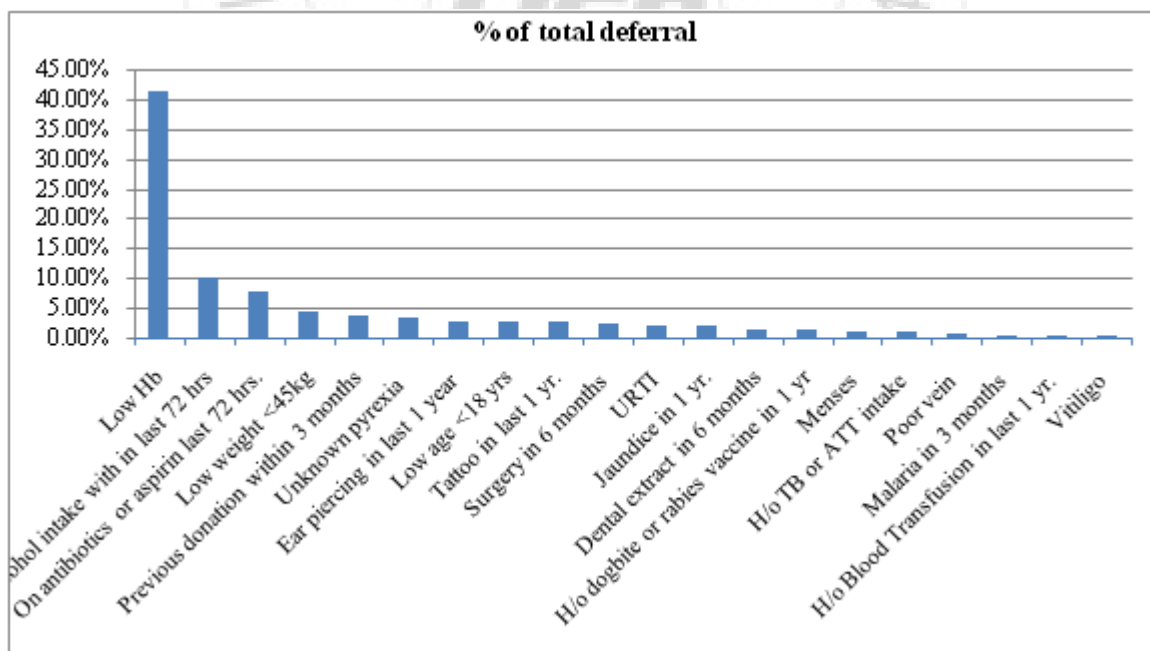
Out of total deferred donors, 640 (3.12%) were males and 113 (54.3% were females. Majority of blood donors in our study were replacement donors (94.1%) and remaining (5.9%) were voluntary non-remunerated blood donors. Most of the donations were from males (99.5%) and females accounts for only (0.47%) of the donors. Total numbers of registered males were (98.9%) and females were only (1.1%).

**Table 1**

Gender Distribution of Registered, Selected and Deferred Donors.					
Donors	Male	Freq.	Female	Freq.	Total
Registered	20500	98.9%	208	1.1%	20708
Selected	19860	96.8%	95	45.6%	19955
Deferred	640	3.12%	113	54.3%	753
			Chi square = 1541 P <0.01 Df=0.1 (Highly significant)		

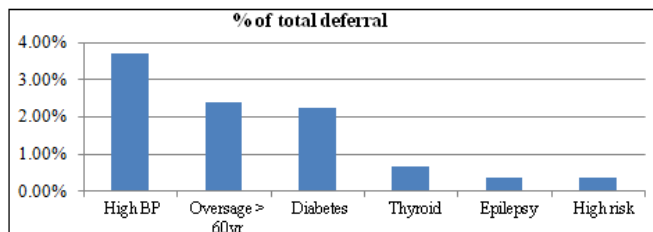
**Table 2**

Causes	No. of Temporary deferral	% age of Temp. deferral	% of total deferral
Low Hb	312	45.94%	41.43%
Alcohol intake in last 72 hrs	72	11.04%	9.96%
On antibiotics or aspirin last 72 hrs.	58	8.54%	7.70%
Low weight <45kg	32	4.71%	4.24%
Previous donation within 3 months	28	4.12%	3.71%
Unknown pyrexia	25	3.68%	3.32%
Ear piercing in last 1 year	21	3.09%	2.78%
Low age <18 yrs	20	2.94%	2.65%
Tattoo in last 1 yr.	20	2.94%	2.65%
Surgery in 6 months	16	2.35%	2.12%
URTI	15	2.20%	1.99%
Jaundice in 1 yr.	14	2.06%	1.85%
Dental extract in 6 months	9	1.32%	1.19%
H/o dogbite or rabies vaccine in 1 year	9	1.32%	1.20%
Menses	7	1.03%	0.92%
H/o TB or ATT intake	7	1.03%	0.92%
Poor vein	4	0.58%	0.53%
Malaria in 3 months	3	0.40%	0.39%
H/o Blood Transfusion in last 1 yr.	2	0.29%	0.26%
Vitiligo	2	0.29%	0.26%



**Table 3:** Causes of permanent deferral with their frequencies

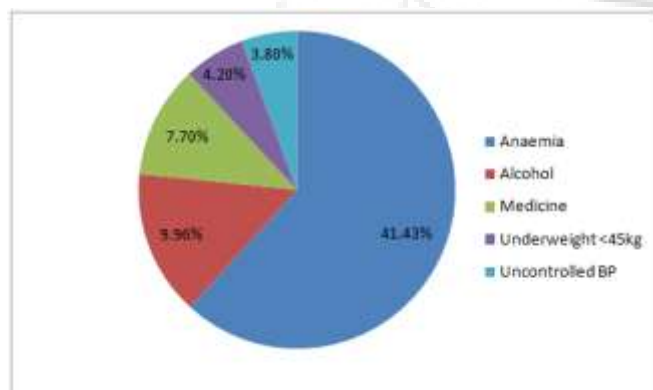
	No. of permanent deferral	% of permanent deferral	% of total deferral
High BP	28	37.8 %	3.71%
Overage > 60yr	18	24.32 %	2.39%
Diabetes (on insulin)	17	22.47%	2.25%
Thyroid	5	6.75%	0.66%
Epilepsy	3	4.05%	0.39%
High risk	3	4.05%	0.39%
	74	100%	9.9%



**Deferral rate among voluntary and replacement donors**

	No. of Donors Register	No. of Donations	No. of Deferral
Voluntary	1228 (5.9%)	1115 (5.58%)	113 (15.0%)
Replacement	19480 (94.0%)	18840 (94.4%)	640 (84.9%)
Total	20708	19955	Chisquare = 115.4 Df=1 P<0.01

**Five leading causes of deferral for both sexes**



So donor deferral rate of 3.6% in our study is much less when compared to other studies conducted in various part of world. Some of these studies and their frequencies of donor deferral are as under.

**Comparison of donor deferral rate among different studies**

Study	Frequencies of donor deferral
Lim et al, 1993	14.4%
LewsonAyayi et al, 1999	10.8%
Custer et al, 2004	13.6%
Arsalan, 2007	14.6%
Zou et al, 2008	12.8%
Rabeya et al, 2008	5.6%
Choudhary et al, 2008	16.4%
Bahedur et al, 2009	9%
Rehman et al, 2012	12.4%
Gajjar H et al, 2014	11.16%
Present Study, 2016	3.6%

## 4. Discussion

Our goal of study is to provide insight into the rate and reasons of donor deferral, to maintain the healthy blood stock, to prevent the unnecessary discard of blood and blood components and to provide safe and adequate supply of blood to the recipients and all this is achieved through proper donor selection according to donor selection criteria.

Various studies have reported different rates of donor's deferral. Some studies have reported deferral rates as low as between 4% - 6% and other have reported rate as high as between 15% - 21%. A donor deferral rate of 3.6% obtained in our study in lower than all previous studies. The differences in the deferral rates may probably be due to altitude, dietary habits and environmental conditions of our regions.

Low Hb i.e. Anemia (12.5gm/dl) constitutes about 41.43% of total deferral causes which is the most common cause of temporary deferred among males and females. This is consistent with many other studies both in develop and developing countries.

Deferral rate among the blood donors was significantly higher in female's donors then males. They were deferred mainly because of anemia. Thus adequate nutritional intake including iron supplementation is provided to female donors. This is particularly very important for regular and repeat donors as frequent blood donation has been reported to contribute significantly to iron deficiency anemia. The findings of donor deferral because of low Hb in other studies reported in Turkish donors by Arsalan (2007) (20.7%)<sup>1</sup> and Custer et al (2004)<sup>3</sup> (60% of temporary deferral) and Halperin et al (1998) (46%). The second most common cause of deferral was alcohol intake within last 72 hrs which accounts for 9.96% of total deferral. In Bahadur et al (2009)<sup>2</sup> study, the rate of total deferral because of alcohol intake was 7.0%, Rehman et al study (2012)<sup>9</sup> showed that total deferral rate because of alcohol intake was 5.68%.

In our study, 9.9% donors were deferred permanently itis similar to the study done by Bahadur et al (2009)<sup>2</sup> (9.1%) and Arsalen (2007) (10%)<sup>1</sup>

A proper followup of temporary deferral donors regarding their management should be made in the department of Transfusion Medicine so that these donors can be cured recruited back for blood donation and their retention for future blood donation.

## 5. Conclusion

Blood donor deferral rate of 3.6% obtained in our study was less when compared to other studies. The difference may be due to the socioeconomic profile of donors and environmental conditions. Evaluation of donor deferral pattern may help the medical personnel and doctors to be more focussed on donor screening especially of those who are at risk e.g. Anaemics, Alcoholics, IV drug users, silent diseases or infections. Education material should be provided to donors so that they know about the infections and emerging pathogens which can transmit through blood

transfusion. Deferred donors should be counselled properly about nutritional intake and attention should be paid for their management and followup so that they can be recruited and retained back for future blood donation.

#### **Financial support and sponsorship**

Nil

#### **Conflicts of interest**

There are no conflicts of interest.

#### **References**

- [1] Arsalan O. Whole blood deferral rate and characteristics of the Turkish population. *Transfus Med* 2007; 17:379-83.
- [2] Bahadur S, Jain S, Goel RK et al. Analysis of blood donor deferral characteristics in Delhi, India Southeast Asian J Trop Med. Public Health 2009; 40(5): 1087-91.
- [3] Chaudhary RK, Gupta D, Gupta RK. Analysis of donor deferral pattern in a voluntary blood donor population. *Transfus Med* 1995; 5(3): 209-12.
- [4] Custer B, Johnson ES, Julliven SD et al. Quantifying losses to donated blood supply due to donor deferral and miscollection. *Transfusion* 2004; 44:1417-26.
- [5] Gajjar H, Shah FR, Shah CK et al. Whole blood donor deferral analysis at General hospital blood bank-Aretrospective study. *J Med Sci* 2014;3(2):72-76.
- [6] James V. Blood donor selection and qualification: Selection and Testing. In: Barbara J, Regan F, Contreras M, editors. *Transfusion Microbiology*. Cambridge: Cambridge University Press; 2008: 153-7.
- [7] Lawson-Ayayi S, Salmi LR. Epidemiology of blood collection in France. *Eur J Epidemiol*. 1999;15:285-292.
- [8] Lim JC, Tien SL, Ong YW. Main causes of pre-donation deferral pf prospective blood donors in the Singapore Blood Transfusion Service. *Ann Acad Med Singapore*. 1993;22:326-31.
- [9] Rabeya Y, Rapiaah M, Rosline H et al. Blood pre-donation deferrals-a teaching hospital experience. *Southeast Asian J Trop Med Public Health*. 2008;39:571-4.
- [10] Rehman S, Arif SH, Mehdi G et al. The evaluation of blood donor deferral causes: A tertiary care centre based study. *J Blood Disorders Transf* 2012:131.
- [11] World Health Organization. *Blood Donor Selection: Guidelines on Assessing Donor Suitability for Blood Donation*. Geneva: World Health Organization; 2012
- [12] Zou S, Musavi F, Notari EP et al. Donor deferral and resulting donor loss at the American Red Cross Blood Services, 2001 through 2006. *Transfusion*. 2008;48:2531-2539.