

# Evaluation Of The Reasons For Pre- Donation Deferral Of Prospective Blood Donors In A Tertiary Teaching Hospital In North India

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## Abstract

Whole blood donors deferral, either temporarily or permanently is an important step in improving the safety of blood transfusion. This retrospective study quantifies and analyzes the rate and reasons of donor deferral in a tertiary teaching hospital. All pre-donation deferral of prospective blood donors (n= 352) over a period of two years (1 June 2008 to 31 May 2010) were analyzed. Of these 10.4% were deferred from donation and among these deferrals, majority (83%) were temporarily deferred and only few (17%) were permanently deferred. The most common reason for deferral was low hemoglobin count (33.5%), closely followed by hypertension (11.1%) and alcohol intake in last 24 hours (10.8%). The three most common reasons for temporarily deferral (anemia 33.5%, alcohol intake in last 24 hrs 10.8% and low weight 8.81%) accounted for more than half of the total deferrals. More than 50% of female donor deferrals were due to low hemoglobin count (n=28).

## INTRODUCTION

Blood banking is one of the pillars of modern medicine but simultaneously it carries the potential risk of transmitting lethal infectious diseases. Hence the proper pre-screening of the blood donors is essential to ensure quality of donors and to avoid risk of transfusion transmitted diseases to the recipient. Various efforts have been made for ensuring a safe blood donor selection through screening and education. By the process of screening donors are deferred for several reasons related to the donor as well as recipient safety. It is very essential to study and analyze the reasons for such deferral among prospective donors in order to categorize them into temporary and permanent deferrals. The objective of this study is to assess the current rate and reasons for donor deferral so that temporarily deferred donors with corrective reasons can be identified, properly informed and guided to improve their quality and thus later on continuous blood supply can be maintained.

## MATERIAL AND METHOD

A retrospective study of pre-donation deferral of prospective blood donors at a blood bank in tertiary teaching hospital in North India (U.P.) is conducted. Based on the history and physical examination findings, all blood donors coming to the blood bank were classified in to fit for donation or as a

deferred donor. Records of all pre-donation deferral over a period of two years (1 June 2008 to 31 May 2010) were analyzed to quantify the deferral rate and reasons. Deferred donors were also analyzed according to gender.

## RESULT

Total 3388 pre-donation screening interviews were conducted over the period of two years out of which 3036 (89.6%) were found fit for donation. Total 352 (10.4%) donors were found unfit for various reasons and were deferred. Among the deferred donors, 297 (84.4 %) were males and 55 (15.6 %) were females (male-female ratio 5.4:1). Majority of deferral was due to temporary reasons (n=292, 83%) and very few (n=60, 17%) donors were permanently deferred. The causes of deferral in the temporary and permanent groups are shown in the Table -1. The most common reason for overall deferral was low hemoglobin count (33.5%), closely followed by hypertension (11.1%) and alcohol intake in last 24 hours (10.8%); accounting for more than half of the total deferrals. The four leading causes of deferral among males and females are given in Table-2

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**Figure 1**

Table-1 showing causes of temporary and permanent deferrals with their relative proportion

Serial no.	Causes of temporary deferral	number	% temporary deferral	% total deferral
1	Anaemia	118	40.4	33.5
2	Alcohol	38	13.0	10.8
3	Low weight	31	10.6	8.81
4	Tuberculosis	22	7.5	6.3
5	Jaundice/hepatitis	21	7.2	6.0
6	Medications	16	5.5	4.5
7	Fever/ cold/ dyspnoea	11	3.8	3.1
8	Previous donation	5	1.7	1.4
9	Menstruation	3	1.0	0.9
10	Malaria	2	0.7	0.6
11	Dental extraction	2	0.7	0.6
12	Accident	2	0.7	0.6
13	Skin lesion	1	0.3	0.3
14	Allergy	1	0.3	0.3
15	Typhoid	1	0.3	0.3
16	Lactation	1	0.3	0.3
17	Miscellaneous	32	11.0	9.1
	<b>Total (292)</b>	308		
	<b>Causes of permanent deferrals</b>			
18	Hypertension	39	65.0	11.1
19	Age	15	25.0	4.3
20	Uncontrolled DM	6	10.0	1.7
21	Asthma	4	6.7	1.1
22	High risk behaviour	3	5.0	0.9
23	Heart surgery	2	3.3	0.6
24	Epilepsy	1	1.7	0.3
	<b>Total (60)</b>	69		

**Figure 2**

Table- 2 showing four leading causes of deferrals among male and female donors

Males (n=297, 84.4%)			Females (n=55, 15.6%)		
Causes	n	% deferral	Causes	n	% deferral
Low haemoglobin	90	30.3	Low haemoglobin	28	51.0
Alcohol	38	12.8	Low weight	17	31.0
Hypertension	37	12.5	Tuberculosis	04	7.3
Tuberculosis	18	6.1	Menstruation	03	5.5
Total	183	61.7	Total	52	94.8

## DISCUSSION AND CONCLUSION

One of the most important steps in improving the safety of blood and blood products is donor selection. Insight into the reasons of donor deferral is very important to avoid the permanent loss of the donor as blood donation programme is the life-force of any blood bank and hospital.

Most of the donors in our study were males 84.4% and females accounted for only 15.6% of donors. The donor deferral rate in our study was 10.4% and 7.1% were deferred for more than one reasons. Zou et al<sup>1</sup> have reported almost similar deferral rate of 12.8% while Arslan et al<sup>2</sup> found a slight higher deferral rate of 14.6% in their study. Lim et al<sup>3</sup> reported a 14.4% deferral rate and Custer et al<sup>4</sup> reported a deferral rate of 13.6%. In a European study conducted by Lawson-Ayayi et al<sup>5</sup> 10.8% of donors were deferred. Rabeya et al<sup>6</sup> have reported only 5.6 % deferral rate while Di Lorenzo et al<sup>7</sup> have founded a much higher deferral rate of

21.6%. Such varied differences in donor deferral rate could be due to different donor selection criteria.

The most common cause for deferral in our study was anemia 33.5%, closely followed by hypertension 11.1%, alcohol (intake in last 24 hrs) 10.8 % and low weight 8.8%. Arsalan et al, Rabeya et al and Helperin et al<sup>8</sup> also reported anemia as the most common reason of deferral in their study (20.7%, 40.7% and 46% respectively). Anemia, alcohol (intake in last 24 hrs) and low weight, the three most common reasons for temporarily deferral constituted more the half of the total deferrals( 53.1%).

The second common cause of temporary deferral in our study was alcohol intake in last 24 hrs (10.8%). Such high percentage has not been shown by any other study and this probably reflects the regional life-style.

A very important and different observation in our study was that a significant number of donors (6.3%) were deferred due to receiving anti-tubercular treatment or recent history of tuberculosis. Such a high percentage of deferral due to tuberculosis possibly reflects the high prevalence of tuberculosis infection in the Indian population (WHO, 2008) despite of all the meticulous efforts being done for TB control programme, launched in 1997 (Park, 2007).

In this study 17% of donors were deferred for permanent reasons and the most common reason for the permanent deferral was hypertension 11.1 %. Arsalan et al reported a permanent deferral rate of 10% and Custer et al reported a rate of 10.6% in their study. De Lorenzo Oliveria et al also found hypertension as the most common cause of permanent donor deferral.

The deferral of donor due to any reason has a very negative impact and many temporarily deferred potential donors do not return to donate blood in the future. Zou et al observed a potential donor loss after deferral. Similarly Halparin et al reported a negative impact of deferral on the donor return rates. Hence analysis of rejection pattern will not only help in donor and recipient safety but also in maintaining a healthy donor pool in the long run. All the potential donors deferred due to temporary reasons should be informed at the time of deferral about the temporary cause and the time period of deferral. These donors should be appropriately counseled and managed to improve the efficiency of the donor programme. Health authorities should also implement policies for the preventive measures to decrease the incidences of common deferral causes as this reflects the

health status of the society.

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