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Impact of Deferral for Low Hemoglobin on Donor Return

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Introduction

Conversion of first-time blood donors into repeat donors is fundamental to ensure a continued supply of blood products. Donor deferral subsequent to a low hemoglobin level can impede this endeavor. Despite preliminary investigations into demographic characteristics of donors deferred for low hemoglobin (Hb), larger nationwide studies discerning those donors returning at short and extended follow-up intervals are required to optimize blood collection agencies' protocols.

The loss of donors deferred for low hemoglobin is a significant strain on the total donor pool, particularly due to the cost and time investment dedicated to donor recruitment and follow-up by blood centers. It has been previously estimated that deferred donors subsequently donate 29% less blood over the ensuing 4-5 year period than would have been originally the case.

Purpose

The purpose of this project is to begin to articulate reasons why some donors deferred due to low Hb returned rather than others, with particular emphasis the value of educational materials provided after deferral and actions taken by donors to address low hemoglobin levels.

Methods

Online, anonymous surveys were randomly distributed to American Red Cross blood donors 18 years of age and above who had been deferred for low Hb. Two target populations of 10,000 persons each were identified. Each population consisted of either active or inactive donors. Donor activity status was determined by whether the donor had donated blood within the past year (Active, n = 722) or not (Inactive, n = 102). The survey consisted of eighteen questions that assessed donor attitudes, experiences and preferences regarding their deferral and how that deferral affected their likelihood to donate. Additional demographic information was gathered about age, gender, educational attainment, diet, and health characteristics. Chi-square analyses on SPSS software were used to compare categorical survey results between active and inactive donor groups; $p < 0.05$ was used to determine statistical significance.

The study was approved by the IRB at the University of Vermont and approved by the American Red Cross.

Results

Table 1

		Active (n=722)	Inactive (n=102)
Educational Materials Provided Post-Deferral?	No	25.30%	41.20%
	Not Sure	20.60%	22.50%
	Yes	51.90%	35.30%
		P=0.003	
Provided information on how long to wait after low Hb deferral?	No	41.4%	46.1%
	Yes	57.8%	53.9%
		P=0.463	

• Donor groups were statistically similar ($p=0.411$) with regard to interest in receiving education materials explaining deferral for low Hb (Table 2)

Table 3

How Interested Would You Be In Receiving...	... more information about increasing your Hb level?	Active (n=722)	Percent
	1 - Uninterested	244	33.7
	2	38	5.3
	3 - Neutral / Unsure	183	25.3
	4	140	19.4
	5 - Very interested	106	14.7

Table 4

In what ways did you address your low hemoglobin? (multiple choices allowed)	Active (%)	Inactive (%)	P*
I did not do anything	14.8	25	0.0144
Talked to a healthcare provider	20.3	28.5	0.055
Started using iron & vit. suppl.	53.7	39.4	0.009
Changed my diet	43	31.7	0.033
Donated less frequently	14.5	19.2	0.204
Used oral contraceptives to reduce monthly bleeding (for women)	2.2	4.8	0.169

*Bonferroni correction for multiple correction is $P < 0.01$ for statistical significance

• A greater percentage of active donors (52%) recalled receiving educational material on a low Hb deferral compared to inactive donors (35%), but with no difference in receiving information on how long to wait after deferral (Table 1)

Table 2

		Active (n=722)	Inactive (n=102)
Interest In Receiving Education Materials about Low Hb Deferral?	1 - Unlikely	15.1	19.6%
	2	7.9	11.8%
	3	29.6	27.5%
	4	21.2	16.7%
	5 - Likely	23.2	23.5%
Improve experience?	0.1	1%	
		P=0.411	

• As part of the Active donor survey, deferred donors displayed low (33.7%) to moderate (25.3%) interest in receiving education materials on how to raise Hb levels (Table 3)



Additional Results

• Additional significant difference between Active (A) and Inactive (I) donors included:

- Started using iron & vit. Suppl (A: 54%, I: 40%)
- >30 minute distance traveled to donate blood (A: 6%, I: 16%)
- Difference in age >45 years (A: 62%, I: 42%)
- Difference in knowledge of blood type (A: 3.3%, I: 12%)

• Active (A) and Inactive (I) donors were similar ($p > 0.05$) for the following survey questions:

- Prior history of anemia (A: 18.4%, I: 25.5%)
- Distribution of female gender (A: 86.6%, I: 91.2%)
- Lack of anxiety surrounding cause of low Hb deferral (A: 82.8%, I: 79.4%)
- Prevalence of vegans (A: 5.7%, I: 6.9%)

Conclusions

- Alternative methods of communication should be considered given the varying levels of interest in receiving educational materials.
- However, active donors were more likely to take iron & vit. supplements in response to a low hemoglobin deferral.
- Inactive donors were younger and required further travel to donation site, which may have impacted likelihood to return to donation.
- These factors could be targeted by the ARC to improve donor retention.

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