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**Credit Blood Issuance in Jos: A Veritable Tool for a Satisfying Donor Motivation**

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**Abstract**

**Introduction:** Sufficient safe blood donors are difficult to raise in many Sub-Saharan Africa. The exploration of tangible ways of blood donor motivation could increase first time volunteers and the retention of safe ones.

**Aims:** this study sought to determine the issuance of blood to donors in recognition of altruistic blood donation.

**Methods:** This was a retrospective study of blood issuance in favour of blood donors as credit benefit. Information studied were: age and sex of donors and recipients, number of donations and the relationship of the recipient to the donor.

**Results:** One hundred and fifty four blood donors accessed 160 safe blood units at no financial cost for transfusion, constituting 1.7% of safe units generated. While four donors did not declare their ages, the mean age of the remaining 150(97.4%) was  $37.5 \pm 11.4$  and that of the recipients was  $38.9 \pm 21.9$  (0-93) years. One hundred and nine recipients (70.8%) were within the age of blood donation. One hundred and nineteen donors (77.3%) who accessed blood were males. One hundred and six (66.3%) safe units issued as donor motivation were response to requests from teaching hospitals.

**Conclusion:** Issuance of safe blood units in recognition of previous donations to voluntary blood donors could encourage blood donation, blood insurance that attracts social motivation.

**Keywords:** Credit blood issuance, donor motivation, blood donors

**Introduction**

The continuous search for suitable voluntary non-remunerated blood donors is still not yielding optimal blood pool in developing and less developed countries of the world particularly in the sub-Saharan Africa. This part of the globe is incidentally also constantly plagued by high

maternal mortality rate, malnutrition, infections and chronic non –communicable diseases.<sup>1</sup> Improvement in the diagnosis and management of cancers has resulted in longer survival on treatment requiring increase transfusion support beyond immediate family member's donation.<sup>2</sup> Blood donation in low and middle income countries (LMICs) has been recognized insufficient in quantity and quality due to multifactorial reasons.<sup>3</sup> Proportion of safe blood donors is highest in system where donations are voluntary and non-remunerated, a condition that exist in 85% of developed countries, 15% of developing and 7% of less developed ones.<sup>4</sup>

Several motivational strategies have been explored to recruit suitable voluntary non-remunerated and retain safe blood donors. Although incentives have been recognized to have a long term tendency of reducing prosocial behaviours such as blood donation, attitude towards sole dependency on Voluntary Non-Remunerated Blood Donation (VNRBD) is gradually changing to partial dependency on paid donors.<sup>5</sup> Global framework for the attainment of 100% voluntary blood donation (VBD) has been set up by a tripartite body consisting of the World Health Organisation (WHO), Red Cross and the Red Crescent.<sup>6</sup> This framework provides a guide and support to countries seeking to establish effective voluntary blood donation programme, phase out family replacement blood donors and eliminate paid donations.<sup>6</sup>

Ownby et al (1999) documented that blood donor return may be motivated by the age at first donation, older donors, number of previous donation, negative Rh factor and having completed college.<sup>7</sup> Blood credit has been reported among cholesterol screening and prostatic specific antigen testing to significantly encourage blood donation according to the responses in a United States' study.<sup>8</sup> Scientifically sound investigations has been recommended to search for sources of positive and negative motivations to blood donations.<sup>9</sup>

The absence of government's commitment in providing safe blood for citizens and the withdrawal of donor assistance has limited access to appropriately screened blood units to patients who can afford the handling fee. There is no sufficient data that assessed the access to blood by volunteer donors in favour of self or relations or other associates.

### **Aims**

The impact of motivational safe blood credit issuance to blood donors at the North Central Zonal Centre, Jos; of the National Blood Transfusion Service was studied.

### **Methods**

This was a retrospective study of blood issuance in favour of blood donors as motivational or credit benefit. The study covered a period of nine months, from June 2017 to March 2018. Information of benefiting donors studied was: age, sex, number of donations. The age, sex and relationship of the blood recipient to the credited donor were also studied as well as any earlier donation. Data were imputed into the Epi info 2010 version and analysed. P value less than 0.05 was considered significant. Ethical clearance for this work was obtained from the ethical committee of the National Blood Transfusion Service, North Central Zonal Centre, Jos.

### Benefits of the study

The study provided the base line data on access to and utilization of safe blood by donors who are volunteers donating at the blood service. It also generated the bases for the regulation of access to safe blood as motivation to encourage volunteer blood donor enrolment and retention.

### Results

A total number of 10513 blood donors, aged 18-65 years, donated at the blood service centre in north central Nigeria within the study period. Male donor constituted 6172 (58.7%) while 41.3% were females. 8886 (84.5%) units were safe for transfusion after screening for TTIs and 1627 (15.5%) discarded for positive reactions. One hundred and fifty four blood donors accessed 160 safe blood units at no financial cost for transfusion within the same period. Blood units issued to donors for transfusion constituted 1.5% of all donations and 1.7% of safe units generated. While four donors did not declare their ages, the mean age of the remaining 150(97.4%) was  $37.5 \pm 11.4$ , ranging from 18-64 years. The mean age of the recipients was  $38.9 \pm 21.9$  (0-93) years. One hundred and nine recipients (70.8%) were within the age of blood donation, 27 (17.5%), were below (0-17 years), while 18 (11.7%) were above. One hundred and nineteen donors (77.3%) who accessed blood were males while the female recipients were more [79 (51.3%)] than their male counterparts [75(48.7%)],  $P=0.0000001$ . The proportion of male donors who accessed blood was 119(1.9%) while the female donors that accessed was 35 (0.8%),  $P=0.000003$ .

Distribution of blood donors based on the number of donations prior to request showed that 124 (80.5%) had donated between one and ten, 11(11.0%) donated eleven to twenty, 8 (5.2%) donated 21 to 30 while 5(3.3%) donated thirty one to forty times.

A total of one hundred and sixty safe blood units (1.8%) were issued in response to 154 hospital requests for transfusion of patients (donors or their associates) as motivational benefit of voluntary blood donations to donors. 149 (96.8%) were issued only a unit, four were given two units each, while one donor was issued three units making 100% satisfaction of requests (figure 1). The highest proportion [131(85.1%)] of issued safe blood was for the transfusion of first degree relations of blood donors, 14 (9.1%) were for the transfusion need of blood donors (self) while 5.8% went for donor's associates other than first degree relations. One hundred and six (66.3%) safe units were issued in response to requests from teaching hospitals, while 29 (18.1%), 13 (8.1%), 4 (2.5%) and 10(6.3%) went to privates, faith base, military and other health centres respectively (figure 2).

### Discussion

While it is difficult to raise enrolees into blood donation in sub-Saharan Africa, the National Blood Transfusion Service sensitises, recruits and selects only volunteers for blood donations.<sup>10</sup> This is reflected in this study, as all the donors who accessed blood were first, non-remunerated volunteers. Hundred percent non-remunerated donations in our study is at variance with 89.9%

paid donors in Lithuania.<sup>11</sup> The age range of our donors in this study also reflects the ages of voluntary blood donors earlier reported.<sup>12</sup> The age range of recipients in our study is however wider, beginning in the neonatal period and reaching the ninth decade of life. This suggests that accessed to safe blood by donors from the blood service in recognition of previous donations could benefit aged parents permanently differed from blood donations and serve transfusion needs of young once below the age of consent and donation.<sup>13</sup> Young beneficiaries could be motivated into long term committed blood donation later in life, in response to pleasant childhood healthcare experiences, which may assure cost free safe blood for self and/or first degree relations.

The male donors in this study were more than the female blood givers. The female blood donors constituted a higher proportion compared to earlier report, suggesting an increased female enrolment into altruistic blood donation.<sup>14</sup> This may be as a result of increase awareness on the needs, safety and benefits of blood donation among the populace, derived from the decade long activities of the blood service in the region. The males dominated blood donation and accessing of blood while the females dominated as the blood recipients in this study. The changes in the physiologic states in the female life may interrupt or prevent blood donation coupled to low socioeconomic levels and dependence on husbands' decision on personal matters like voluntary blood donation.<sup>13</sup> The complications of pregnancy are added demands for blood transfusion which may justify the higher female blood recipients in this study. There is need to sustain awareness on blood donation until it is accepted and practice by both sexes freely.

The blood donors who requested for blood to meet transfusion of self, or their associates where largely (80.5%) those who donated just once prior to need. This finding may point to the tendency for abuse of the motivational gesture, hence the need to develop appropriate guidelines for free access to safe blood to volunteers blood donors who may directly or indirectly be in need. We however suggest motivation directed classification of voluntary blood donors into; committed blood donors (those who donates at least twice in 12 months), Lapsed blood donors (those who have not donated blood in the last 12-24 months) and secondary non donors (those whose last blood donation is > 24 months). For the committed voluntary blood donors, they should be encouraged with the issuance of requested safe blood unit(s). Blood donors who had lapsed should be issued safe blood and advice to resume voluntary donations. Secondary non-donors should access safe blood at financial cost of handling until they restart blood giving and safety to continue doing so is established. The guarantee of safe blood to donors may be a stronger motivational offer to would be blood givers than the desired cash or material remuneration necessity supported by majority of Lithuanian donors.<sup>11</sup> Further research is recommended to understand the circumstances around one time voluntary donation and seeking access to cost free safe blood unit(s) as observed in this study.

Donors, who received safe blood for the transfusion of self, accounted for only 9.1% of blood issued for donor motivation, while 85.1% went for the transfusion of first degree relations of donors and 5.8% for the transfusion of other associates to donors. This finding shows that some donors accessed blood in contravention of the spirit of the blood service which provides blood

free of handling cost up to the number of times and individual donated for his or her transfusion and a unit for the transfusion of each first degree relatives above 65 or below 18 years. While familial relationship between a recipient and the compatible family replacement blood donor is well established, motivational issuance of blood to regular voluntary donors for qualified first degree family member expands the relationship to involve an unknown voluntary donor. This could be additional great motivation for blood donations to the other factors earlier identified including altruism, humanitarian reason and greater wellbeing associated with blood donations.<sup>15</sup> For the sustenance of issuance of safe units of blood in motivation of regular donors, the blood service must established relationship between donors and their relatives who are in need of transfusion. The blood service should consider absorbing the cost of handling for about 2% of safe units to take care of the transfusion needs of donors or their first degree relations. We advocate for early government commitment in providing safe blood for the transfusion of all citizen in line with global standard.

While only 3.2% of the units issued went for transfusion of five patients who needed 2-3 safe units, 96.8% of issuances appeared to be a single unit transfused per patient. This calls for hospital clinicians to carefully assess the transfusion needs of each patient before submitting a request for safe blood. This will prevent unnecessary issuances of blood which deplete bank stock. The issuance of blood to individual patients or their relations carries the risk of breaks in the blood cold chain.<sup>13</sup> The blood service and personnel of the transfusing hospital should collaborate and communicate such that blood is not transported from the blood service to the hospital by patients or their care givers. The blood service must urgently develop a haemovigilance policy that would monitor blood up to the recipient after transfusion. Maghsudlu and others (2011) in the report of their study on Iranian blood donor motivation and their influencing factors, have reported that blood donor motivations could be internal or external.<sup>16</sup> Free access to safe blood, observed in this work, if properly regulated and publicised could result in combine intrinsic and extrinsic (interno-external) motivation of blood donor recruitment and long term commitment to donations

Although 66.3 percent of safe blood units were issued for transfusion in the teaching hospitals and smaller proportions to faith base, military and secondary health care (general) hospitals, 18.1% were sent to private hospitals (figure1). The 100% hospital satisfaction in response to blood requests for the transfusion of donor recipients or their associates recorded in this study (figure 2) could be replicated in the general transfusion practice when donor motivation is prioritized and more healthy citizens are enrolled into blood volunteer donation. While the need for transfusion might have been well assessed, and the process monitored for untoward events, the same may not be the case in private settings where medical doctors are hardly found. The near lack of blood bank refrigerators in our private and general hospitals constitutes a major impediment to cold chain maintenance and overall quality of transfusion in many centres. We recommend that transfusion of blood should only be carried out in well-equipped centres with qualified medical doctors. All transfusing hospitals are encouraged to have their personnel trained in haemovigilance management.<sup>13</sup>

### **Conclusion**

We conclude that issuance of safe blood units in recognition of previous donations to voluntary blood donors can tangibly impact on the donor and non-donor relatives who are not qualified to donate and possibly encourage donor return. It is further concluded that regular voluntary blood donation is an ongoing social service with social insurance that attracts social motivation.

### **Recommendation**

Further studies are recommended to replicate this study in other centres to supplement our findings. The blood service needs to develop a policy to guide this method of non-material donor motivation with likely high prospect of not only increasing the blood donor pool but commitment to donations.

### **Limitations**

There were no data on issuance of safe blood units to donors as motivation for donation to compare our findings with. This study did not determine whether the targeted recipients actually had the transfusion.

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**Figure 1:** Categories of health institutions and proportion of blood requested for the transfusion of blood donors or their associates

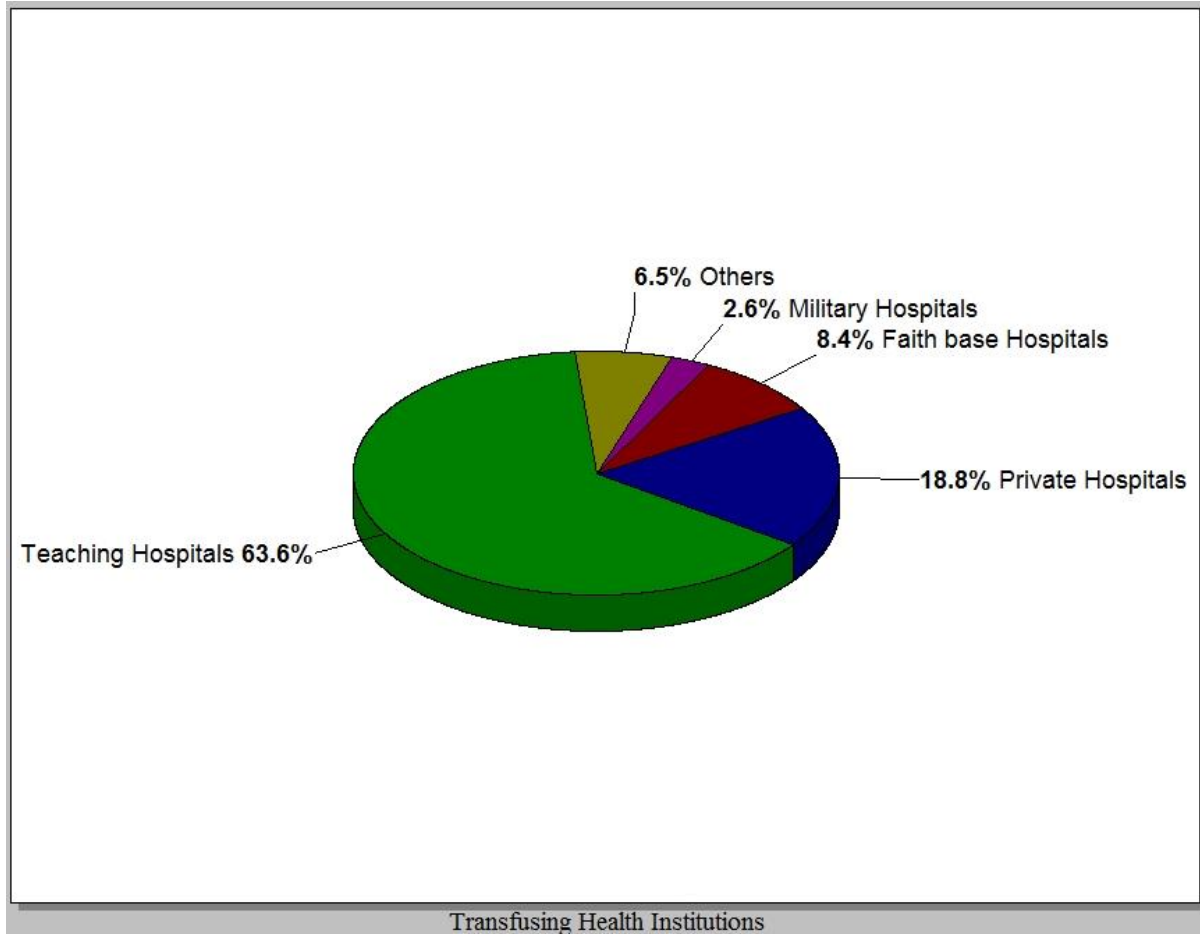
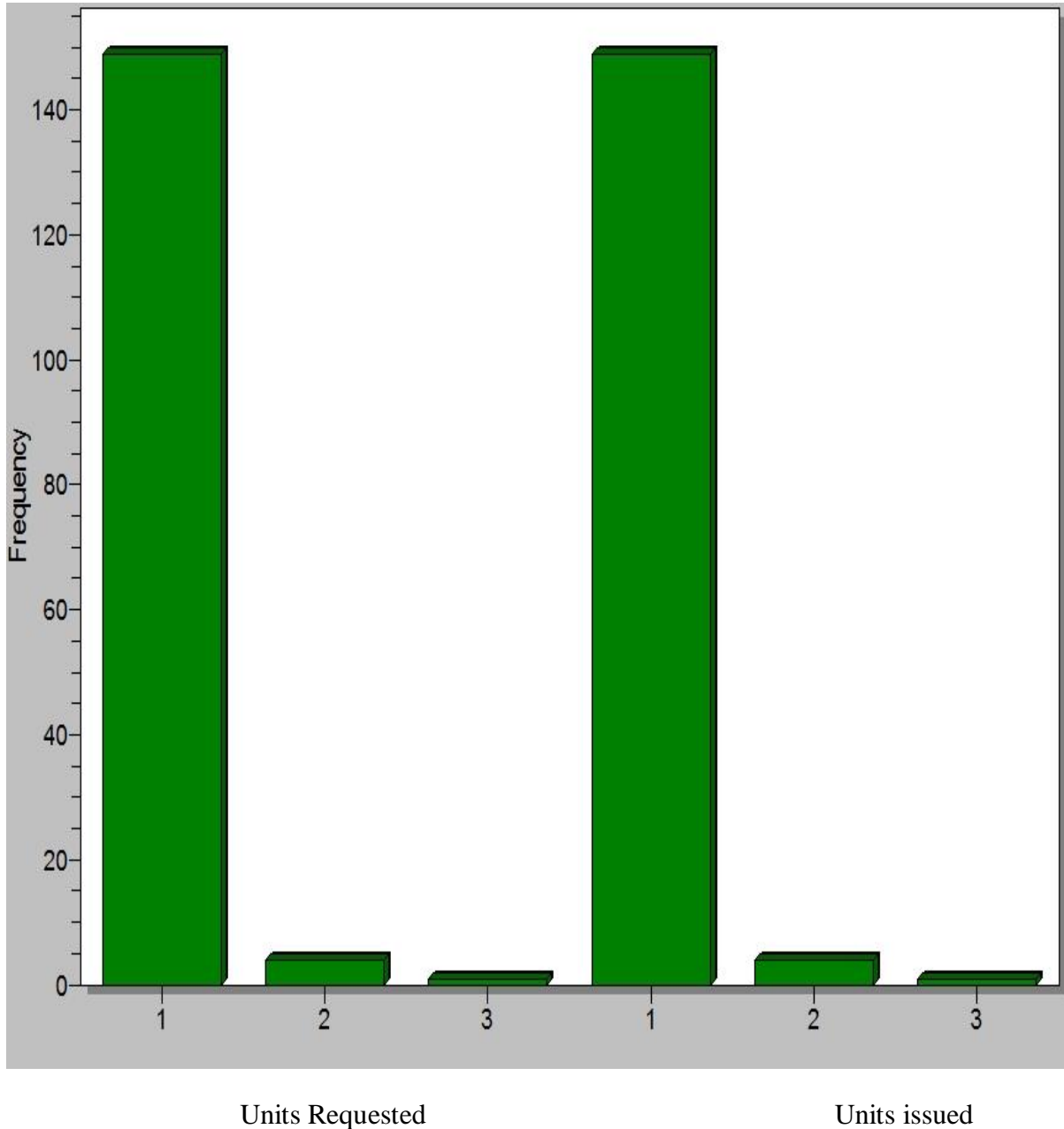




Figure 2: Blood Units Requested and Issued as motivation to blood donors



Key: 1=one unit requested and issued, 2=two units requested and issued, 3= three units requested and issued