

A Donor Information Needs Driven Approach to Address Kenya's Declining Blood Donations

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Abstract: *The gap between demand and supply of blood is continuously widening as the population increases. This is of great concern in Kenya where blood donation figures are below the World Health Organization's recommendations. A random cross-sectional survey involving 224 respondents using questionnaires, focus group discussions, immersion sessions, empathy and observations was undertaken in and around Nairobi. The objective of this study was to elicit donor information needs to enable the improvement of donor recruitment and retention strategies through the use of ICT based tools. 63.8% of respondents had never donated blood and only 4.9% were regular donors. Only 19 of the 81 donors had been contacted by KNBTS. 71.4 % of all respondents indicated that receiving SMS and emails with information on blood donation dates and venues would be quite useful, while 79% would welcome educative information on blood donation. 70.1% of respondents suggested that increased awareness on donation dates and venues and increased donor education would improve donor participation. There is very little use of ICTs to help improve donor participation. This study recommends the use of ICT technologies such as SMS, Email and Social Media for donor education in order to increase donor awareness.*

Keywords: Blood Donor, Donor Awareness, Donor Education, Donor Recruitment and Retention, Information and Communication Technology.

1. Introduction

The gap between demand and supply of blood is continuously widening as the population increases. Whole Blood has a short shelf life of 35 days and its demand is always high, therefore its supply should always be constant and this is not the case in most parts of the world.

This is a particularly worrying trend in Kenya where the current blood collection figures are below the World Health Organization's (WHO) recommendations. The WHO recommends collecting 10 units per 1,000 citizens, which implies that Kenya needs to collect and screen approximately 400,000 units per year (Dutta, Oduor and Mwai, 2012).

In 2013, only 170, 000 (42.5%) of the required units were collected by the Kenya National Blood Transfusion Service (KNBTS), (KNBTS, 2014). Approximately 20,000 additional units per year are collected by public hospitals from family replacement donors. These amounts total up to less than half the recommended amounts. The KNBTS not only supplies blood to public health facilities but also to private hospitals at a subsidized cost (Hansard, 2008). The main challenge faced by the KNBTS is the inability to provide adequate safe blood in a timely manner to all patients who need it due to constant blood shortages.

The adequacy of blood depends on blood donation rates and numbers of blood donors. Only a very small populace is donating

blood to the KNBTS and therefore there is need for the promotion of a blood donation culture in Kenya. To improve the situation at hand, there have been efforts to use text messaging by the KNBTS to enhance involvement, but the amounts collected are still inadequate

1.1 Blood Donor Behaviour/Planned Behaviour of Donation

While most focus may be on the concept of blood donation, it is important to clearly understand why some people are likely not to donate while others are more likely to repeatedly give blood than others (Lee et. al., 1999). In an attempt to understand this, researchers have identified a range of factors that influence people's willingness to donate blood. These factors are described and classified mainly as physiological, psychological, socio-demographic and organizational factors (Shah et. al., 2011). Examples of these factors include the lack of awareness on donation dates and venues and education on the importance and benefits of blood donation.

A study on the application of the theory of planned behaviour to blood donation by Giles in 2004 focused on the factors differentiating donors from non-donors and established that self-efficacy is a significant predictor of blood-donating intentions. Recommendations of the study are that in order to increase the number of non-donor recruits, blood donation agencies should employ techniques designed to increase self-efficacy levels perhaps via direct training and modeling. An individual with knowledge on the importance of blood donation and awareness on donation venues has higher self-efficacy levels which increase their likelihood of giving blood (Giles et. al., 2004).

Donors attach some importance to the act of successfully giving blood and blood donation could itself influence self-efficacy levels. Blood donation agencies should therefore be mindful of the quality of service they provide and one way of doing this is by increasing communication with donors before and after donation. (Giles et. al., 2004). Increasing non-donors' and donors' perceived abilities to cope with the process of donation prior to blood donation through training

and communication, may motivate individuals to respond to future recruitment drives. (Ferguson, 1996).

1.2 Blood Donor Recruitment and Retention Strategies

The inability of most National Blood Transfusion Services (NBTS) to effectively recruit and retain blood donors is an issue of major concern. NBTS's around the world have therefore developed programmes to promote voluntary blood donation some of which have been successful. Blood donation promotional strategies include:

- the use of various marketing tactics aimed at the public (posters, brochures, a limited number of television spots, social media, email and SMS),
- educational programmes in schools and institutions,
- programmes that involve hospital personnel and NBTS officials in educating the public about blood donations (this is done through seminars or through the use of ICTs),
- incentives for volunteer blood donors such as leave from work and the issuance of blood donor identification cards which ensures that the donor and his/her family will receive free blood when needed.

The blood donor management manual for donor retention by Gilles Follea shows several operational marketing tools for blood donor retention. This is part of the donor marketing cycle developed by Gilles. These tools include:

- Non personalized tools
 - Donor periodicals, newsletters, mailing, leaflets, banners
 - Mobile phone applications, social networking (e.g. Facebook, Twitter)
- Personalized tools
 - Personal letters, emails, SMS, mobile phone applications
 - Telemarketing

An up-to-date donor database is crucial to the success of these marketing tools. Another recruitment and retention strategy is the use of donor clubs. The KNBTS currently relies on the Kenyan Red cross, Hope worldwide Kenya, Pledge 25 and several other to mobilize and recruit donors and several community-based donor clubs.

Although blood donation is an altruistic behaviour and should be done voluntarily, people have myths, believes, fears and misconceptions that prevent them from giving blood. Donor recruitment and retention strategies provide tools that enable blood donation agencies to effectively dispel these myths and educate both donors and non-donors on blood donation.

1.3 Use of ICT for Blood Donor Management (Donor Recruitment and Retention)

In many if not all developed countries, the National Blood Transfusion Service (NBTS) has an integrated blood and donor management system. Donor registration can be done on the organization's website or when the donor visits the blood collection centre after which the donor is contacted via SMS or email. There are also many other online blood banks,

donor databases and blood donor mobile applications set up by organizations independent of the NBTS.

Examples of blood and donor management systems include the Zambian Integrated Blood Donor Database Management System whose aim is blood donor tracking through the efficient and effective recording and management of blood donor data for blood donor retention purposes (IICD, 2009). Others are the Malawi Blood Donor Management System and Australia National Blood Management System. In Kenya we have Text for life, the Wanadamu initiative and the life buddy application.

The recent proliferation of internet and mobile technology use in developing countries has generated a parallel increase in the number of sectors that deploy SMS based applications (Gombachika and Monawe, 2011). For this reason there has been an increase in the use of SMS as a donor retention tool.

The 2014 International Telecommunication Union (ITU) ICT report estimates that there are almost 7 billion mobile-cellular subscriptions worldwide with developing countries being home to more than three quarters of all subscriptions. The Communications Commission of Kenya (CCK) stipulates that Kenya's mobile-cellular subscriptions stand at over 30 million. It also estimated that as of 2013, 21 million Kenyans were internet users with over 2 million Facebook users (CCK, 2014).

The use of a mix of SMS, social media, email, and even telemarketing as donor recruitment and retention methods enables organizations increase their donor base and eases the processes of recruitment and mobilization of donors especially when there are urgent blood appeals.

2. Methods and Procedures

A study on the perception of blood donation was carried out in secondary schools, colleges, universities and on the streets of Nairobi and its environs to identify the attitudinal factors and level of knowledge about blood donation related to donor behaviour and to elicit donor information needs that can be used to improve donor participation.

The sample was randomly selected and consisted of 224 respondents both donors and non-donors, that is 118 men and 106 women aged 16-65, the legally defined age for blood donation. The sample mainly comprised of students between the ages of 16 and 30, majority of who were pursuing their undergraduate degree.

A survey was conducted using questionnaires, focus group discussions, immersion sessions, empathy and observations with the aim of drawing out donor information needs. Descriptive statistical analysis was carried out using SPSS and was used to summarize the results.

3. Analysis and Findings

A total of 224 respondents took part in the survey.

Table 1: Demographic characteristics of respondents

Variable	Attribute	Total Respondents	%
Age	20 and below	72	32.1
	21-30	116	51.8
	31-40	32	14.3
	41-50	3	1.3
	51 and above	1	0.5
Gender	Male	118	52.7
	Female	106	47.3
Level of Education	Secondary	43	19.2
	College	32	14.3
	Bachelor's	107	47.8
	Master's and above	41	18.3
Marital Status	Single	187	83.5
	Married	33	14.7
	Divorced/Separated	2	0.9

63.8% of all respondents had never donated blood and only a paltry 4.9% of the donors donated regularly. In this case, the regular donors are those that donate annually and between 1 to 3 times a year.

Table 2: Donor and Non-Donor Representation

	Donors	Non-Donors
Male	49	69
Female	32	74
Total	81	143
%	36.2	63.8

Table 3: How often do the donors donate blood

How often do you donate blood?	No. of Donors	%
I donated once only	45	55.6
Annually	5	6.2
1-3 times a year	6	7.4
I donate once in a while	24	29.6

The study aimed at finding out what knowledge both donors and non donors have on donation. 3.1% of the respondents knew how often one should donate while 71% of the remaining respondents were either not sure or did not know. Only 7.6% were fully aware of who is eligible for donation.

Table 4: Knowledge on who is eligible for donation

Who should donate?	No. of Respondents	%
16-65 years, 50Kgs<, healthy, willing	17	7.6
Not sure	74	33
Do not know	92	41.3

Table 5: Knowledge on how often an individual can donate

How often should one donate blood?	No. of Respondents	%
Three months for male, four months for female	7	3.1
Not sure	67	29.5
Do not know	93	41.5

48.1% and 32.1% of donors did not receive their screening results and their donor cards respectively and were also unaware of where and when to collect them. Very few donors have been contacted by either KNBTS or the health

facility they donated at. Of the 81 donors only 19 had been contacted (11 via phone call, 6 via text message, 2 did not specify how they were contacted) to either collect their screening results, collect their donor cards or as a donation appeal. No donor was contacted through email. Of the 19 who were contacted, 9 were replacement donors and were therefore not contacted by KNBTS, but by the health facility where they donated.

Table 6: Donors contacted after donation

Were you contacted by the blood center / donation official?	No. of Donors	% of donors
Yes	19	23.5
No	55	67.9

Table 7: Method used to contact donor

Method used to contact donor	No. of contacted donors	% of contacted donors	% of donors
Phone call	11	57.9	13.6
Text message	6	32.6	7.4
Email	0	0	0

Another objective of this study was to find out what feedback people would like to receive after donation. 31.7% and 32.7% of donors would like to receive feedback on the blood group and HIV status respectively.

Table 8: Feedback donors would like to receive

Feedback donors would like to receive	No. of Donors	% of donors
Importance of blood donation	1	1
Future Donation Dates and Venues	7	6.9
Appeals for my blood type	5	5
How to receive donor card	3	3
Blood Group Results	32	31.7
HIV Status and other diseases	33	32.7
Was my blood viable and did it blood save a life	9	8.9
How was my blood used or is it at the blood bank	6	5.9
Thank you note for donating	3	3
Can I receive blood when I need it at little or no cost?	1	1
I would not like to receive feedback	1	1

When asked if they would like to be contacted by the blood centre, 71.4 % of all respondents indicated that they would like to be contacted via SMS and emails with useful information on blood donation dates and venues While 79% would welcome educative information on several aspects relating to blood donation via text message or email.

Table 9: Receive information from the blood centre via text or email

Would you like to receive information from the blood centre via text or email?	No. of Respondents	% of Respondents
receive Educative Information via text or email	177	79
receive Venue and Dates Information via text or email	160	71.4

157 (70.1%) of the 224 respondents suggested that increased awareness on donation date and venues and increased donor education would improve donor retention and therefore increase donor participation.

Table 10: Suggestions by donors on how to improve donor participation and encourage regular donation

<i>Suggestions by donors on how to improve donor participation and encourage regular donation</i>	<i>No. of Respondents</i>	<i>% of Respondents</i>
Increase Awareness and donor education	157	70.1
Increase the frequency of drives and the number of accessible donation sites/better facilities/better storage to avoid wastage	26	11.6
Use of Social media/text/email/mass media	22	9.8
Reward Donors and incentives for their efforts (better food, tickets, points, money)	18	8
Timely issuance of donor cards and others (information on how blood was used)	41	18.3

As part of the study, the current SMS based system used by the KNBTS was tested by a donor. Despite having registered for the KNBTS text for life service for over two months, the donor was not informed of ongoing donation drives within their county of residence. Once the donor had donated, KNBTS sent a text message 40 days later thanking the donor and informing them of their donor number. Another text message was sent two and a half months later informing the donor that the blood has been used to save a life. The donor's donation date on the text message was also wrong. This indicates significant delays in relaying of information by KNBTS which shows cause for further evaluation of their current system. The information donors receive determines their self-efficacy levels which determines their likelihood of donating blood (Giles et al., 2004).

4. Discussion

Based on this study, most people do not donate blood. Of those that donate very few donate on a regular basis. Many of them indicate that they are unaware of donation dates and venues. Very little donor education is given before, during and after donation. Donor education is important because it helps diffuse any misconceived myths and misunderstandings that are prevalent and lead to low donor turn outs during blood donor recruitment (Emmanuel, 2006).

With the increased use of mobile phones and the internet, it makes sense to use these technologies as a means of providing useful information to people increasing their self-efficacy in blood donation. 79% of the respondents of this study welcome the use of these technologies which are already available and in use in their day to day lives that is SMS, email and Social Media. During focus groups discussions participants said they had not heard of or seen any donation appeals on social media and suggested that social media should be used more frequently as a tool to donors and retain donors. Social media can be used to inform potential donors on requirements for donation and the dates and venues of donation drives.

We noted weak direct donor and KNBTS communication. Delays in relaying information to donors were noted with the text for life SMS system. Very few people are aware of the

existence of the system despite it being in operation for over one year.

Table 11: The use of ICT for blood donation

<i>Issue/Aspect</i>	<i>Gap</i>	<i>Design Implementation</i>
Little or no communication during donation process	Donor Education	Opportunity to use ICT (SMS/Email)
Little or no knowledge on donor eligibility and how often they should donate	Donor Education	Opportunity to use ICT (SMS/Email/Social Media)
Little or no knowledge on donation dates and venues	Donor Awareness	Opportunity to use ICT (SMS/Email /Social Media)
Little or no knowledge of when and where to collect donor cards and results	Donor Awareness	Opportunity to use ICT (SMS/Email/Social Media)
Fears, misconceptions, believes on blood donation	Donor Education	Opportunity to use ICT (SMS/Email /Social Media)
No knowledge on the existence donor recruitment technologies (text4life)	Donor Awareness	Opportunity to use ICT (Social Media/Media (TV/Radio)) /posters/brochures

5. Conclusion

It is imperative that the communication between the donor and blood donation agency be enhanced. Information given to donors increases their confidence in the donation process especially in their perceived ability to cope with giving blood and therefore increases their likelihood of donating repeatedly. NBTS should take into account the donors' needs in order to ensure they donate as frequently as possible.

Kenyans are quickly adapting the use of mobile phone and internet technologies in their day to day communication. For this reason there has been an increased use of mobile-based applications for service delivery by different sectors which are complemented by social media and email.

The use of technology to complement already existing donor recruitment and retention strategies is a step in the right direction, but the use of only one technological tool would not be enough to rapidly increase donor numbers to required levels. It is therefore important that the current the KNBTS applications be evaluated.

We propose an ICT based blood donor information needs driven system. That is the use of a social media, text messaging and email based system to enhance donor recruitment, retention and provide blood donor education (table 9 and table 10).

6. Acknowledgment

This study was conducted within and with the help of several organizations and institutions. These include the KNBTS, the University of Nairobi, KCA University, Kenyatta University, the Institute of Advanced Technology, the Alliance High School and Alliance Girls' High School. The survey was carried out with the assistance and support of Michael Kagiri, Ken Abwao, Paul Kamau, Simon Mwendia, Ileri

Kamuti, Oliver Munyao, Alice Ndwiga, Frida Kathuku and the teaching staff of both Alliance and Alliance Girls' High Schools.

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